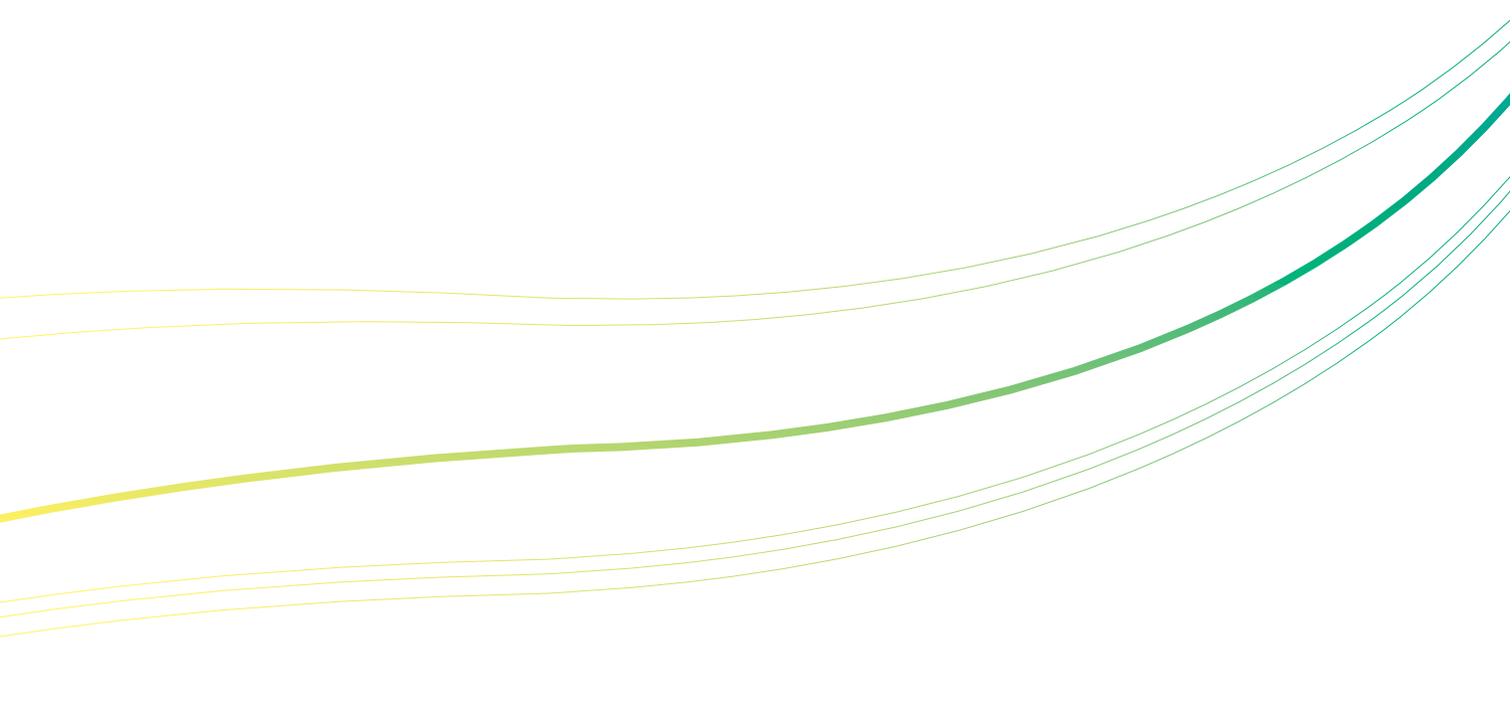


# KISCO 40-YEAR HISTORY

A NEW WORLD BUILT ON  
NEW COLORS



1971-2011





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Congratulatory Message from the Chairman

## A Future-oriented company with a vision of a long-lasting centennial corporation

A future-oriented company that has been evolving with the dream of becoming a long-living centennial corporation, a company that has taken a single path towards the proud domestic production of dyestuffs, KISCO is now celebrating the 40th anniversary of founding.

The history of KISCO is considered the history of the Korean dye industry itself.

KISCO has been moving forward at the frontline of the dye industry since the beginning, and it has not been always easy and smooth.

We had to move forward in the unlimited competition where you can drop out of the

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race anytime and be forgotten, with persistence and commitment, sometimes building a new road when there is none, and now we are standing tall in the dye industry as a leader. The dye industry, which is often called the flower in the precision chemical, is now faced with difficult business environment that we had never seen before. The electronic materials business, which we selected as our new growth engine, will also be faced with numerous hurdles ahead on its journey.

That is the reason all employees of KISCO are called upon to work together with wisdoms, and serious contemplation on the future.

I think it is significant that the 40 year history of KISCO is published in this critical moment of our history. We have been moving forward and looking ahead for the past 40 years with devoted commitment, and opened a new chapter in the history of dye industry. Now, we are called for to build a new path in the precision chemical industry with unyielding spirit of challenge and commitment for the future.

In human age, the company is celebrating the age that is free from vacillation. The age of forty is the time when we become free from false attractions, and free from wrong judgments. As an organization, we should be able to look straight into the future, with insightful and accurate judgment about the reality. In doing so, we can do the best we can to realize the maximum customer satisfaction, and continuously build the partnership relationships with our customers. Before I close the message, I want to express my wholehearted appreciation to all our stockholders and customers whose support and engorgement made KISCO that it is today. I also want to extend my appreciation to all executive and management staff, who have been with KISCO through all those years.

It is my hope that KISCO will grow into the future, with an eye to another 100 years to come, in transparent corporate culture, and with the leadership of harmony and co-existence.

Thank you.

October 2011  
Kim Dong Gil  
Chairman of KISCO





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Message from the Vice Chairman

## Growing to Become the Eco-friendly Colorant Leader & Creating of New Values Through Innovation

KISCO has been making turning point in the history of Korean dye industry, with the highest product quality and creation of new markets in the world. Now, the company is re-born as the leader in the precision chemical industry, opening a new future with electronic chemical business.

At a time when the company is committed for a new beginning as a future-oriented company with innovation, the 40 year history of KISCO is published so that we can find a new direction for the future in our history, so that we can more powerfully move

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forward toward the future.

The 40 Year History of KISCO is the record of the passion and challenge that we undertook to realize our vision.

It is also the record of the many trials and troubles that we had to face to create and offer colors ahead of our time, before any others in the dye industry.

However, the other side of our brilliant achievements is some of the unfulfilled dreams, and our hope for the future.

Just as we have been leading the dye industry in Korea, we are now poised to take a flight into the global market with colors that are uniquely of KISCO's own, with the two wings of colorant and electronic materials.

As we are celebrating the 40th anniversary of the company, the role of each and every KISCO employees is more important than ever. As the main players in the newly unfolding history, we should be able to write the history of challenge, with a renewed sense of commitment.

I want to thank all our customers and shareholders whose support and encouragement made KISCO what it is today. I also want to extend my thanks to all our executive and management staff, who had been together all along through the time of changes and innovations.

KISCO is committed to growing into a company that create the future with changes and innovation, a company that can enrich the lives of our customers with the highest quality of products. As the best business partner, KISCO will also be there for all our partner and affiliate companies, until the day KISCO stands tall in the world as a precision chemical industry leading global corporation.

You can rest assured that KISCO will always do the best to grow into an eco-friendly colorant leader, by creating new values through unstoping efforts.

Thank you.

October 2011

Kim Heung Joon

Vice-chairman and CEO of KISCO



# KISCO 40-YEAR HISTORY

A NEW WORLD BUILT ON  
NEW COLORS



1971-2011

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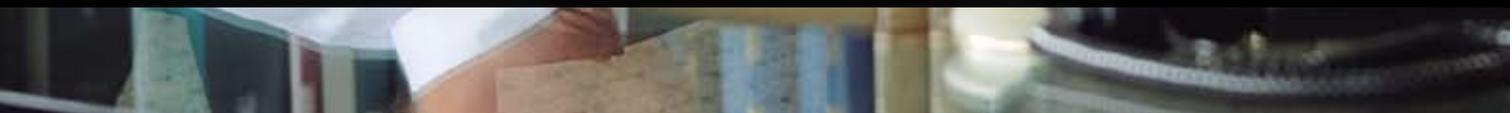
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Chairman Kim Dong Gil's Management Philosophy

# Changing the Landscape in Dye Industry with Technology Innovation





It is not an overstatement to say that the life of the KISCO founder, Kim Dong Gil, is the history of KISCO itself. With a devoted passion for the development of dyestuffs, he achieved the corporate goals of KISCO, while at the same time opening a new horizon in the dye industry, and leaving a big mark in its history. The legendary success of KISCO is not about an individual or a company; it has built the foundation, upon which the Korean dye industry could grow and be recognized in the global market.

In addition, KISCO could set a turning point in the dye industry, by joining in the group of advanced dye manufacturers of the world, and triumph over major companies from Europe.

These remarkable achievements are attributed largely to the belief and management philosophy of the chairman, Kim Dong Gil. Believing in the Right Way Management, and standing only on the right side in every way to become the best, the chairman Kim Dong Gil has been laying the groundwork for the company to grow into the first-class corporation that co-exists with the customers around the world.



## 01

### Cherishing Innovation & The Spirit of Challenge

“When dye companies in Korea were trying to emulate the developments of advanced countries, I always believed in developing new products on our own, and become the leader in the market.”

What the chairman Kim Dong Gil had in mind when founding the company was the creation of new technology.

When the dye was considered to be one of the latest technologies in 1970s, he applied himself to the dye business, and the development of new technologies, instead of emulating technologies or others, while taking up the challenge for new possibilities until he successfully developed the world's first full black dye product.

A man who always think of something new, and creating a result out of the new ideas, the chairman Kim Dong Gil had always wrote down his new ideas, ran to the field, and tried to turn the idea into reality. The new technologies in the dye industry that created a sensation in the global market were the fruits that bore out his such efforts and passion.

In addition, he decided to enter the electronic materials market to find a new growth engine for the company when he was over 70, instead of settling comfortably on the achievements that had left big marks in the history of dye. He pushed the limits of a dye specializing company, and opened a new future.

With no fear about the road that has not been trodden, and always trying to be awakened with clear conscience so that he can face with something new, the chairman's devotion has been the summarized into the corporate vision of Harmony, Innovation, and Commitment, and served as a guide post for all KISCO employees.

## 02

### Relentless Researching Efforts

The founder's spirit of relentless researching and development, which has been the driving force behind the growth KISCO, was originated from his passion for chemical experiments as a junior high school student.

“The manpower is the asset of a company, and the company can grow only when the company invest in human resources.

When you think about how a company comes to a turning point, you can realize how important the human resources, the manpower, really are. The highest quality of products in the world are made with the fingers of employees.”

The chairman Kim Dong Gil enjoys heated arguments and discussion with research fellows over the latest technologies, no matter how complicated they are. The research fellows have been proud of this side of the chairman, and would greatly be inspired to be more passionate about researching themselves.

His devoted commitment to R&D resulted in the Korea's first dye specializing research institute, and the chairman had been critical in the development of numerous landmark products that contributed to the growth of the company. KISCO has been establishing itself as a technology-centered corporation while launching one after another new products each year, and is on its quest to the future-oriented global corporation supported by the outstanding quality of products on a par with major counterparts from the world.

## 03

### Human and Manpower-cherishing Management

The chairman Kim Dong Gil is a brilliant chemist himself, but more than anything, he knew the importance of talented human resources for the bigger business challenges.

Since its earliest days in history, KISCO has been inviting the top technicians from the industry both in and out of the country, and took the best out of their expertise in special projects. In addition, he has been generously investing in training employees to grow them into the highest-quality specialists with the knowledge in the latest, advanced technologies. There are many famous episodes that explain his passion for chemistry, including the times when, during the early days of history, he would make employees sit with him, stress the importance of continuous studying, and explaining chemical structures to them in person.



“It is not an exaggeration that my biggest pleasure was going to the research institute every day. I was so enchanted and thrilled to observe experiments and notice something new that I would forget to leave the lab.

The experiments with dyes, that can return numerous kinds of results depending on the conditions and environments, are truly attractive field of studies.”

Believing that the personal growth is the corporate growth itself, the chairman knew how to use the best out of each individual employee's capability for the maximized efficiency, and once hired, he put his absolute trust on the employees. As the result, KISCO is known in the industry as a good company with the longest employment years.

## 04 Trust Priority Business Principle

If KISCO could build its reputation as an export leading company since the earliest days of founding, it was because of the trust priority in building business relationships with customers.

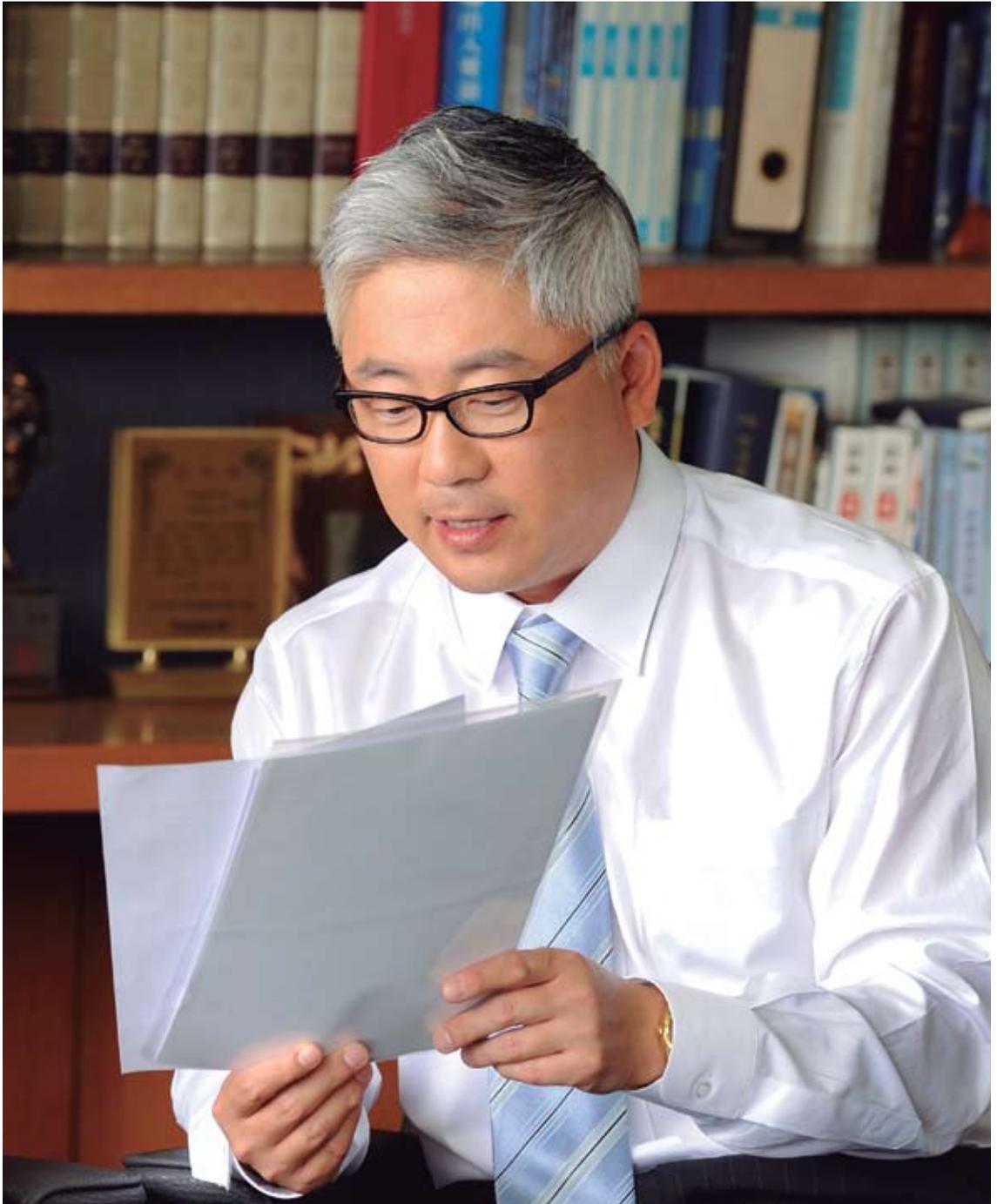
“I always made friends when I go to other countries. I am not exaggerating to say that I made anybody who has anything to do with dyes my friend.

It was because I believed that, if you meet people for the business purpose only, you only have to contact them on business matters. But when you make friends with them, they think they are coming to Korea to meet a friend, and the national background does not matter.”

In the early days of the company, when the domestic market was dominated by foreign exports, the chairman Kim Dong Gil personally started to explore foreign markets. During the process, the customers were more than just business partners; they were more like friends to the chairman, who could impress others by cherishing the friendship and trust more than anything as a business leader. His way of building trust priority business relationship has evolved into the tradition in the company, where any visitors and customers are received with the utmost respects and heart-felt welcome. This tradition has been attributed to the trusting relationship with customers, and the sharp increase in the business transactions.

## 05 Transparent Management for the Co-existence of the Labor and the Management

The company always stressed that the labor and the management are not two different groups that fight over bigger share of interest, but a single community that exist together. As the result, the company could build a corporate culture that is similar to a family, and with the co-existing labor and management relationship, the company became an exemplar case of a company that is free from labor union and labor disputes during the



“There is no question that the corporate profit has to be shared with employees. I always ensured to build trusting relationship with employees by practicing transparent business management, because I believed the satisfaction of employees is the most important goal for the company.

When I become transparent, the employees will follow the model after me, and they will become transparent, as well.

The transparent business management can build mutual trust between the labor and the management, and I always did the best I can to practice open and transparent business management, because the more the company grow, the bigger profit to share with all.”

40 years of its history.

The chairman Kim Dong Gil also believed that the entire employees were partners in business management, and ensured to share all management issues with them. The management status was announced to all employees so that they can have the sense of belonging to the same organization, and feel the sense of responsibility. Supported by this sense of belonging, the company adopted the performance-based payment system, through which the company shared the significant parts of the company's profit with the employees.

The 40 years of continuous growing of the company through risks and challenges was all attributed to the co-existing relationship between the labor and the management, and the transparent business practice.

## 06 Only for the Best of the Best at the Center of the World

The chairman Kim Dong Gil always believed that the company has to make products that can lead the market with the highest quality to become the world's best brand.

“Since long time ago, KISCO has been at the center of the global market, at least when it comes to the reactive dyes. It is the basic principle that you have to have the absolutely outstanding quality if you want the reputation in the overseas market.”

KISCO, that started to lead the reactive dye market with the development of the hit product Synozol Black HF-GR, has been launching one after another new products through the years as the leader in the industry. The company extended its business territory beyond the reactive dyes to the disperse dyes, and again to the electronic material business. KISCO's passion to create all colors, beginning from the colors of nature to the colors of the future has never stopped.



Ultimately, it was the commitment to make the highest quality products recognized in the world market that made KISCO to stand tall at the center of the global market after 40 years of its history.

## 07 Innovation-Creating Latest Technology

During the 1970s, when the entire supply of reactive dyes in Korea had to be imported from overseas, KISCO started to develop reactive dyes along with some rival companies. However, the choices were different between KISCO and other companies; unlike other companies, KISCO went for the supra type of reactive dyes that had not even been introduced to Korea, and eventually succeeded in developing the supra type of reactive

“A turning point of a company is to make something that is the best in the world. Just as we have to make the world’s best products to win in the global race, we decided to challenge in the electronic materials business while searching for new growth engine. There had been hundreds of turning points in the past, but they are nothing compared to what lies ahead of us.

I think the five years from now will be the most critical time for the company.

The technology that will take us to the future we envision is the latest organic chemical synthesis technology. I believe that no companies in the precision chemical industry in Korea have the kind of synthetic technology and experience in the dye researches that we do have.”

dyes with its own resources and opened a new chapter in the history of Korean dyes.

KISCO’s challenge for innovation-creating technologies was manifested in the company’s entry into the electronic material business. When nobody could imagine a dye company tapping into the electronic materials industry, KISCO took the challenge with an eye to the future of the colors.

The spirit of challenge that explores new areas -- believing that the technology innovation is what builds the corporate competitiveness and promote the national pride -- has been always underlying the success of KISCO.

Now, KISCO has built the bridgehead to enter the electronic chemical business, supported by the knowhow and the organic chemical synthesis technology that has been accumulated over the 40 years in the dye development, and is preparing the second leap to become a technology-based company with innovative technology.



KISCO  
40-YEAR  
HISTORY  
1971-2011



Chapter I. Manifestation of the Founding Mission to Realize the Color of Nature 1971-1980

Chapter II. Opening a New Era With Technological Development 1981-1989

Chapter III. Eyes to the Future and a First-class Global Corporation 1990-1999

Chapter IV. New Challenge for the New Era 2000-2007

Chapter V. Dream of Becoming a Global Leader with the Colorant Innovation 2008-2011

PROLOGUE

# The Humanity's Eternal Quest for Colors

The modern chemistry began to rapidly develop beginning from the late 19th century, and so did the mankind's knowledge on molecular structure. With the advanced knowledge in chemistry, people found out that both the snails and the indigo plants had the same molecule called Indigo. Later, the color indigo, which was the natural dye that has been used for long, was mass produced in factories with such cheap ingredients as coal tar, and the synthetic dyes could bring a gift to all mankind: equality in colors.

## The Mankind's Quest for Colors

The mankind's eternal quest for beauty first came about in the efforts to find colors in nature. Everything in nature had brilliant colors in them: animals, plants, and even the dirt and pebbles on the streets and riverside. The people found crimson color from the organs of shell fish from the ocean, red from parasites on cactus, or even ultra-marine from the Lapis Lazuli, a rare kind of stone. Before the dawn of modern technology, the mankind could find colors only in nature, and any colors that had more values than ordinary colors from nature had to be achieved through significant efforts. Consequently, only those with power and wealth could have access to colors with various colors. Among all colors available for the mankind, the color purple, green, and blue were some of the most admired colors due to their rarity, and often were used to symbolize the power.

Specific colors were so rare and luxury that during the Roman Empire days, those who made royal purple color outside the government-authorized dye factories were put to death. Considering the circumstances of the time, it was understandable: it required as many as 12,000 snails to make just 1.2g of Tyrian purple color dye, and it took 70,000 cochineal insects to boil them in water to make just about 450g of cochineal color. Fortunately, the people discovered that they could get dyes similar to the color royal purple from the Indigo plant, which was a kind of herb that belongs to the Indigofera and found in India, and the snails in the Mediterranean area did not have to be sacrificed for the color.

During this process, English could build enormous wealth by purchasing materials for colors through the cheap labors in the colonized countries, and selling them with big margin of price. But the time passed, and it all changed sometime in the 1800s. It was all because of the emergence of mass production of cheap dyes that could replace the natural colors.

A dye is defined as a colored substance that enters such objects as paper, textile, or leather in the form of solution, and colors the objects with its affinity to the substrate.

Dyes are mostly organic materials, and a strong chemical bonding takes place

between the textile and dye molecules during the dyeing process. To make the textile and dye make strong bond and have the color remain unchanged after repeated washing and exposure to the sunlight requires many technologies. Therefore, the dyeing technology was once belonged to the national confidential in some countries.

The synthetic dyes were discovered unexpectedly, while chemistry was conducting repeated experiments to find treatment of malaria.

## The Birth of Mauve, the Synthetic Dye

A.W. Hofmann, a German organic chemist, had been researching about various synthesis methods using aromatic compounds from coal tar since 1845. When the malaria epidemic broke out throughout the Europe, Pierre Joseph Pelletier had already succeeded in extracting Quinine, a treatment for malaria, from quinine trees in the early 1820s. However, A.W. Hofmann, who was the director of the Royal College of Chemistry in England at the time, was aware how extracting colors from nature was limited, and released a paper that stressed the need to mass produce quinine by compounding aromatic compounds.

However, W.Ferkin, an 18 year old boy who was working for Hofmann as an apprentice, noticed how black sediments were created at the bottom of tubes, while experimenting the reactive behavior of aniline. Soon, he also discovered that this black segment of color could be used to dye silk and wool, and with strong fastness to washing. But it was the time when the separating and filtering technologies were not in the advanced level, and aniline had contained some impure particles in it. But it was this very impure particle that gave birth to the color Mauve for the first time in 1856.

After the color mauve was discovered, and with the 1st industrialization revolution, the people around the world started to notice the development in the organic chemistry. It was ironic that even though England was the origin of the industrialization revolution and was the leader in the most industrial development, Germany was the biggest winner in the dye industry. Germany

was not as wealthy as France or England at the time, but the country had systematic educational system for organic chemistry, and could advance the level of chemistry while taking the leadership in the synthesis of new colors. As the result, the country could grow into a country that has both the wealth and science technology.

While the first industrial revolution resulted in the mass production system in England with the invention of steam engine by James Watt, the second industrial revolution started in Germany with the development of artificial dyes, which rapidly spread throughout the European countries. By 1920, the entire Europe became the center of dye industry of the world.

The modern chemistry began to rapidly develop beginning from the late 19th century, and so did the mankind's knowledge on molecular structure. With the advanced knowledge in chemistry, people found out that both the snails and the indigo plants had the same molecule called Indigo. Later, the color indigo, which was the natural dye that has been used for long, was mass produced in factories with such cheap ingredients as coal tar, and the synthetic dyes could bring a gift to all mankind: equality in colors.

Over the years in history, the mankind could make colors instead of extracting colors from nature, and the chemical technology that used such basic compounds as benzene or aniline taken from the coal tar began to evolve into the compounding the dye intermediates.

The synthesis technology that was developed during the process triggered the development of precision chemistry during the 20th century as well, in such areas as medicines, agricultural chemicals and photo materials.

Now, the history of colors that began in the primitive days when people took the color for cave murals from the red soil, evolved into the canvas and textiles, and now, the mankind is capable of making a myriads of colors that are wanted in such latest technologies as LCD, semi-conductor and OLED.

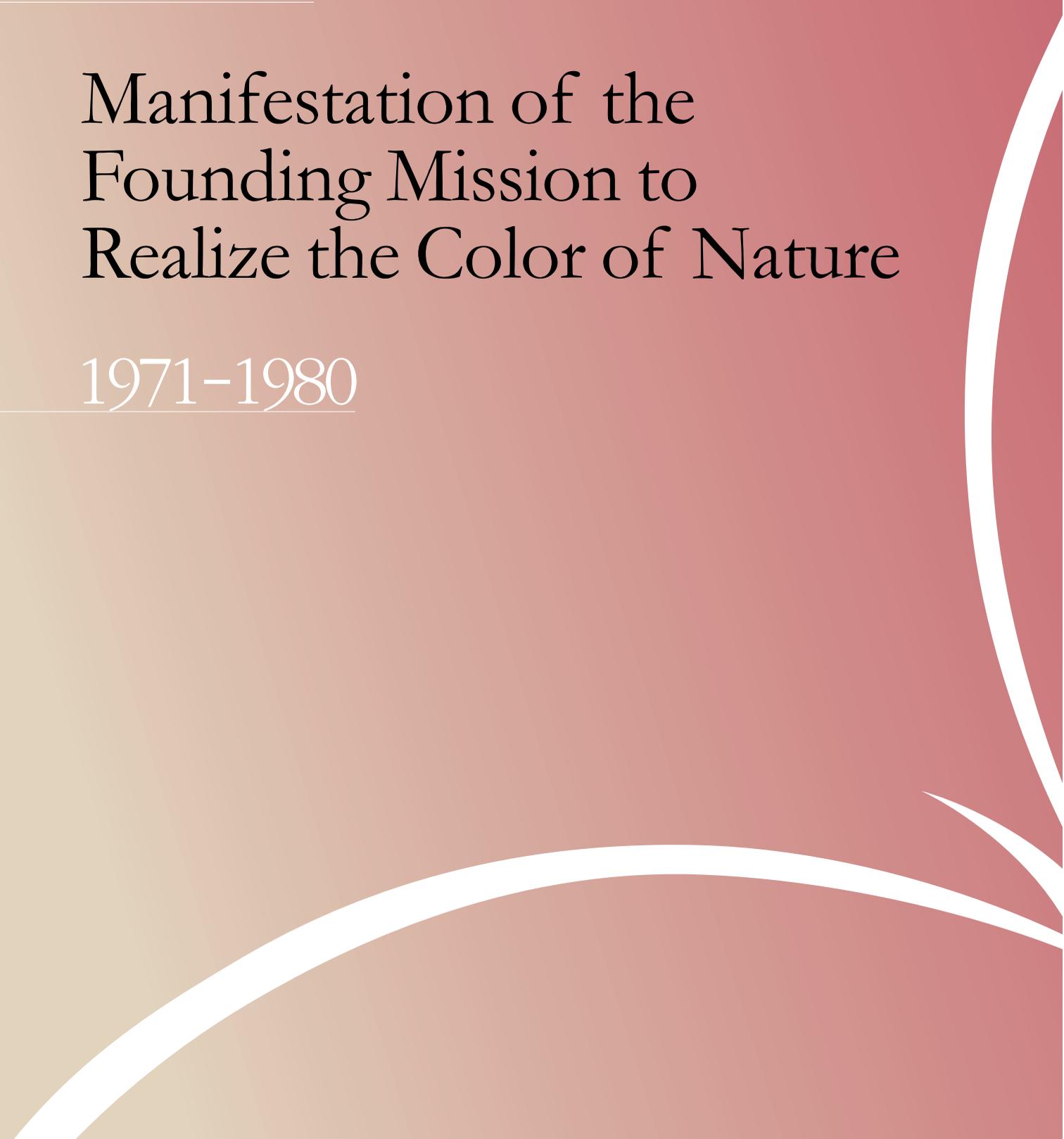
Chapter I

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Manifestation of the  
Founding Mission to  
Realize the Color of Nature

1971-1980

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01

The Evolution of the Domestic Precision  
Chemical and Dye Industries

02

Founding of KISCO (Kyung-In Synthetic  
Corporation) and the Laying of the  
Foundation for Growth

03

Establishment of Korea's First Dye  
Research Institute

# 01 The Evolution of the Domestic Precision Chemical and Dye Industries

The precision chemical industry gets its raw materials from the basic chemical industries such as refined oil, petro-chemistry, coal, and fertilizer industries, and then supplies raw subsidiary materials to upstream industries such as automobile, textile, electronic and chemical industries. They are widely used not just as materials for industrial products, but also as subsidiary materials for improved quality of life for mankind, such as cosmetics and medical products.

## Domestic Precision Chemical Industry

The petro-chemical industry has always been a driving force behind the development of the chemical industry in Korea. But lately, its importance has been highlighted more than ever since the precision chemical industry has become recognized for its great potential to add high value to its products. All eyes in the business community are on the possibility for infinite growth of the precision chemical industry — depending on the technological level of preparedness — because it is characterized by a manufacturing process in which raw materials and the intermediates that have been extracted by compounding basic materials at the petro-chemical industry level are synthesized and re-processed through multiple procedures for higher added value.

Precision chemical products are a bridge between upstream and downstream industries, because the precision chemical industry gets its raw materials from the basic chemical industries such as refined oil, petro-chemistry, coal, and fertilizer industries, and then supplies raw subsidiary materials to upstream industries such as automobile, textile, electronic and chemical industries. In other words, precision chemical products are being recognized as a major industry, because when used as essential materials or subsidiary materials, they can have great impact on the development of new products, or add higher

value or improve the quality of other products. Precision chemical products are also widely used not just as materials for industrial products, but also as subsidiary materials for cosmetics and medical products, as well. They are widely welcomed as boosters for improved quality of life for mankind.

The typical precision chemical products include medical products, agricultural chemicals, and dye & pigment products, produced in small volume, and wide variety. They also tend to be produced in smaller quantity, but are sold at higher prices. Therefore, while they are technology-intensive, they are highly demanded products that are closely related to our everyday life. They are recognized as products that are essential to improving quality of life, and therefore the industry is believed to have a great potential for growth in the future.

The precision chemical industry in Korea has been creating relatively high added value in the whole chemical industry, and had been showing about 7% annual growth rate until later in 2000. But the industry is expected to demonstrate a higher growth rate in the future. According to

industry research groups' predictions about the future of our domestic chemical industry, it is expected to demonstrate up to 12% growth rate in 2012, and the international assessment of the technology level and market share are expected to record 90% and 3%, respectively.

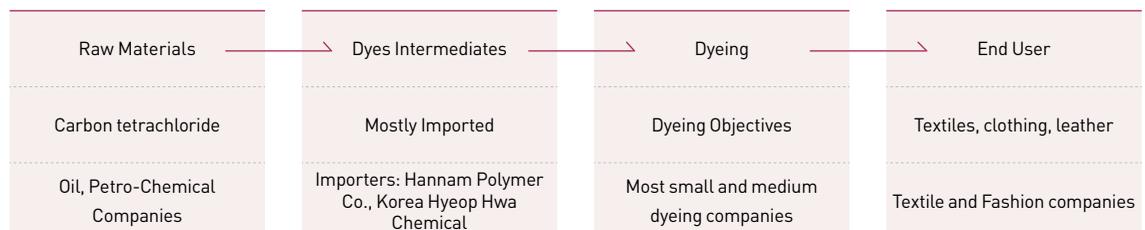
Of all industries that belong to the precision chemical category, the synthetic dye industry, which is considered essential for development of the organic synthesis chemistry sector, has been growing notably since synthetic dyes were commercialized in Europe during the 19th century and have been replacing conventional natural dyes throughout the world. The dye industry is expected to experience another major transformation with the latest development in the functional pigment sector, which has great potential to be used in the market as materials for optical media and medical diagnostic products.

## The Birth of the Dye Industry in Korea

The door was opened to development of the dye industry in Korea with the founding of RIFA

### The Value Chain of the Dye Industry

(source: Korea Dyestuff and Pigment Industry Cooperative)



Corporation in 1950. Having ushered in an era of synthetic dye manufacturing after successfully synthesizing sulphur<sup>1</sup> olive and starting to manufacture emulsion dyes, RIFA became the first Korean dye company to export its products to Thailand in 1962, thereby becoming the frontrunner in the Korean dye industry.

However, around the time when RIFA was founded, the focus of the social and economic development of Korea was on rebuilding of the national economy and reviving its industry. Under those circumstances, industries in Korea had to depend on the aid and introduction of technologies from advanced countries, — the US in particular — rather than developing technologies on its own, all while striving to build small-scale manufacturing facilities. Therefore, the technologies that were introduced to Korea from other countries during this time either in the form of assistance or introduction were mostly the kind of technologies that were being widely used in the advanced countries. However, during the 1950s and 1960s, when Korea was in the initial stages of modernization, even emulating technologies that were introduced to Korea in the form of technological aid and assistance was considered a significant achievement that contributed to development of the Korean industry. During this period, what mattered for most of the industries in Korea was creating a better technology by copying products made with technologies from advanced

countries.

The dye industry was no exception. The dye manufacturers in Korea had to import dye products from other countries, while channeling all available resources to the development of their own technology and products for the future.

Then in 1961, Taeheung entered the dye industry, which started to grow while the two companies competed with each other. Supported by the government's light industry-centered economic development policies, the textile industry also began to emerge as a breadwinner beginning in the 1960s, consequently accelerating the development of the dye industry, as well.

The popularity of the dye industry during the 1960s is clearly demonstrated by the public auction held by the Bank of Korea. In March 1960, the Bank of Korea held a public auction that brought in 13 million dollars for 24 items including industrial machines. Out of the capital from ICA (current Agency for International Development), the Bank of Korea allotted 150,000 dollars for dye related items. The allotted amount was completely used for successful bidding on dye-related items, thereby confirming the popularity of the dye industry at that time. This popularity can be

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**1 Sulphur Dyes** | Sometimes called sulfur dyes, the sulphur dyes contain sulphur in the structure. They are easily dissolved in water, and processed in the strong alkali solution. Therefore, they cannot be used in silk or wool that is vulnerable to alkali. The quality also decreases over the time due to the oxidation. They are cheap, have good light and wash-fastness, and most commonly used for dark colors.

attributed to the inseparable relationship between the dye industry and the textile industry.

After having achieved sustainability during the 1950s through increased productivity and the modernization of facilities, the textile industry of Korea in the 1960s was ready to take a wild ride on the export-driven economic structure of Korea, which had labor-intensive light industries at its center.

It was possible because the textile industry could expand easily due to the stable and smooth supply of raw materials, and facilities were also made available through aid funds, even though the industry was built on a fragile capital structure and low level of technology. The abundance of cheap labor was another factor that made the quantitative expansion of the textile industry possible. Soon, the demand for synthetic fibers started to increase significantly since nylon fabrics — the most representative synthetic fabric — began to be manufactured in Korea in 1963, consequently triggering increased exports while replacing imported products. Before long, the textile industry emerged as to spearhead the growth of light industry in Korea, and transformed itself from an industry that served domestic demands to an industry that drove the increase in exports.

With the drastic growth of the textile industry, the demand for dyes — which were essential to add value to textile products — started to grow

as well. Subsequently, the profile of the dye industry started to grow in Korea. At the time, the government's policy on dye products and their industry was so one-sidedly protective that the textile industry was up in arms over it.

“Lately, the excessive overprotection for some of the chemical industries, particularly the domestic dye manufacturing industries, in terms of quality and price, is creating resentment among the textile companies. The six companies that are purchasing domestically produced dye products pointed out that while there are only 29 kinds of domestically manufactured dyes, the government's policy on international trading prohibits the import of 470 kinds of dyes. The policy also overprotects dye manufacturing companies by applying differentiated custom duties, in which the duty for intermediates that are used as materials to make dye products are charged 25%, while it is 30-50% for imported finished dye products. This overprotection of dye manufacturing companies has resulted in dye products whose poor quality does not meet international standards, but whose prices are 2-3 times higher than international prices.”

— Oct. 25, 1965, Dong-a Daily

“While the textile industry in Korea has been growing rapidly and exporting their products to markets around the world, the dye industry which

should grow along with the textile industry has remained at an undeveloped level. It is widely known that Korean textile companies have had their products rejected in international markets due to a problem with colors, which determine the cosmetic look of the products. This problem is a result of the imbalance in the developmental stage between the dye industry and the textile industry in Korea.”

— December 17, 1968, Dong-a Daily

In December 1968, the Ministry of Science and Technology achieved a breakthrough for the textile industry when, during a research project, they succeeded in synthesizing the army green dye, a color whose use had depended solely on imports till then. By producing the army green dye domestically, instead of creating the color by mixing various imported color dyes, they could save a significant amount of money on the defense budget, and were praised for having made a significant achievement in polymer chemistry-related research, as well. Dr. Han Chi Seon, who led the research project, became the first patentee (announcement number, 301) thanks to the R&D project.

Beginning in January 1971, Taekwang was able to start producing the new army green dye by synthesizing by-products from NCC (Naphtha Cracking Center), instead of going through pilot and plant. With this achievement, the government

could replace a half a million dollars worth of imported army green dyes with domestically produced dye of the same color.

In the meantime, RIFA moved on to sign a joint agreement with a major dye company in Japan in January 1970, with the purpose of developing diverse dyes for polyester fabrics, the supply of which came exclusively through imports up till then, even though it accounted for over 80% in the textile industry of Korea.

While the interest and investment in R&D continued to increase in the dye industry, Syno Chemical Engineering was founded in October 1971, signaling a revolution, and bringing to the industry the company's committed devotion to the development of new technology.

## Founding of Syno Chemical Engineering

In the early 1970s, the Korean economy was riding a whirlwind of changes that were happening in the international environment.

The world economy saw the emergence of economic regional blocks, beginning in 1972, when the EC (European Community) signed EFTA (European Free Trade Agreement), and agreed to cut the customs duty by 20% each year for five years until 1977. Then in 1973, the world saw the first Oil Shock when the six member countries of OPEC started reducing oil production with the intention to use oil as a weapon in the wake of the



The warehouse and residential unit at the time when Syno was founded

Middle Eastern War. As a result, the posted price of crude oil soared a whopping 21% higher.

The consequences of the oil shock — a slower growth rate in advanced countries, deteriorating global economy and rampant inflation — dealt a critical blow to the Korean economy, which had long been depending on export-driven economic growth, as symbolized in the slogan that read “export is the only way to survive.”

The year 1971 when Korea recorded one billion dollars in exports was the same year that the Korea-US textile sector export voluntary restraints agreement was signed, as some major advanced countries started to become cautious about the external expansion of Korea’s trade volume. The Korea-US textile sector export voluntary restraints agreement was a different way to put Korea’s main export merchandise — which was textiles — and related products under international restraints. In fact, the textile industry that had been driving the Korean economy since it began exporting products in the 1960s had been the pivotal industry in Korea,

whose share of the total exports from Korea was about 40% as of 1971.

The impressive growth of the textile industry was followed by an increase in the price of dye products, which determine the dyeing quality of textiles. As of 1971, the price of domestically produced dyes showed a 65% increase over the previous year, 1970, and the price of imported dyes went up 15% in the same period. The price increase was enough to deal a blow to the textile dyeing and finishing manufacturers.

But the basic idea of the government’s second five-year plan for economic development that was implemented in the late 1960s was the advancement of the industrial structure — or industrialization in other words. It was based on the government’s decision that the exporting or light industry-oriented industrial structure alone could no longer guarantee sustainable economic growth. Under the circumstances, an intensive regulation of investments in the textile industry and its facilities was carried out in March 1967 under the acts on the temporary measures on the textile industry facilities. Meanwhile, the government decided on the promotion of the machinery industry and the development of science technology as strategic goals. To achieve these goals, the government established the ministry of science and technology, and drew up the machinery industry promotion acts. This change of focus in the government’s goals



The view of the KISCO in earliest days (at Yeomchang-dong)

signaled that the era of the heavy and chemical industries had arrived.

Accordingly, the main focus of government policies shifted to the heavy and chemical industry, and it showed in the third five-year plan for economic development that began in 1972. Government developed and carried out numerous policies that were intended to promote the heavy and chemical industries, such as machinery, steel, nonferrous metals, shipbuilding, electronics, and chemicals. These policies were accepted as the manifestation of the Park Jeong Hee administration's blueprint for the nation, which was the realization of a country with a self-supporting economy. Through the specific details of the five-year plan, the government laid the groundwork for the vision of realizing 10 billion dollars in exports and 1,000 dollars in GNP per capita before the end of the 1980s.

The chemical industry was considered representative of the process industry among the six industries selected by the government

to lead the heavy and chemical industry era. Consequently, it was empowered when a large-scale petro-chemical industrial complex was constructed in Yecheon to increase production capacity. The government also developed policies intended to tap into the precision chemical industry at a time when the self-supplying of precision chemical products including primary organic chemical products was only about 10%, and promotion of basic chemistry was emerging as an urgent issue that needed to be addressed.

However, investment in the precision chemical industry was picking up in advanced countries, proof of the belief that it would lead the growth of many other industries in the future. Even in Germany, which created the miracle of the Rhine River and emerged as a first-class industrialized country in the 20th century, the chemical industry was one of the four major pillars of the nation's economic development, along with mining, steel, and the electronics industry.

That meant that in Germany's historical race for economic growth, the baton of the frontrunner was changing hands from coal mining and steel industries to the chemical and machinery & electronic industries. These three industries were able to get an iron grip on the global market, and during the process, such giant German companies as Bayer, BASF, and Hoechst were charting a new road map in the global precision chemical industry.

These three large West German companies —

Bayer, BASF, and Hoechst — had such influence over Korea's domestic dye industries that it was impossible to address any issues regarding imported dye products, which accounted for 80% of the total domestic demand, without mentioning their names.

Supported by the government's third five-year plan for economic development, the heavy & chemical industry in Korea started to demonstrate visible growth, with some of the chemical companies moving forward by mechanizing the manufacturing process and building large-scale manufacturing facilities. But in reality, the precision chemistry industry was not so promising, because the scale of business was small, and the work conditions remained poor.

In the case of the dye business category, which along with the medical and cosmetic businesses was considered the flower of the precision chemical industry, the market was almost exclusively dominated by only two domestic manufacturers. With the self-supply rate of domestically manufactured dyes at less than 20%, the Korean dye industry had a long way to go until it reached full bloom.

The situation was not much different for Syno when it was founded in October 1971.

Syno started its business in space located at 112-31, Yeom-chang-dong, Gangseo-gu, Seoul, which used to be the residence of the founder Kim Dong Gil. It was renovated to accommodate the office,

lab, and even a manufacturing facility that was necessary for the dye business.

In the earliest days of the company, Kim Dong Gil personally searched and scavenged through junk metal shops to build the manufacturing facility that he needed to manufacture dye products. Kim Dong Gil reflected that back then he had restored a used bath tub made of steel to make a reactor, and jars and drum barrels to make glass reactors and mixers.

Even though the manufacturing facility was no better than a home-business, the vision of Syno was grand. His vision was to domestically produce the full range of dye products that were being imported from other countries, and furthermore, to create the rich colors of nature found within the living environment around us: Syno was the beginning of his never-ending challenge to find the colors that are now uniquely KISCO's own.

## 02 Founding of KISCO and the Laying of the Foundation for Growth

In August, 1976, the company took over Samjeong Corporation, and made the production and sales of FBAs the company's quintessential specialized line of business. In October, the same year, the company changed its name from Syno to Kyung-In Chemical and began to develop acid dyes and direct dye products, as a part of the company's effort to prepare for the launching of diverse color dye products.

### Production of Fluorescent Brightening Agents (FBAs) and the Founding of Samjeong Corp.

Of over 4,000 different kinds of dyes being produced around the world, only about 120 were produced domestically in 1972. The annual production volume was about 1,700 tons. However, Korea was still heavily dependent on foreign imports when it came to high-class dyes; over 2,000 tons of high-class dye products were imported from major overseas companies.

Syno took its first step on the ambitious quest to develop domestically manufactured dyes when it successfully produced the fluorescent brightening agents (FBAs) for acrylic fabrics. Often used to bring about a 'whitening' effect for fabrics or paper, the FBAs are colorless dyes, but when exposed to light in the ultraviolet and violet region, they re-emit light in the blue region. Due to this characteristic, FBAs have been primarily used to bleach fabrics, or to make fabrics whiter. Its application has been diversified along with the development of synthetic fabrics, and FBAs have been most popular as detergents for fabrics and bleach for paper.

Particularly suitable for use as additives to textile and laundry, FBAs have been used to bleach white clothes, and to wash clothes to prevent discoloration. Until the early 1970s, FBAs were available only through import, with most of them being imported from Germany. Due to the high

dependency on imports, the dyeing facilities often faced a shortage of supply, and sometimes had to scramble frantically to secure the quantity that they needed.

Shortly after the founding of the company, Syno acquired a patent on the FBAs that they have developed, and started manufacturing them domestically. The demand was not very high compared to most other dye products, but it was sold at a higher price than others. Therefore, the company decided that it was a good item for a new company to tap into the niche market. Besides, Syno could cut costs for dyeing facilities in Korea by supplying them with the domestically produced agent, and could also promote their corporate image by producing and supplying them with the products that they needed.

The development of FBAs for acrylic fabric earned Syno applause of their product developing capability in the market, as well. Major companies in Korea that were dominating the market for the FBA-added detergents, such as Lucky (currently, LG) and Aekyung, decided to use the FBAs produced by Syno. In the FBAs market that had been depending exclusively on imports, the products made by Syno suddenly emerged as a powerful competitor, and quickly replaced the imports from Germany to the great amazement of the market.

Eventually, large corporations could develop popular products with the domestically produced

FBAs, and customers could also enjoy a cost saving due to the domestically produced dyes.

The confidence that the company earned from the quality of their dyes showed through sales of the products, as well. The sales staff of the company, as well as the chairman Kim Dong Gil, would visit dyeing facilities in person, and conduct material tests in front of the people who were in charge of either purchasing dyes or garment dyeing with strong pride and commitment to the products that they were demonstrating. Often, they made a big impression on them because their sales pitch was based on the recognition that, in the long term, it was more important and rewarding to make potential clients understand the outstanding quality of their domestically produced products, than to increase sales.

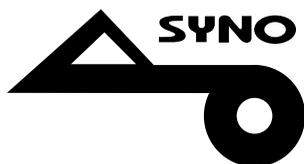
Supported by their devoted commitment, the products made by Syno were promoted through word of mouth in the dyeing industry, and earned the reputation of 'trustworthy products,' while the company was gradually expanding its business territory. At the same time, Syno was emerging as a dark horse in the industry, after their special commodity for acrylic fabrics was recognized for its reliable quality. The technological competitiveness that the company had secured was a booster for the early growth of the company, as evidenced during the two oil shocks in the 1970s, which the company survived with little fuss, largely because of the trust they had earned with

their own technological power.

While concentrating efforts on sales, Syno worked hard to come up with a brand name to increase the level of company recognition in the dye market. Promoting the names of the company and the products in the market in the fastest time possible was necessary for efficient sales, and besides, exploring the domestic market with a domestic brand name was going to be a manifestation of the pride of being a company that succeeded in domestic production of products.

The company decided on Syno as its brand name, based on the name of the company, and then named its FBA products accordingly, such as Synowhite 2B or Synowhite 2PD. In this way, the company could make customers identify the products with the company. The company also used the same brand name on dye products for leathers, such as Synoleather Black EX, so that anybody could tell that the products were made by Syno.

To create a symbolic mark for the company, a key that was tied to the number five was used. The number five indicates five kinds of trust:



The original logo of KISCO

trust in color, since the company is committed to creating colors; trust in quality of products; trust in delivery of orders; trust in customer service after purchasing the products; and trust of customers, the priority of the company management. The mark, therefore, was a manifestation of the company's commitment to become trusted by their customers in every way.

The company's devoted commitment started to pay off in a sales increase; the sales of the FBAs was only about 5 million Korean won in the early days. But sales kept increasing and breaking records, until the FBA products made a critical contribution, allowing the company to stand on solid ground at an early stage of its history. The company's commitment to domestically producing dye products did not end with the development of FBAs for acrylic fabrics; the company went on to domestically produce FBAs for acetates and nylon products, as well.

It was not until the 1970s when polyester textiles were mass produced in Korea, opening a golden era for domestic chemical fabrics that the production and export of three major synthetic textiles, namely nylon, acrylic, and polyester, started to take off.

Along with an increase in the demand for these synthetic textiles came an increase in the demand for FBAs for acrylic, acetate, and nylon textiles.

Now that Syno had secured the upper hand in the domestic market for FBAs, the company started to

explore channels to export the products. It was in 1974 that the company shipped the initial order of dyes for acrylic and nylon textiles to Taiwan, taking its first step into the overseas markets as an export company.

Now, Syno moved beyond the quest to domestically produce dye products and have their products recognized both inside and outside of the country: the company was dreaming of advancing to the global market with their products.

### The Birth of KISCO and KISC

Demand for the dye products made by Syno grew continuously in both the domestic and overseas markets. The company needed to increase its production capacity, and the expansion of manufacturing facilities and securing the site to build more factories emerged as urgent agendas. The company also needed to diversify its products, and keep launching new products to ensure continued growth.

Kim Dong Gil, the president of the company, was determined to find a site close to the original headquarters of the business, so that the company could make the best out of the existing production facilities, human resources, and various business administration infrastructures. As a result, the company built a new production facility that measured 385.8m<sup>2</sup> in 1975 at 252-2 Yeomchang-dong, which was only about 300m away from the main headquarters. In August the following year,

in 1976, the company also took over Samjeong Corporation, which specialized in materials for dye intermediates, and made the production and sales of FBAs the company's quintessential specialized line of business. In October, the same year, the company changed its name from Syno to Kyung-In Chemical, and began to develop acid dyes and direct dye products. These were all part of the company's effort to prepare for the launching of diverse color dye products.

After having successfully developed, produced and exported FBAs, Syno moved on to expand other lines of products. Around 1975, the company began to export dyes for leathers, which made the company the second in Asia to develop these products. This export was a landmark for the company, earning it recognition for its technological power, and creating a great sensation in the industry. Some companies in Taiwan started to produce copies of the products KISCO had developed, as well.

But having superior technological power did not make the sales of its dye products in the domestic market any easier. Unlike the FBAs, whose major customers were mostly large corporations, the sales of color dyes had to target small and large dyeing companies. The first hurdle was the sales practice that existed among buyers and dealers. The conventional sales practice in the field was based on ties between the dye product suppliers and the dye product buyers, namely the dyeing



factory at Yeomchang-dong, the former site of the auxiliary building of the current office

technicians, who would not buy dye products from any companies except those with which they had close partnership relations. Unless the company could move beyond this hurdle it realized, they could not sell anything, no matter how cost-effective and high-performing their products might be. Besides, most textile makers tended to shun domestically produced dye products.

But the bias that existed among the textile manufacturers could not stop the passionate commitment of Syno. Instead, the company took it as a challenge, and renewed its commitment. The company decided that unless they could excel the foreign imports in quality, they could not break free from the textile manufacturers' bias against domestically produced dye products. Numerous efforts were made to improve the product quality at each stage of production in the fields, and particular attention was paid to a better quality management system.

While putting all-out efforts into improving the

product quality, the company came up with a new marketing strategy to open up sales channels. The strategy was to provide a certain amount of newly developed dye products to potential customers, before officially launching the products. It provided an excuse for the company's sales team to visit potential customers on a daily basis, because the dye products could return different results depending on the dyeing methods and techniques, and thereby had to be tested over a period of a few months.

It also provided an opportunity to prove the quality of domestically produced dye products to customers, who had previously shunned domestic products without a second thought. Before long, the company started to receive orders, although they were for small quantities. Even though business transactions began with just small orders, it didn't take long to prove the outstanding quality of the products, and for the small test orders to turn into steady orders. Now that the company had achieved some success, they had confidence in sales.

Once production and sales were put on the right track, and the size of the company started to grow, president Kim Dong Gil decided to go public with the company on October 14, 1977. He also renamed the company, Kyung-In Synthetic Corporation (KISCO, hereafter) as it is known today, and appointed an experienced professional business manager, Koo Dong Wook, as the

CEO. It was the beginning of a new voyage for the company, which by now had grown into a company with 30 million won of capital and 60 million won in total assets, under the leadership of CEO Koo Dong Wook.

In January of the following year, in 1978, president Kim Dong Gil was made the chairman of Samjeong Corporation, and transformed the company into KISCO. He also appointed Sung Rak Kwan as the CEO of KISCO. A graduate from the Teachers' College of Seoul National University with a degree in chemistry, CEO Sung Rak Kwan had extensive experience in international trading while working at Samyang Pulp in charge of international trading, and as managing director at Dae-ah Trading, before joining Kyung-In as the CEO.

Now, KISCO had laid the foundation to lead the developing history of the Korean dye industry, and launched itself towards a new beginning for the domestic production of high-quality dye products.

Under the leadership of Kim Dong Gil, the company was ready for an ambitious flight into the future with KISCO and KISC.

### Construction of the Incheon Factory and the Stabilization of Production

After having succeeded in FBAs, KISCO took up the challenge in color dyes. First, the company developed acid dyes for leathers, then moved on to develop dyes in the black and brown color ranges,



A scene of the Incheon Factory (1983)

before making a full-fledged jump into other major colors, such as those in the yellow, blue, green, and red color ranges.

The Incheon factory, which was constructed in 1977, was used exclusively in the production of these color dyes.

The Incheon factory was constructed on a site of 1,462 pyeong at 223-52 Seoknam-dong, Seol-gu, Incheon. Part of the equipment at the factory was a newly built automated system, and some of the production equipment was moved over from the old factory.

With the construction of the Incheon factory, KISCO had a much greater production capacity — It was time to challenge for higher quality human resources, and higher quality products. The company also needed to advance the production technology, because the company had just started to develop reactive dyestuffs around this time.

However, in the beginning, the Incheon factory was faced with problems in the human resources sector. There was a shortage of labor to help fill the



The entire view of the Seoul Office during the 1980s  
Chairman Kim Dong Gil, in front of the newly built Seoul Office

production capacity, and if the company hired new employees, it took time to train them to become skilled professionals. The company moved some of the synthetic technicians who had trained and worked at the Seoul headquarters, and hired locals to make up for the lack of labor, but with so many un-trained technicians working in the new factory, the company had a lot of trouble in human resources and product quality control.

But all the initial problems that the company experienced and all the efforts the company put into stabilizing production slowly started to bear fruit, and the factory started to gain momentum. Once production was stabilized, KISCO turned

its focus to the development of new products. The company's new challenge targeted reactive dyes, which until then had been supplied solely by foreign imports.

Chairman Kim Dong Gil recalls "it was around this period when we developed, with our own resources, the supra type dyes, which emerged as a new type in the world market."

In the early days of its history, KISCO had created a stir in the industry by successfully producing FBAs domestically, followed by dyes for leathers. Now that the company had also launched reactive dyes in the market, it was ready to take the lead in the race for domestically produced dyes that began in the 1980s.

In the meantime, the company established a dye research institute at the newly constructed headquarters building in Seoul in June, 1980, laying the groundwork for the legendary success story of KISCO.

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**1 Reactive Dyes** | The reactive dyes contain a reactive group, either a haloheterocycle or an activated double bond, and when applied to cellulosic fibers such as cotton, line, and rayon, they form a chemical bond with a hydroxyl group on the cellulosic fibers.

The textiles dyed with reactive dyes show strong fastness to washing and light, and clear color reproduction.

Reactive dyes first appeared commercially in 1956 in England with the commercial name of Procion, and rapidly developed since then on. Now, many reactive dyes are produced not just for the cellulosic fibers, but also for wool and nylon fabrics, as well.

## 03 Establishment of Korea's First Dye Research Institute

Convinced that it was possible to delve into the domestic dye market after the successful development of FBAs in the early days of the company history, the chairman Kim Dong Gil established a rare dye research institute, and applied himself to the full-fledged development of domestic dye products. The institute was set up inside Seoul headquarters built in 1980.

### Beholding the Color of Nature, the Color of Butterflies

We can see the colors of organic compounds because they selectively absorb some of the wavelengths of visible light, and reflect or project others. The colors of the absorbed wavelengths of light are called spectrum colors, and the colors of the reflected or projected, complementary colors.

The colors that KISCO has been trying to realize were the colors that are closest to nature, symbolized by two butterflies.

In 1977, when chairman Kim Dong Gil renamed the company KISCO, he picked butterfly as the symbol of the company, because its image was most suited to expressing a wide variety of colors that he had envisioned creating himself, and best represented the corporate mission: realizing the colors of nature with KISCO's own technology. The decision was the manifestation of his goal, which was to realize the colors of nature, the best colors man could create, and his commitment to realizing the mystic colors that butterflies have, in his products. Ultimately, it was the manifestation of his strong commitment to developing KISCO as a color reading company through butterflies that showcase the most beautiful colors in nature.

The corporate image that represents KISCO has two butterflies, one in white and the other in black, perched side by side. The two butterflies in this image signify that KISCO and KISC will grow together, side by side.



Before and After the Company Merger

KISCO's passion for creating the dye colors that are true to the magnificent, enchanting, and supreme colors of butterflies was materialized through research and development projects. KISCO's challenge in R&D has continued, even after the company developed patented FBAs in the earliest days of its history, and put the company on a solid foundation especially since the FBAs for synthetic detergents became the main source of income for the company.

The company continued expanding their lines of products, and started to develop FBAs for nylons, acid dyes for leathers, and reactive dyes, all while promoting awareness of the importance of R&D for domestic dye and dyeing companies that had been depending on imported foreign-made products.

All these moves of the company were based on its principles and the first management philosophy of the chairman, Kim Dong Gil, who firmly believed that "R&D is the only direction that our company will follow."

## Kim Dong Gil, a Student Obsessed with Chemistry

Chairman Kim Dong Gil, the man behind the empire in the Korean dye field, is considered to be the most exemplary self-made entrepreneur in the industry.

He was born the last of three children in 1938 near Namgang, Jinjoo, Gyeongsang-man-do, but when he was only eight months old, his father passed away.

His widowed mother moved to Busan along with her children — five, three, and one year old at the time. With the support of his mother, he came to learn about the world earlier than most other kids. After graduating from Busan High School, he was admitted to the chemistry department of Teachers' college at Seoul National University. He decided on the teachers' college because the tuition of the national college was less expensive than others, and he could expect to have a stable life by finding a teaching job after graduation. For a student who could not even afford the school uniform at a time when most college students wore them proudly, his was a choice made out of necessity.

But he would not compromise his major for anything. Since his junior high school days, he had such a keen interest in chemistry that he even set up his own lab in a corner of his house, and conducted various experiments. Not getting enough knowledge from the science theory textbooks that he was given at school, he would

often spend hours in his own lab after coming home from school, absorbed in conducting his own experiments. Chairman Kim Dong Gil reflects, "I was so into experimenting that I was capable of making explosives with chemicals while I was only a high school student."

Having self-taught himself the numerous concepts and principles that he could not get in class, he finally felt a sense of calling in chemistry. The experiences that awakened him to the joy of building knowledge little by little during those days were the secret to his lifelong passion for reading; he is never seen without a book in his hands.

Of course, his lab was very meager; all he had were a desk made out of a c-ration box that was available around the American army bases, and a few glass bottles or test tubes that he had salvaged from junk yards. Nevertheless, his passion and commitment for chemistry remained so extraordinary that his knowledge of chemistry during high school advanced to the point where he could read college textbooks on chemistry.

After becoming fascinated with chemistry because of the basics he had taught himself and practiced with salvaged test tubes, he decided to go for chemistry major in college. After graduating with a major in chemistry, he became a teacher, but he wanted to devote himself more to the field of chemistry, because he found himself still with a strong thirst for research. While working as a teacher at a junior high school, he

enrolled in the chemistry department at Seoul National University Graduate School of Physics, and was able to satisfy his thirst for study and knowledge. But the school environment was not up to his expectations; it didn't offer him enough opportunities to experiment and experience chemistry first hand. Deep in his mind, the desire to research and experiment as much as he wanted, started to grow again.

Even though teaching was a rewarding job for him, and he deeply cared about his students, he quit because he could not tame the passion that was burning wildly in his heart for chemistry. After leaving school, he found a job at a company specializing in dyeing, which was considered the foundation of precision chemistry and was being recognized as the newest technology at the time.

While working at the dyeing company, he came to learn that most of the dye products used in Korea were being imported from overseas. So he made it his personal crusade to find ways to domestically produce the dyes. When he went home from work, he would go to the lab that he had set up in his house, and burned the midnight oil doing his own research.

It was during this period that he was able to build a tremendous wealth of knowledge about dyes, by reading through mountains of magazines and reference books from other countries in order to glean the latest information and expertise about dyes.

But his first job was not going smoothly. Even



Chairman Kim Dong Gil, around the time when he first started the dye business

though everybody's expectations were high for the creation of new dyes, developing new technology was not easy given the state of the dye industry at the time. It was a great disappointment for him, because he had joined the dye industry because he loved R&D. It was time for him to make a new decision. He accepted a scouting offer from RIFA, and it was at this company that he was able to devote himself to R&D, opening a new era for domestic dyes and their industries.

In the following years, Kim Dong Gil applied himself to researching the structures of dye products imported from advanced countries, and to the development of new products. He succeeded in developing the patented technologies necessary to make FBAs and many other items, making himself stand out among the technicians, where he was recognized for his outstanding skills. When he was confident that his patented technologies could translate into real commodities, he knew, intuitively, that the time had come for him to realize

his dream of creating colors that were uniquely his own. In October 1971, he founded Syno and threw himself wholeheartedly into the dye business.

The passion of the student Kim Dong Gil, who was crazy about chemistry all through his school days, and his dream of advancing to the global market with dye products that are made in Korea, was finally beginning to materialize.

### Establishment of a Research Institute with the Export of FBA Plant

Having been convinced that it was possible to delve into the domestic dye market after the successful development of FBAs in the early days of the company history, chairman Kim Dong Gil established a dye research institute, and applied himself to the full-fledged development of domestic dye products, at a time when it was rare for a small company to set up its own research institute.

KISCO's Central Dye Research Institute was established when KISCO was building its Seoul headquarters in 1980. Occupying the entire third floor of the building, it had a space of 298m<sup>2</sup>.

After having honed basic dye production technologies and achieving completion of the factory, KISCO made Korea's first export of an FBA production plant to Turkey, which triggered a revival of the dye industry in Turkey where there had been no dye related facilities. It also served as a foothold for the company to set up a branch office in Turkey.



The executives at the tape-cutting ceremony to open the central research institute in Seoul (1980)

It was during this period that the number of research fellows in the institute increased to 16, including the chairman Kim Dong Gil, and the company was recognized in the market for its FBA products and acid dyes. As a result, expectations were growing that the company would move forward with the development of new items.

The direction of research in the early days was basically led by the chairman Kim Dong Gil. While the R&D projects were generally motivated and oriented to 'what the market wants,' the actual plans and directions of the R&D projects, which were following the trends and predictions in the market, were determined by chairman Kim Dong Gil's intuition.

KISCO achieved tremendous insight into the market even as it was releasing one and sometimes more items to replace imported foreign products each year, and taking over the FBAs market right from its early days. The company also took a different path from most

other companies that were more concerned with importing dye products based on their immediate commercial potential only.

Considering how advanced science technology could improve quality of life on a personal level and increase industrial competitiveness at the national level, KISCO made a contribution to stronger competitiveness in the dye industry by domestically producing dye products, and offered an opportunity for companies in the same business area to grow together. During the time when Korea was undergoing rapid industrialization and economic development, KISCO made a critical contribution to the increased quality of textiles and volume of exports for the textile industry, thereby coloring the fashion world as diversely and magnificently as the available diversity of dye color.

KISCO's Central Dye Research Institute continued to pursue the development of reactive dyes, until finally the institute produced the reactive dye intermediate p-base and Reactive Black 5 in vinyl sulfone type in 1981, thereby emerging as the lion of the dye & dyeing industries.

Later, in October 1986, KISCO was registered as Korea's first research institute qualified to substitute military service. With this benefit, the company could recruit more outstanding human resources, and its research institute was able to become the center of all R&D in dye related products — it was emerging as the driving force behind the development of the Korean dye industry.

Chapter II

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Opening a New Era  
With Technological  
Development

1981-1989

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01

Dye Development Rush Along with the  
Textile Export Drive Policy

02

Reactive Black 5 dye and the Korean Black  
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03

Outstanding Product Competitiveness is  
First Recognized in the Global Market

# 01 Dye Development Rush Along with the Textile Export Drive Policy

The government picked the dye processing industry as one of the seven areas with weak technological competitiveness in the early 1980s, and proactively supported the advancement of dye processing technology, aiming for higher quality and distinguished products. The government-initiated technological advancement movement contributed to narrowing the gap between domestic technology and advanced countries' technologies to a certain degree.

## Textile Export Drive Policy and the Growth of Dye Industry

Until the mid 1970s, textiles had been demonstrating impressive growth as the major source of creating market demands and the frontrunner in the dye industry. But in the 1980s, the growth streak started to slow down due to the stronger regulations on textile imports by advanced countries, and competition from developing countries. International competitiveness was also being challenged due to increased wages and the government's policy that shifted priority to the promotion of the heavy chemical industry.

As a result, the export of textiles started to decline between 1982 and 1985, triggering the need to promote competitiveness by developing new technologies and improving the quality of exported textiles that had primarily been depending on competitiveness in price.

Finally, the government established the "acts on developing the industry" in 1986, with the goal of improving the international competitiveness of Korean textile products. Under the law, the government selected textile, dye, and dyeing as rationalization industries, and provided support so the companies could replace old equipment and facilities, while prohibiting new companies from entering those industries.

The government also supported the equipments and facilities for knitting, sewing, and dye & dyeing companies with a rationalization fund, so that they

could develop new technologies and materials, expand the waste water processing equipment at the dyeing complex, and purchase materials necessary for training and educating human resources working in the fashion and design industries.

Along with the government's support came the Three Low Conditions, and the textile industry was able to set a record by exporting more than the original goal of 10 billion dollars worth of exports. It was the first in Korea to reach that export achievement as a single category of commodity item.

Even in the dye processing industry, exports started to grow. The 1980s saw a big increase in the export of synthetic and natural fiber blended textiles, consequently advancing and establishing dye processing technology for blended fabrics. The textile industry demonstrated rapid growth during the same time. It was a period when the industry achieved domestication of the dye processing facilities, and the self-supply of low to mid quality dye products.

The government picked the dye processing industry as one of the seven areas with weak technological competitiveness in the early 1980s, and proactively supported the advancement of dye processing technology, aiming for higher quality and distinguished products. The government-initiated technological advancement movement contributed to narrowing the gap between

domestic technology and advanced countries' technologies to a certain degree.

But the development of domestic dye products was one of the most urgent and immediate tasks to increase competitiveness of the textile and dye industries. As of 1981, Korea was importing almost 100 million dollar's worth of dye products, and more than 100 million dollars worth of textile additives on top of that.

According to an investigative report on the domestic mining and manufacturing industries, the textile companies — excluding the dyeing businesses — estimated that their cost of dyes and blending accounted for about 9% of their total costs. This 9% of the cost for the dye and dyeing industries signifies that the share of the dyeing businesses in the entire textile industry was accounting about 9%.

Greatly influenced by the upstream industries, and supported by explosive growth in the textile industry that faithfully followed the export-driven policy of the government during the 1970s and 1980s, the dye industry also achieved impressive growth. The domestic dye market had a self-supply rate of less than 20% until the 1970s, but by the late 1980s, the number had increased to as much as 70%, and they enjoyed the height of prosperity. With the beginning of the 1980s, polyester textiles started to demonstrate rapid growth as well, thereby triggering the development of reactive dyes and disperse dyes

that require higher degrees of technology, as well.

In 1983, the government selected 635 essential technologies that would raise Korea to be on a par with advanced countries in terms of technological power by 1986. The reactive dye was one of the technologies that belonged to the precision chemical industry in this select group, because the government recognized its importance. Consequently, triazine-based reactive dyes were first developed by Heungil in 1979, followed by reactive black 5 developed by KISCO in 1981. Later, RIFA and Taeheung also succeeded in developing reactive dyes, thereby opening a new era for domestically produced reactive dye products.

In the case of the disperse dyes, the Korea Research Institute of Chemical Technology developed an intermediate compounding technology for disperse blue dyes in 1983, followed by Lucky that joined in the development of disperse dyes, and succeeded in domestically producing new varieties.

## Introduction of Spray Dryer and One-Step Advanced Process Technology

KISCO, a company that began R&D on reactive dyes in the mid to late 1970s with the construction of its Incheon factory, was gearing up to prepare for the days when the company would become a leader in the domestic production of dyes, which was soon to be realized.

During the early days of its history, Incheon factory was producing acid dyes that were classified as azo dyes, but when they started manufacturing reactive dyes, such as Synozol Black HF GR which recorded great success with Korea's first reactive full black color dye for cotton, a need to expand the facilities and improve the manufacturing process became evident. So the company became the first in Korea to introduce the spray dryer in March 1983, as part of the automated manufacturing process.

In general, the manufacturing process of dyes

### General Dye Making Procedure



### Procedure Using the Spray Dryer (automated filtering, drying, and grinding procedure)



begins when the raw materials are poured into the reactor. Then, they are dissolved, mixed, filtered, dried, and then ground to powder, before they are ready to be packaged as products. As for the drying process, most factories hand dried their products by using oven style cabinet dryers that were set up in their facilities. The problem with this type of dryer was that it required somebody to come and check it constantly during the whole drying process to ensure everything was all right. Due to their structural characteristics, the dyes would often burn or become dried unless checked constantly, and dye particles that were uneven in size were also a problem.

But the spray dryer could mechanically handle the salting out, filtering, drying, and grinding stages during the dye manufacturing process, and was already in wide use in countries with advanced dye production technologies. However, only a few large corporations were using the facility in Korea, and they were all imported from other countries.

Determined to get the best out of a large investment, and to secure the technology to domestically produce equipment, KISCO decided to order the first spray dryer from a Korean company, and submitted an order to Samyeong Chemical & Engineering to make one. It was a daring decision considering how most dye manufacturers in Korea did not even know that such equipment existed.

However, the introduction of the spray dryer

was far from easy. The company decided to set up the first spray dryer in the entrance area of Incheon factory for a test run, but the set up was a big problem because the area was not geared to accommodate the size of the equipment. But it was only the beginning of the problems. The factory managed to find a solution, finished setting up the spray dryer, and tested it with a practice run. But the equipment failed in both the first and second attempts. It was meant to be a spray dryer, but it did not dry the dyes correctly.

Soon, the company introduced and set up a new dryer, to the great excitement of everyone at the factory. The most visible difference the spray dryer made was the increased productivity and



Spray dryer was set up for the first time in Korea (Incheon factory, Mar. 1982)



Chairman Kim Dong Gil is delivering a speech to commemorate the introduction of the spray dryer (Mar. 1982)

the stable quality of the final products. When the spray dryer was kept under certain controlled conditions, it could evenly dry the dye particles. The dried particles brought about tremendous effects; first, it realized the consistent quality of products, which translated into stronger product competitiveness in the market. It also gave a big boost to morale among the workers in the factory, because they could make products with higher standards.

Another effect of the mechanization was the savings in manpower; the dryer shortened the manufacturing process so greatly that it took only one person to handle the mixing of the materials, filtering, and drying, as well as the packaging of the finished products. Compared to the past when two to three workers had to be assigned for each stage of the process, the spray dryer effectively cut the necessary manpower to half, while doubling the productivity.

Subsequently, KISCO ordered the second and

third spray dryers, and continuously added more spray dryers to mechanically produce the reactive dyes. During the process, the dye market that had been heavily geared towards the liquid form of dyes began to shift to power-based dyes, and the spray dryers that made it all possible gained recognition in the related industries for their ability to cut costs and improve quality. In the end, KISCO made a great contribution to the mechanization of facilities in the dye industry.

### KISC's Ansan Factory is Constructed

By 1984, KISCO was producing over 50 different standard products, including reactive, direct, and acid dyes. The company set up a continuous dyeing machine within its dye research institute, where the dye products developed were tested to identify optimal dyeing methods, and the results were recorded in order to share them — along with related technologies — with other companies in the industry. This idea was part of the company's endeavor to offer the best dyeing performance to consumers. It provided an opportunity for the company to advance their expertise level in R&D projects, to reach out to customers, and move beyond the old business practice where most dyeing companies depended on foreign-made dye imports.

In August 1984, having received very positive feedback from dyeing companies for the



The construction of Ansan factory (formerly KISCO) was completed (September 1984)

domestically produced dyestuffs, the company was selected as a promising small and medium sized company by the Korea Institute for Industrial Economics and Trade, and in September the same year, the company was also designated a small and medium sized company approved for its modernization practices plan by the Small & Medium Business Corporation, all of which contributed to the promotion of the company's reputation.

As the company demonstrated impressive achievements both in terms of product development and R&D, there arose the need to advance the production capacity. The Incheon factory for example, could hardly keep pace with the increase in orders when the demand for reactive dyes including reactive black 5 started to soar along with its popularity. The company was also struggling to meet the delivery dates of finished dye product orders. In the case of reactive dyestuffs, the processing took too long and the

production volume was smaller, because the Incheon factory was handling everything from processing raw materials to the packaging of the finished products, instead of relying on imported intermediates, in order to ensure the highest possible quality products.

Therefore, the company decided to build the Ansan factory, locating at 785-1, Wonsi-dong, Ansan-si, Gyeonggi-do, in September 1984.

The site was selected with the construction of the Ansan complex in mind. The complex was constructed in accordance with the government's new urban development plan. Ansan is a city located 35km to the southwest of Seoul, 14km from Suwon, and 20km from Incheon. It is a geographically advantageous location because the region is close to many other major cities, and over 70% of the land — including the beach along the west coast and the purely agricultural areas — has the potential for urban development projects. Even in terms of transportation, Ansan has advantages, because it is close to the Suwon-Inchon industrial road, and accessible through Incheon port, as well as many national roads and railroads, since the Suwon-Incheon rail line passes through the city.

Due to the many geographical benefits, the government proactively pushed for new urban development plans in this city in 1976. In the past, the region of Ansan was known to the world as Banwol. For the next ten years until administrative

district reform by the government officially designated the region as Ansan city on January 1, 1986, Banwol had been used as the name for the greater Ansan region, and the industrial complex that was built in the region came to be known to the world as the Banwol industrial complex.

Banwol industrial complex was able to grow quickly in a minimum amount of time because the government banned the construction of any new factory or complex in Seoul city as of 1979. As a result, non-urban factories located in the non-industrial regions of Seoul city were forced to move their facilities to other areas.

The production facility of KISCO, which was located in the auxiliary building of the Seoul headquarters, was not affected by the government's policy, because it was within the semi-industrial region. However, after considering future environmental issues, and in order to increase production capacity, the company definitely needed to relocate the production facility to a designated industrial region.

Eventually, the new factory was built over a 5,600m<sup>2</sup> site in Ansan, and started operations with major essential components already in place, such as the 7 sets of reactors, filters, dryers, and mixers. The company also didn't skimp on investing in an eco-friendly work environment, or on building a stronger and safer waste water purifying facility.

KISCO had always been focused on the production of FBAs, but with the construction of the Ansan factory, the company was capable of more streamlined production of FBAs, and the factory was also able to take over the production of dye intermediates from the Incheon factory, as well. As a result, the production capacity of FBAs increased to 100 tons a month in 1986. Now that the company could produce intermediates for the reactive dye materials within its new facility, the company could also enjoy the increased synergy effects from both factories.

When the production of FBAs was on track, the production lines in Ansan factory were busier than ever, but still, the company was struggling to stabilize the production of reactive dyestuffs.

In 1984, KISCO became the first company in the world to develop a full black reactive dye for cotton. This achievement alarmed all major global dye manufacturers, and made KISCO stand out in the reactive dye category with its unrivaled technological power. The development of the full black color dye was followed by KISCO's own reactive Synozol Turquoise Blue G, effectively promoting their corporate image as a leader in technology.

However, all these achievements did not translate into increased profits in the market, and the technicians scrambled to find solutions and a breakthrough.

## Technological Partnership With a Japanese Company for Fluorescent Brightener

By 1987, when Korea's textile exports reached 10 billion dollars, domestic dye manufacturers were enjoying a boom in business, a stabilized domestic supply market, and increasing exports. As a result, the domestic dye manufacturers proactively started to expand their facilities.

KISC's Ansan factory was no exception; the company invested 1 million dollars, and expanded its facilities to produce 1,800 tons of reactive and fluorescent brightener agents a year in February, 1988, three years after the completion of the KISC's Ansan factory. In April the same year, the company entered a technological partnership with a company in Japan for the Illuminal BBS Conc that applied to cotton products. It was the company's attempt to adopt advanced technology from Japan to ensure greater brightening of cotton, which was one of the most widely used textile categories. With this technological tie-in, KISC could expand its business lines to reach beyond the FBAs for detergents and papers, to textiles.

In the case of the Illuminal BBS Conc, the company made a significant achievement in improving the weak points of the previous brightening agents, such as less-than-perfect heat-resistance and durability. With the introduction of advanced manufacturing

technology, Ansan factory upgraded the quality of FBAs, and speeded up development with the all-directional production system that covers everything from FBAs to reactive dyes.

## 02 Reactive Black 5 dye and the Korean Black Sensation

In Korea, the development of reactive dyes started to pick up slowly in the mid to late 1970s. KISCO also joined in the R&D for reactive dyes since the days of Incheon factory, and the company finally launched Reactive Black 5 in 1981, after years of efforts marked by a series of trials and errors.

### Development of Reactive Dyes

The 1980s for KISCO began with the birth of Reactive Black 5.

The reactive dyes have their own active reactive phase, during which time they color objects through covalent bonding, which causes a chemical reaction with fabrics. Since the reactive dyes are absorbed through direct covalent bonding with textiles, they can facilitate stable bonding between dyes and textiles, thereby returning clearer colors, and demonstrating outstanding color fastness and light fastness. It was in 1956 when the company in England launched the world's first reactive dyes for vegetable textiles, such as cotton and rayon. Later on, more improved varieties were developed, until the application range applied to wool and nylon textiles, making them some of the most highly demanded dyes.

Before the introduction of reactive dyes, sulfur dyes or direct dyes were primarily used for cellulosic fibers. However, the demand for sulfur dyes had greatly declined because they have weak dyeability, and more importantly, they contain environmentally harmful substances. The direct dyes have outstanding dyeability, but due to the weak color fastness, the amount of consumption had greatly declined.

Under these circumstances, new products that could replace sulfur or direct dyes were developed and introduced to the market until the early part of the 1970s. But beginning in the late 1970s, the

development of reactive dyes that improved and supplemented the disadvantages of previous dye products started to pick up. In addition, dye manufacturers started to focus on improving the grade of their products by experimenting with new formulations of dyes, such as liquid types, granule types, and concentrated types of dyes.

In Korea, the development of reactive dyes started to pick up slowly, starting in the mid to late 1970s. KISCO also joined in the R&D for reactive dyes since the days of the Incheon factory, and the company launched Reactive Black 5 in 1981, after years of efforts marked by a series of trials and errors.

At that time, the latest technology that the company had developed returned brilliant results: the company launched vinyl sulfone-based reactive black dye, a first in Korea. Since this dye had outstanding accumulation depending on the density, as well as outstanding color reproduction, it instantly became a much talked-about topic in the industry. The color black being the most highly demanded of all color dyes, it was an important product line in improving price competitiveness for dyeing companies, which had formerly relied solely on imports when it came to reactive dyes. In addition, KISCO also developed p-base, which is the essential intermediate for reactive dyes, completing the one-stop production system that encompassed everything from materials to finished products.

KISCO continued testing, until it also succeeded in developing the liquid type of reactive black 5, another first in Korea. It offered more convenience for customers, and greater safety in the workplace.

With this achievement, KISCO was able to keep moving forward as the unrivaled leader in the industry, standing out among all others not just for FBAs or acid dyes for leathers, but also for reactive dyes, as well.

In 1983, KISCO developed the red and yellow hetero-bi-functional<sup>1</sup> reactive dyes — whose commercial names were Synozol Red HF-BBN and Yellow HF-3GN — during its relentless quest to expand the selection of reactive dyes by challenging in colors. These two products were the improved versions of the supra-type<sup>2</sup> hetero-bi-functional reactive dyes made by an advanced Japanese company. KISCO improved the stability of the reaction structure by replacing m-base<sup>3</sup>

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**1 Hetero Bi-functional Type** | The hetero bi-functional dyes refer to the dyes that contain a monochlorotriazine and a vinyl sulphone group. Two functional groups are used for maximum exhaustion and fixation during the dyeing process.

**2 Supra Type** | The supra type is the hetero bi-functional reactive dye made by the Japanese company, Sumitomo.

**3 m-base** | One of the intermediates for reactive dyes, the Japanese company Sumitomo used m-base for the vinyl sulfone-based hardeners to produce hetero bi-functional reactive dyes.

**4 p-base** | A counterpart to m-base that is an intermediate for supra type reactive dyes, KISCO and some other companies successfully introduced and replaced m-base for supra type dyes.

— the reactor of the existing product made by the advanced Japanese company — with p-base<sup>4</sup>.

After such notable achievements that excelled the products of advanced countries, KISCO became all the more confident in improving the quality of the reactive dye products, and concentrated further on R&D.

### Sensation Caused by the World's First Cotton Reactive Full Black

While the expectations of domestically produced reactive dyes were growing higher for the sake of stronger competitiveness and better quality of domestic textile products, KISCO succeeded in developing Synozol Black HF-GR in 1982.

Synozol Black H-GR, also known as cotton reactive full black, came about as a result of 300 million won of investment in development. It was the world's first black dye exclusively made for cotton fabrics, and became a much talked-about topic in the industry for its uniqueness.

In general, the color black can be made when the three colors of red, yellow, and blue are blended together. The company made its black dye by mixing the same three primary colors in a certain ratio.

Since dyeing in black entailed complex processing, without any guarantee on the uniformity in color tone, the color black was equivalent to a test board that measured the level of technological difficulty. The color black was a

major challenge, and a difficult mission, for both the dye and dyeing technicians.

The full black developed by KISCO had outstanding value because it could instill a deep black color tone with a single dye package, instead of going through the complex process of blending. However, there was more to the success of this product: chairman Kim Dong Gil produced a new chemical reaction by introducing two different reactors into a single molecule in developing this color dye. Those two reactors were called Dichloro Triazinyl and Vinyl Sulfonyl. He introduced them into a single molecule, and succeeded in making an orange color exclusively meant for use in making the black color dye.

This orange color dye was critical for the company to realize its full black color dye product. Chairman Kim Dong Gil was able to create a fantastic full black color dye by mixing in this orange color, thereby leaving a major mark on the history of dye development.

However, even though the company developed a product that nobody else had been able to create, it was subjected to grim consequences that came in the form of immediate actions by major companies around the world.

"Small and medium sized Korean dye manufacturers are concerned over some of the large foreign corporations that have started to attack the domestic market with aggressive dumping tactics, slashing their price by more than

half in just six months and absorbing the loss, all in the wake of the domestic development of the vinyl sulfonyl-based reactive dye, which is considered part of precision technology.

According to the Credit Union of the Dye Industry, KISCO has invested 500 million won over the past three years to develop the black 5 color dye, which accounts for the largest share among all dye products of the company, and started manufacturing black 5 color dye using their own resources. In response to this, foreign companies are hitting back by slashing prices: the German company Hoechst, for example, cut their price for 1kg of the same color from nine dollars to six dollars, and companies in Japan also reduced the price from 10 dollars to 6.50 dollars. Lately, some of the third world countries are selling the same color products at prices as low as 4 dollars per kg, effectively cutting off the chance of domestically produced Korean dye products from entering their domestic market.”

— mk Business News, June 25, 1983

The strong resistance of the large foreign corporations to the full black 5 was not limited to price cutting.

When Synozon Black HF-GR was first developed, the product was not warmly received in the Korean markets, either. Dyeing companies that had been using imports made by globally-renowned chemical corporations were not ready to accept a

‘product with an unproven record’, especially given that the product was developed by a small Korean company, when not even major corporations had been able to produce such a thing.

Having realized the difficulty in entering the domestic market, KISCO turned to exports, and researched the market in Japan. But there was an obstacle in the Japanese market as well. It was an issue regarding the substance patent, which, people often say, is more terrifying than direct import restrictions.

### The Honor of Korea Black

After going through much trouble and many trials, Synozol Black HF-GR finally earned the market’s trust and KISCO started manufacturing the product. KISCO became a comprehensive dye manufacturer with the command of two major dye categories: FBAs for white color, and the reactive dye for black color.

KISCO set up production lines at the Incheon factory, exclusively for the production of 60 tons of reactive dye a month. In 1985, KISCO invited Siratsu Nobuo, a retired Japanese technician, to visit their facility and from him they learned advanced manufacturing skills that would allow them to stabilize the production of their goods. It was in line with moves made by other Korean companies, which often invited retired technicians from advanced countries to teach their skills or retrain their employees. This strategy allowed



Chairman Kim Dong Gil with Mr. Siratsu, the first technological advisor for KISCO during the 1980s

them to acquire much-needed technological power at a lower cost, instead of trying to import technology directly from other advanced countries which had started to put in place barriers to protect their technological power. The temporary engagement of retired technicians was also advantageous because the companies could target those people with specific skills that the company needed and learn from them, instead of signing a technological joint partnership or making an investment, and expecting the other partner to send technicians to teach them of their own accord.

Since the demand for black color dye was almost as great as the demand of all other color dyes combined, people would say that 'selling black is selling half of all dye products.' Now that KISCO had developed this color with tremendous potential, the company enjoyed a much stronger position in the business. When the company acquired the new substance patent and entered

the Japanese market as well, other major corporations took notice. The reputation of the company took a dramatic upturn in the domestic market as well.

KISCO was considered the third largest among all domestic dye manufacturers at the time, but with the black reactive dye, the company moved up a notch both in terms of product quality and company reputation. Having developed an international standard color was more than just about a good reputation in the market; it gave the company an opportunity to be recognized by the general consumer, and by the world of quality of dyes produced by KISCO.

The Synozol Black HF-GR, also known as Korea Black, became more and more popular in the overseas markets. It literally became an item that the company could not make enough of to meet the demand.

KISCO demonstrated remarkable sales performance, and joined the group of advanced dye manufacturers as producers of an internationally demanded color.

When KISCO succeeded in developing high quality reactive dyes, the demand for dyes was 60 billion won in the Korean domestic market, 60% of which, or 36 billion won, was supplied by foreign imports. Now that KISCO had started producing them in Korea, the company could take the initiative in savings for the country on foreign currency. The company's products also excelled

foreign imports in terms of quality as well, and exports to Asian countries, Japan, Hong Kong, and Taiwan, in particular, started to increase.

When the textile industry reached the high point of exporting 10 billion dollars' worth of products during the 1980s, the dye industry was behind the achievement, by supporting the textile companies in building price competitiveness by supplying them with high-quality, domestically produced dye products. Just as synthetic dyes facilitated the development of the chemical industry and brought dyes to the general public, the R&D efforts of the domestic dye manufacturers during that time supported the advancement of the textile and dyeing industries, and facilitated the popularization of colors.

With the success of full black color dye, KISCO increased its capital to 100 million won in August 1984. In 1985, the company recorded 3,154,160,000 won in sales, and in 1986, it increased to 8,046,080,000 won, demonstrating an over 50 billion won increase in just over a year. In 1987, sales reached 13,461,770,000, exceeding 10 billion won for the first time in company history.

### The Remarkable Performance of Reactive Turquoise Blue Dye

In 1987, 16 years after the founding of the company, KISCO reached the mark of over 10 billion won in sales. But the company had another major breadwinning product, other than the full

black: Turquoise Blue.

The Synozol Turquoise Blue HF-G, a vinyl sulfone type which was developed in 1984, was a bright blue color that you see in turquoise stones. It was the first turquoise color developed in Korea. With the reactive turquoise blue, as it was often referred to, the company challenged the Japanese and European manufacturers that were dominating the market at the time. KISCO's turquoise color dye won approval in the industry, because the product had solved the problems in color reproduction and color uniformity, which had remained two major issues with other existing products.

The Synozol Turquoise Blue HF-G was also famous as a product made with new technology that the company developed on its own, and it earned the right to technology protection registration for three years in 1986. It was widely popular in the market as the only color dye available to realize a turquoise green color.

Sales of the reactive turquoise blue color dye started to take off, and eventually it replaced over 4 million dollars' worth of foreign imports a year. Together with the full black, this product was one of the two major products for the company.

With the success of these reactive color dyes, and technological competitiveness that was on a par with other global corporations, KISCO was poised for rapid growth.

## 03 Outstanding Product Competitiveness is First Recognized in the Global Market

The 1970s in Korea was a time when the dye industry was taking its first steps towards real blooming and expansion.

The dye industry in Korea during that time was considered to have an infinite possibility for growth, job creation, and the potential of making a significant contribution to the improved quality of textile products, which held a significant share in the national economy, along with the energy, water and machinery industries.

### Unfolding of the Domestic Dye Industry

The remarkable developments in precision chemistry during the early 20th century made a significant impact on the dye industry.

Even though the dye industry took a crucial blow during World War I, which broke out in 1914, it was during this war that the industry learned how to make phthalic anhydride, one of the main ingredients of dye products, which effectively accelerated growth in the dye industry when the war was over.

The production of synthetic textiles that started in the late 1930s was another factor that fueled growth in the dye industry. Until the development of synthetic textiles, the hydrophilic textiles, such as callous, cotton, or wool, had been used for dyeing. However, most of the newly developed synthetic textiles were hydrophobic in nature, and brought about a significant change in the way companies used dyes to color textiles.

During this time, the biggest issue maker in the industry was the I company of England. In 1934, I company developed copper phthalocyanine, whose commercial name was Monastral Blue BS, and dominated the blue color dye market.

Later, in 1956, the company launched a new dye product that demonstrated outstanding dyeing performance through covalent bonding with cotton: reactive dye. The development of reactive dye was another major turning point in the history

of the dye industry.

In fact, during the 1950s and 1960s, more new dye products were developed than ever before. Even though synthetic textiles were gaining popularity, that didn't mean the value of cotton was declining. Therefore, companies continuously researched new dyeing methods for cotton textiles, until finally the reactive dye was developed. However, the dyeing industry went into a downward spiral due to the global economic recession that began in the 1970s, and it lost popularity in the market because it was considered one of the main sources of environmental pollution.

But the situation was different in Korea. The 1970s in Korea was a time when the dye industry was starting to grow and bloom.

Besides, the dye industry had a great job creation effect, and contributed to the marketability of textile products, whose share in the national economy was significant because the industry was closely related to the energy, water, and machinery industries. Therefore, the dye industry in Korea was considered to have an infinite possibility to grow, and play a critical role in building the competitiveness of upstream industries.

The share of the dye industry within the precision chemical industries was only 1.79% as of 2000, but it was dye products that had the potential of penetrating the overseas market through exports. Besides, Korea was in an advantageous position in terms of price and quality competitiveness,

because it was a labor-intensive industry. In fact, the export of dyes and pigments accounted for over 60% of all exports made by the domestic precision chemical industry.

The export of dyes was led by a few well-established companies, but the total exports by these companies amounted to 170 million dollars in 2001, promoting the country's image as having advanced technological power in the chemistry sector.

But still, major European companies dominated over 70% of the global market up until the late 1990s, and for the newer companies, it was a desperate struggle to export their products to overseas markets.

Even though KISCO developed the world's first cotton reactive full black dye product, the market environment at the time posed a hurdle that was hard to overcome for the company.

### **Build a Road if There is None**

KISCO was acknowledged for its technological power with the launching of Synozol Black HF-GR, which brought the company to the quintessential leader's position in the domestic market both in terms of technology and quality of products. It was an achievement made possible by consistent company policy about continuing R&D, and business management practice that embraced investment in the development of new technologies.

Nonetheless, the mistrust of domestically

manufactured reactive dyes was not easy to resolve in the beginning when the company developed its reactive dye. When the company's domestically produced reactive dye was launched in the market, major foreign companies that had dominated the Korean market for reactive dyes started to retaliate by slashing the price of their products. Under those circumstances, domestic products remained on the fringes, unable to fully enter the market in their own country.

When all efforts to find sales channels in the domestic market failed to return any substantial results, KISCO turned to the overseas market. Company employees took the reactive dye samples, and traveled to markets around the world, especially in Southeast Asia and Japan, exploring opportunities to export their products.

Unlike the lukewarm response of the domestic market to the reactive black dye, the response from the overseas market was tremendous. The product was received especially well in Japan, and became such a popular brand that the Japanese importers give it a nickname: Syno.

The enthusiastic reaction in Japan was a result that came only after two years of hard work before the company was able to ship the first order to Japan. It was in the late 1970s when KISCO started thinking about tapping into the Japanese market, because at that time, the demand from the Japanese market for imports was growing. In part, this was due to reduced production by

Japanese dye companies that were suffering from low profitability of the dye products as a result of high wages and environmental issues.

Chairman Kim Dong Gil exported the product in order to explore the possibility of entering the Japanese market. He did this through a Japanese friend with whom he used to discuss technical issues and who had helped supply intermediates that were necessary to produce dye products. The size of the first export was small, but it received tremendous response. It later turned out that the Japanese importer ordered a small amount of the product, and used it to test the quality of the dye with various equipments. The Japanese importer even applied the product in actual dyeing. They then examined every aspect of the product all the way down to the packaging and processing, applying advanced modern product testing methods. It was during this process that KISCO learned things about the product they made that were totally new to them, and consequently they re-examined the performance and application of the product.

It impressed on the employees the importance of producing dye products exactly the same as the samples. It also helped the company renew its commitment, and this time, the commitment was different from when the company was only supplying the products to the domestic market. This was because the company had learned that any small errors or mistakes during the production process — beginning with the raw

materials and on to the mixing and packaging of the final products — could result in a difference in quality, and they had to be more watchful during the production process, for the performance of the products that they were making could not be confirmed by bare eyes, alone.

Subsequently, a wind of change swept through the company with regard to quality control, and the company earned the trust of the Japanese buyer on the outstanding performance of the product. In the domestic market, products made by KISCO also earned the trust of consumers, because they were being exported to Japan. As a result, the sales started to boom.

The successful export to the Japanese market was followed by an increase of exports for KISCO. During this time, exports to Japan reached 560,000 dollars, and later in November 1985, the company won the award of the One Million Dollar Export Tower — The channel of exporting to overseas markets had finally opened wide.

### Export-driven Growth with a Record of One Million Dollars in Exports

When exports started to pick up, and the product was recognized for its high quality, KISCO started to diversify the export channels in order to establish itself as an export-driven corporation.

But in the beginning, the lack of market information, which is critical in overseas sales,



The company was awarded the "One Million Dollar Export Tower" during the 22nd Annual Export Day (Nov.30, 1985)

was a big obstacle. The company was in need of real, practical information about price, consumer preferences, and trends of the market in the target countries.

KISCO's efforts to research markets and explore new sales channels in overseas markets was aligned with chairman Kim Dong Gil's belief that 'sales are all about building a trusting relationship between people.'

A business relationship built on trust could grow beyond the business level, and would often remain a long-lasting, reliable support for the company, he believed.

Besides, during the market research and building business relationships in overseas market, the local sales and manufacturing specialists with extensive experience in the dye industry shared their know-how with the company employees. Since they had a wealth of practical knowledge about the distribution channels in their own countries, they generally shared their practical

advice and know-how for entering their markets with KISCO.

But on the ultimate level, it was the KISCO employees who made the biggest contribution in building the company's competitiveness in the overseas market with their unyielding commitment. It was the company employees who developed international-class new products, produced them to meet the demands and standards of consumers, and built sales strategies based on painstakingly detail-oriented research on the targeted overseas markets. With their devoted commitment, KISCO could continuously increase exports by leaps and bounds.

Their efforts paid off in November 1986, a year after KISCO was awarded the One Million Dollar Export Tower, when the company broke the record and achieved two million dollars in exports. In November 1987, the company received the Five Million Dollar Export Tower award, in addition to the award from the prime minister for their outstanding achievements in exports. With these awards, the company became a quintessential small giant export company.

All these achievements also brought KISCO a reputation as one of the most exemplary small-and-medium sized technology-intensive companies. In December 1987, chairman Kim Dong Gil was honored to receive the first Korean Science Award in the industry category.

The exports of the company doubled each year,

until 1988 when KISCO left a big mark in the dye industry by exporting 10 million dollars worth of products, and receiving the Ten Million Dollar Export Tower award. It took only four years for the company to grow from 1 million dollars to 10 million dollars in exports. The tenfold increase in exports in just four years translated into a significant promotion of the corporate reputation, and KISCO was acknowledged as an exemplary export company built on technological competitiveness.

In the meantime, Korean companies recorded 50 million dollars worth of exported domestic dyes in 1987. The following year, the exports were expected to show a 44% increase, and reach 70 million dollars. Southeast Asia including Thailand and Malaysia accounted for more than 50% of the exports, followed by 30% by Japan, and 15% by Europe.

The domestically produced dyes had greater international competitiveness in terms of the price; the export price of reactive dyes ranged from between \$7.50 and \$18.70 per kg, and the disperse dyes between \$7.50 and \$15, which was about \$2-3 less than their counterparts made in advanced countries.

### Emerging as a Small Giant with a Record of 10 Million Dollars in Exports

The winning streak in exporting to the overseas

market continued in the domestic market, and the popularity of reactive black dyes was so high that production could not keep up with the demand.

The company ran all factories at capacity, day and night, but still could not produce enough to meet the tremendous demand. In 1987, the company recorded 13.4 billion won in sales, which was the first time the company recorded over 10 billion won in sales since its founding. The sales increased continuously through the years, making the company a small giant in the industry.

Along with the increasing demand and popularity in the domestic and overseas markets came the increase of company employees; now, the company was hiring 101 employees, and could advance the expertise level in every area, and focus more effectively on improving product quality and production capacity. In regards to quality control, the company was especially determined to realize standardization of the entire process — beginning with the raw materials to the final inspections — instead restricting quality control only to the finished products.

It was also during this time when the domestic dye companies were undergoing significant changes, while striving to produce higher quality dye products. It was because the size of the domestic dye market grew to 280 billion won in 1988, and the demand for disperse and reactive dye products was showing a market share of over 25%. The demand for these two types of dye

products recorded about a 30% annual increase each year.

For the dye manufacturers, it was time to find opportunities, and to invest in facilities. The L company, for example, expanded their production capacity to 6,000 tons a year at the factory in Onsan, Gyeongnam, and other companies such as RIFA, Taeheung, and OHYOUNG expanded their production capacity as well.

KISCO recorded 10 billion won in sales in 1987, and in 1989, the company increased the production capacity of Incheon factory to 2,500 tons a year. KISC invested a total 1 billion won to increase the monthly production capacity of disperse dyes Blue 60 and Blue 87 at Ansan factory from 20 tons to 40 tons.

In August 1989, KISCO invested two billion won to take over Samwon Chemical Engineering, a company whose main product line was acid dye and who recorded monthly sales of over 300 million won. With this move, the company could increase the production capacity of reactive dyes, because the company secured the production line of intermediates that were necessary to produce reactive dyes, as well as the H acid, one of the main ingredients of general dye products. The company also expanded the dye production equipment including reactors to lay the foundation for increased production capacity, followed by modifying the inside structure of the factories to accommodate mass production of their products.

Chapter III

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Eyes to the Future and  
a First-class Global  
Corporation

1990-1999

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# 01 A Joint Venture with Indonesia : P.T. Sinar Syno Kimia

In October 1989, KISCO invested \$450,000 and established P.T. Sinar Syno Kimia in Jakarta, Indonesia, as a joint venture with the Indonesian company Sinar Mas Group.

## Starting the Engine for Global Business Management

In October 1989, KISCO invested \$450,000 and established P.T. Sinar Syno Kimia in Jakarta, Indonesia, as a joint venture with the Indonesian company Sinar Mas Group.

With the goal of establishing a dye and dye intermediate factory in Indonesia, KISCO and the local Indonesian company Sinar Mas invested 40% of the total capital respectively and entered into a joint venture. Another 20% was invested by Ssangyong group's Indonesian branch with the condition that Ssangyong would have the exclusive right to handle all import and export related transactions. So the joint venture company opened for business in Indonesia, with a total start-up capital of \$1.8 million dollars. KISCO was in charge of technology, production, equipment, employee training and all other management related tasks, and P.T. Aneka Sara Kindo of Indonesia was to handle custom clearance, tax, and all other government and finance related businesses.

Sinar Mas Group, who agreed to the joint venture dye factory in Indonesia with KISCO was one of the four largest major conglomerates, established by the Chinese-Indonesian, Ecar Jipta Wijaya, in 1962. Sinar Mas Group had a total of over 150,000 employees and numerous affiliates, and was doing business in over 65 countries around the world, in such areas as agriculture (palm oil), food,



The view of the office and lab of P.T.Sinar Syno Kimia, which was established in October 1990.

real estate development, finance and insurance, among many others.

Indonesia was considered to have favorable investment conditions with a stable political structure, and the government offered various benefits and conditions to promote foreign investments, such as giving breaks on Customs and duty.

The Indonesian government favored foreign investments in particular for export-oriented and labor-intensive industries, while in Korea, joint venture investment in labor-intensive manufacturing businesses such as shoes, sewing, clothing, textiles and toys had been growing rapidly since 1987, when wages began increasing and the foreign exchange rate was going strong.

In 1989, Japan was the biggest foreign investor in Indonesia, with total investments amounting to \$660 million dollars, followed by Korea, which was investing \$460 million dollars in the same market. Korea's investment in Indonesia was primarily led

by large corporations such as Samsung, Hyundai, S.K., Ssangyong, Hyosung, and Daewoo, because these big companies were competing to be the first to dominate the Indonesian markets.

Foreign investment in Indonesia continued to increase, because foreign investors were attracted to the level of wages that were the lowest in all the Asian countries, making it possible to secure price competitiveness in a labor-intensive industry. It was also because the Indonesian government welcomed foreign investment, and supported foreign investors with various appealing benefits, such as tax incentives and financial funding for exports. In addition, worker strikes were prohibited by law in Indonesia, and any union activity had to be first approved by the government. That meant companies could run their businesses in the country without having to worry about labor-management disputes.

Another attraction for foreign investors was Indonesia's domestic market. It was a country with a population of 180 million, over a large, sprawling area of 1,920,000 km<sup>2</sup>. As the country with the world's fifth largest population, Indonesia had great potential for economic growth and increasing the per capita income.

During the 1990s, the dye industry in Indonesia was expecting about a 20% annual growth rate largely because of the booming textile industry. The local Indonesian market showed a preference for expensive foreign imports at the time, and in the



The vista view of the P.T. Sinar Syno Kimia

dye and dyeing market, there was an increasing demand for disperse and reactive dyes. The import of acid dyes, on the other hand, remained more or less the same. However, there was great potential for significant growth, because the local market had such flexibility in doing business that they were willing to buy cheap imports when the re-sale price was rising due to the gap in demand and supply, and consequently sold them with large margins of profit.

Korean made products were not as favored in the local market as imported goods made in such major countries as Switzerland, Germany and Japan. Yet, Korean made products were welcomed and were recognized as having affordable prices, and better quality than Chinese made products. Naturally, the demand for Korean made products in the market was showing an increase.

Given the circumstances, KISCO decided to make direct investments in Indonesia, so that the company could gain a foothold that would allow them to make inroads into the Indonesia

market, as well as markets in neighboring Southeastern Asian countries. The expectations were high: Indonesia would help KISCO build price competitiveness, and Indonesia was also a country with a long history as a dye manufacturing country.

KISCO started business in Indonesia with great ambition and favorable business conditions, but establishing a factory in Indonesia was not as easy as they had expected. The company encountered problems right from the time they tried to purchase land to construct a factory. After having failed four or five times, the company finally gave up their efforts to purchase agricultural land to build a factory, and decided to move into an industrial complex, instead. Even after making that decision, it took seven more months until the company finally signed an official contract. Many more problems followed, including unexpected issues with construction, roads, and the water supply. To make things worse, the rainy season began during the construction, and the whole situation went from bad to worse.

The construction was finally completed after many trials, and the factory started operations, but the difficulties were not over yet. Initially, the company had planned to produce 42 batches during the test run in the factory, but as it turned out, the factory produced only 24 batches. The trouble seemed like it was never going to end.

Not until two years after the joint venture

company was established in Indonesia was KISCO able to finish setting up all equipment and facilities, and complete test runs at the factory. In October 1991, KISCO finally produced about 100 tons of CPC Crude — intermediate for dye — in the first month at the local factory. The local dye factory in Indonesia was built on a site covering 35,700 m<sup>2</sup> with \$1.08 million dollars in investments. Equipped with the latest dye manufacturing machinery, the factory could mass produce about 180 tons of dyes per month. The factory was fully equipped for the production of dyes, and started to produce dye products, some of which had been produced in Korea prior to this. The local factory also strived to build its own business territory through independent production of items, such as cyanine blue for pigment.

Later on, KISCO invested an additional \$1.8 million dollars in 1993 to turn the factory in Indonesia into KISCO's local production base,



Kim Heung Joon, then managing director, with the research fellows from P.T. Sinar Syno Kimia

and start building a global corporation to respond to the globalization era. The following year, in 1994, the company made another additional \$7 million dollar investment to extend the dye production capacity in the local Indonesian factory, and started to produce most of the company's products — except for the newer items — in this factory. Beginning in June 1994, KISCO produced most of the acid, reactive, and disperse dye products in the local Indonesian factory. By the following year, in 1995, the company had a production capacity of 1,500 tons a month. After the company built the second factory in 1994, the total production capacity doubled to 3,000 tons a month, and the company continued its efforts to make the local Indonesian factories their second hub of production.

But the sales of products made at the Indonesian branch did not show a significant increase. A series of problems that started with the building of the factory were partially to blame, and their efforts to lay the foundation of a global corporation with a firm grip on the local Southeast Asian markets was close to becoming a complete failure.

Even though KISCO experienced hurdles in the initial stage of their quest for a globalized business, the company was well aware that they could not restrict themselves to the domestic market only, if they were envisioning growing into an international-class dye manufacturer. The

company was also determined not to remain in the red ocean of the domestic market, and engage in cut-throat competition with other companies. Besides, records showed that the company had laid a solid foundation in the Korean market, only after the company made its reputation in the overseas market with winning strategies that enabled it to earn \$10 million dollars in exports.

With an eye to the infinite market, KISCO was envisioning an established system, through which the company could produce and sell their products in Indonesia — it was the vision of the company to compete on a par with major global corporations in the infinite battle at the world level.

### Building a Sales Network in Southeast Asia with an investment in Rachada Chemicals, Thailand

Even though the Indonesian factories — which the company tried to turn into a second major manufacturing base — failed to meet their high expectations, KISCO moved on to build a sales base in Thailand, which was dominating the markets in Southeast Asia.

In August 1990, KISCO made capital investment in Rachada Chemicals (CEO: S. Suthipong), an international trading company based in Bangkok, Thailand, and made it their local Thai branch that would serve as the distribution center in charge of sales and marketing. It was the company's goal to use the Thailand branch as a center that connects



Making a capital investment in Rachada Chemicals of Thailand (August 1992)

all contacts in Tokyo, New York, LA, Hong Kong, Thailand, Taiwan, and later, China, in its quest to build a global sales network.

KISCO also signed the OEM production contract with a company in Thailand, aiming to enter the major markets in Southeast Asia. Once they had OEM production with the Thai company, KISCO was able to promote the company's presence in Thailand, and make inroads to the markets in Thailand as well as Southeast Asia on just a small investment.

## 02 Entering the Polyester Market with Disperse Dyes

Due to the recession, Korean textile companies experienced a period of business stagnation, but KISCO was able to gain a strong foothold by making ambitious investments, such as building a factory in Siheung.

The Siheung factory was located in the Sihwa Industrial Complex, Gyeonggi-do, and was constructed for the exclusive production of disperse dye products.

### *A Hard time for Reactive Dyes, But a Booming Time for Disperse Dyes*

With the beginning of the 1990s, domestic dye manufacturers held the upper hand in production capacity and quality for the domestic market. But due to an increase in the cost of waste water processing as a result of environmental regulations, and increased wages, on top of the shortage of skilled human resources, they began to struggle.

Besides, the hub of textile production was shifting to other Asian countries, which were becoming major markets with a high demand for dye products. Supported by their domestic markets, China and India secured price competitiveness by supplying low to medium priced dyes with improved quality, and they were penetrating into the market for reactive dyes with low prices, as well.

As a result, the growth of domestic reactive dye manufacturers, which had been the driving force behind Korean exports, started to slow down, and they struggled in the price competition with Chinese and Indian made products that offered better profits.

According to a report released by the Korea Dyestuff and Pigment Industry Cooperative, the production of domestic dyes as of 1993 amounted to 42,999 tons, which was a 7.3% increase from the previous year's 4,200 tons in 1992.

The rise was attributed to a continuous increase

in the production of disperse dye 1 and reactive dyes. While struggling between the low-priced Chinese and Indian imports and the high-priced European and Japanese products, Korean dye manufacturers still managed to show solid growth during that time. After having diligently strived to increase exports, the trading competitiveness of domestic dyes was also showing an increase, albeit a small one.

The leading dye manufacturers of Korea, such as RIFA, Taeheung, and Lucky, were particularly proactive by investing in technology, and improving quality during the same period. In terms of technology, Korean companies had moved beyond the stage where they were copying foreign imports, and were developing and producing their own brand new dye products. Consequently, the high-quality reactive and disperse dye products developed by these leading Korean manufacturers swiftly replaced the foreign imports that had been dominating the market.

On the other hand, the small-scale dye

manufacturers in Korea had to compete with Chinese and Indian exporters whose low-priced products had greater price competitiveness than Korean products, whose market share continued to drop.

The market for reactive dyes also took a downswing sometime around the mid 1990s. Reactive dyes had been showing an annual growth rate of 30% until 1989, due to the demand for natural textiles, but beginning in the 1990s, the growth started to slow down. In 1991, the total production of reactive dyes was 10,627 tons, which

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**1 Disperse dye** | Since disperse dyes are water insoluble dyes, the molecules have to be made in the smallest size among all dyes. Once they are made into small molecules, they are dispersed in water by using agents, such as surface active agent, to make them close to colloid, before the textiles can be dyed.

Since the disperse dye was first developed for acetate rayon, it is also called the acetate dye. The azo, anthraquinone, azamethine and nitro-based dyes are included in the disperse dye category, but mostly disperse dyes are azo and anthraquinone-based. The disperse dye have excellent fastness, but the weak points of the dye include the discoloration due to the nitric oxide that exist in the air, or the color transfer to white clothes while ironing or storing. The disperse dye is used for polyester, polyamides, and polyacrylonitrile-types of synthetic textiles.

**Index flow of the Trading Competitiveness of Dye Products**

(source: Samsung Economic Research Institute)

Index	Market Share(%)			Export Comparative Advantage Position			Trade competitiveness		
	1976	1985	1992	1976	1985	1992	1976	1985	1992
Korea	0.1	0.4	1.2	-1.94	-1.42	-0.56	-2.8	-2.01	-0.79
Japan	2.9	7.2	7	-1.05	-0.34	-0.29	-0.45	0.23	0.49
China	-	-	1.6	-	-	-0.41	-	-	-0.38
Hong Kong	1.7	2	3.2	0.61	0.19	0.01	-0.71	-0.54	-0.04
Germany	31.6	28.3	25.2	1.28	1.26	0.97	1.64	1.39	1.23
England	5.5	11.4	10.2	0.07	0.79	0.75	0.91	1.46	0.83
Switzerland	13.9	10.4	8.2	2.29	2.05	1.63	1.48	0.92	0.85

was an 11% increase from the previous year. In 1992, it saw another 10% increase to 11,174 tons, and an 18.8% increase in 1993 to 13,269 tons.

Large as well as small-scale companies were mass producing universal products and were competing for a market share. By 1994, many companies had expanded their production facilities to accommodate newly developed products, and the consumer price was destined to fall due to the over-heated competition.

In addition, the bad harvest of cotton that began in 1993 brought about a comprehensive recession in the textile industry, and the world demand for reactive dyes dwindled as a result. The European dye manufacturers were either leaving the domestic market for reactive dyes, or reducing their production volume. Since domestic dye products were depending on the business conditions of the textile and dyeing industries, demand for domestically produced dyes was also destined to fluctuate depending on the economic recovery. Exploring new markets to export products remained a major issue, as well.

While the demand for reactive and direct dyes for cotton was dropping, the demand for polyester textiles started to increase, and so did the demand for disperse dyes.

At the beginning of the 1990s, the market share of disperse dyes in the whole dye market was 27.5%, showing better growth than any other dye products. The production volume in 1994 showed

a 40.3% increase from that of 1993. The domestic demand also showed a big jump, along with remarkable growth in the production volume.

Consequently, domestic dye manufacturers increased their investment, or started to develop disperse dyes, in preparation for the continuing increase in demand. Around this time, domestic dye manufacturers were typically small and medium sized companies, as evidenced from the fact that among the 40 dye manufacturers in Korea, only six of them were recording over 10 million won in annual sales. Four companies were considered leaders in the industry as comprehensive dye manufacturers: KISCO, RIFA, Taeheung, and Lucky. Of these four companies, Lucky was producing disperse dyes only, unlike the other three companies. Therefore, Lucky had about a 45% market share in the whole domestic disperse dye market. If the imports were excluded, Lucky was supplying 80% of the total demand in the domestic market in 1994, securing its position as the largest disperse dye manufacturer in Korea.

The disperse dye was first introduced to Korea by Dongyang Chemicals in 1971, but later, in 1977, Lucky introduced the disperse dye manufacturing technology from AC&CC. After that, over 70 different items were produced until the mid 1990s in Korea. In the universal product market, there was an increasingly domination by low-priced Chinese products.

Because the disperse dyes were highly

dependent on foreign exports, the market was heavily geared towards four exporting countries, including Japan, Germany, China, and England. The export of disperse dyes from Korea to China showed a big increase after China suffered a bad harvest of cotton in 1994, and had to start producing more synthetic textiles, instead.

### Establishment of the Siheung Factory and the Full Production of Disperse Dyes

The textile industry went through a stagnation period due to the economic recession in 1993, but KISCO gained a foothold for development through ambitious investment, such as building a factory in Siheung.

Siheung factory was located within the Sihwa Industrial Complex in Gyeonggi-do, and was built

exclusively for the production of disperse dyes.

Situated near Jeongwang-dong, Siheung-si, Gyeonggi-do and part of Seonggok-dong, Ansan-si, Sihwa Industrial Complex was the second project following the Banwol Industrial Complex. It was built to the west of Banwol Industrial Complex on land reclaimed by drainage, after the land available for factory construction was completely exhausted within the Banwol Industrial Complex. The ground was broken to build the Sihwa Industrial Complex in 1987, in order to relieve the population over-crowding and the industrial congestion in the Seoul metro area, and to accommodate the non-urban type of factories moving out of the greater Seoul area. Since the complex was located within 40km of major cities — Seoul, Incheon, Bucheon, Anyang, Suwon, and Seongnam — it could efficiently decentralize the

Production Status of Different Dye Items (unit: MT. %)

[source:Korea Dyestuff and Pigment Industry Cooperative]

Item	1991		1992		1993		1994	
	Q'ty	Q'ty	Increase Rate	Q'ty	Increase Rate	Q'ty	Increase Rate	
Direct Dye	4,011	3,788	-5.60%	3,576	-5.60%	3,147	-12.00%	
Acid Dye	5,412	6,711	24.00%	6,231	-7.20%	6,542	5.00%	
Basic Dye	2,870	2,849	-0.70%	2,712	-4.80%	2,592	-4.40%	
Mordant Dye	90	202	124.40%	223	10.40%	192	-13.90%	
Vat Dye	76	42	-44.70%	24	-42.90%	15	-37.50%	
Oil Soluble Dye	378	1,202	218.00%	413	-65.60%	347	-16.00%	
Sulfur Dye	2,890	2,517	-12.90%	2,888	14.70%	2,184	-24.40%	
Fluorescent Dye	4,079	3,843	-5.80%	4,694	22.10%	4,366	-7.00%	
Reactive Dye	10,161	11,173	10.00%	13,269	18.80%	13,772	3.80%	
Disperse Dye	7,354	7,604	3.40%	8,851	16.40%	12,152	37.30%	
Other Dyes	162	164	1.20%	112	-31.70%	178	58.90%	
Total	37,483	40,095		42,993		45,487		

over-crowded population. Besides, the complex was near the existing Banwol Industrial Complex, and had access to the Incheon International Airport that was only an hour and half away. In terms of transportation, the complex could not expect any better conditions, because the Singal-Ansan highway was available, as well.

Sihwa complex was built over a sprawling site of 15.2km<sup>2</sup>, and only factories that were registered and wanted to move out of the greater Seoul area were allowed to move into the complex. As a result, about 2,000 manufacturing factories doing business in food, textile, paper, printing, chemicals, lumber, non-metal, basic metal, machinery and various other fields moved into the complex, and were offered benefits such as a break on local tax, in accordance with the government's Industrial Placement and Factory Construction Act.

Since KISCO was in need of expanding the production facility after the Incheon factory proved to be too small to manufacture all the needed reactive dyes, the company applied to move into the complex during the second round of land sales, and secured a site to build a new factory under the condition that the secondary factory for exporting companies cannot be bigger than 2,000 pyeong.

KISCO purchased a site of 6,700m<sup>2</sup> in the complex to build a new factory, aiming to increase the monthly production volume of reactive dyes to 154 tons, or 1,848 tons a year. The company was

planning to export 7.367 million won worth of products from here, and sell 6,175 million won in the domestic market. This would result in building national competitiveness by replacing the imported dyes, and they could build national technological power that could be compared to that of advanced countries, by supporting domestic dyeing companies with technical assistance.

In January 1993, KISCO started full production at the Siheung factory, and accelerated its efforts to develop domestic disperse dyes, which were still in development at that time.

It was during the 1990s that the company laid the groundwork for the full production of disperse dyes, but the development effort had already started in the late 1980s.

Unlike reactive dyes that covalently bond with textiles, the disperse dyes don't dissolve easily in water, and they are employed in the dye exhaustion method, by which dyes are milled into fine particles, before being dissolved in the textiles using dispersing agents during the dyeing process.

Therefore, the production of disperse dyes required a milling stage. The company brought in the milling machine, which they did not need previously when the company produced mostly reactive dyes and FBAs. They also set up a reactor that was made of new materials called FRP, instead of using the existing reactors that were



A Scene of Production at the Siheung Factory

either made of steel or were rubber coated. When the dyes are mixed and passed on to the next step, the company used a diaphragm pump that operated on air, instead of the standard practice impeller.

The Siheung factory was equipped with the advanced mechanical system necessary for exclusive production of disperse dyes, and achieved efficiency in human resources management. The company practiced an exceptional hiring policy for the dye industry of the time, by recruiting college graduates to work on the production line, so that the company would have employees with both knowledge and passion working on all stages of the process, from research to production. This was all part of the company's efforts to stabilize the production of the newly launched disperse dyes at the earliest possible stage.

Subsequently, the company appointed Park Byung-gap, the director who used work at the central research institute, as factory manager,

and put a total of 13 employees, including seven new recruits with college degrees, in charge of production at Siheung factory in the beginning. The three new production technicians had majored in chemistry, and they started to work at the factory with ambition and an outstanding array of skills. But it took almost a year for the production to get on track, because they did not have direct experience in the field, and were not skilled enough to dynamically respond to all the problems that arose.

Besides, the training that employees received at Incheon and Ansan factories before they were dispatched to the new Siheung factory turned out to be not good enough for the production of disperse dyes, which were different from reactive dyes.

Nonetheless, the expectations for the newly built factory and the passion of new recruits started to show as active production activities, and the initial stage of trial and errors slowly started to settle. Before anybody knew it, the Siheung factory was full of vital energy and innovative spirit, and all employees worked together as a team in everything including the installment of machines, production management, and test production, not to mention finding solutions and making improvements.

As a late starter in domestic disperse dye manufacturing, KISCO tried to narrow the gap with more established companies by

adopting advanced technologies from other countries and developing its own as well, all while commercializing color dyes, such as Anthraquinone<sup>1</sup> and Quinoline<sup>2</sup>, which could be produced with a single ingredient to meet the high demands from the market. In 1986, the company also began to develop Black EXN-SF and Navy Blue EXN-SF, so that the company could domestically produce the disperse black and navy blue color dyes, the entire supply of which had been imported from Japan at high prices.

Before the disperse Black K-SNF was produced and launched by Siheung factory, the domestic disperse market was dominated by foreign imports, which were selling at \$33 per kg. However, when KISCO developed and started to produce the item in Korea, the price dropped to around \$10, and KISCO successfully entered the domestic disperse dye market.

This was part of the company's initial strategy to build its reputation as a disperse dye maker by replacing imports with domestically produced items. In addition to the disperse dye product, the company focused on developing and producing highly-concentrated powder type dyes by using spray dryers and other high efficiency equipment

in order to meet the demands for exports. Later, the company launched highly-concentrated azo-based black and navy blue color dyes with outstanding color fastness, and were successful in entering the disperse dye market, in addition to the reactive dye market.

With the beginning of the 1990s, domestic dye manufacturers were striving to develop value-added and high-quality dye products including disperse dyes, while trying to find a solution to winning the race against low-priced products made in China and India.

KISCO was no exception: the company channeled all its available resources into the development of

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**1 Anthraquinone Dye** | Any of a group of organic dyes that has molecular structures based upon that of anthraquinone is called the anthraquinone dye. The anthraquinone dye have excellent washing and light fastness, and it can reproduce colors brilliantly. It is one of the most important synthetic dye along with the synthetic dye. Depending on the behavior of dyeing, the anthraquinone dye can be classified into anthraquinone mordant, anthraquinone acid, or anthraquinone vat dye.

Anthraquinone is obtained industrially by the oxidation of anthracene, which is a solid polycyclic aromatic hydrocarbon consisting of three fused benzene rings. The anthracene is mostly used in wood preservatives, insecticides, and coating materials.

**2 Quinoline** | Quinoline is a heterocyclic aromatic organic compound, and it is a colorless hygroscopic liquid with a strong odor. It is mostly used to make dyes, preparation of hydroxyquinoline sulfate and niacin, and as the solvent for resins and terpenes.

#### Production Process of Disperse Dye



technology that would help their products stand out among all others, while at the same time preparing itself for the future when the company would compete against first-class corporations with international-class products. It was around this time that chairman Kim Dong Gil released Guiding Principles for Executive Management Staff, dated April 26, 1993, reminding the executive management staff of the corporate management goals, and asking them to become a self-initiated model to others.

It was during this period that KISCO began merging affiliates, in order to promote business efficiency and realize rationalized business management. On July 1, 1993, KISCO signed a business transfer agreement and took over Kyung-In Equipment, an affiliate specializing in the manufacturing of environmental equipment, and merged with Samwon Chemical Engineering,

another affiliate, in April 1994 at a 1:0 ratio. The moves were intended to realize streamlined business management through vertical integration.

#### **Guiding Principles for Executive Management Staff**

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1. Promote diligence to all employees naturally, by first being diligent yourself.

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  2. Take the initiative in researching and studying for your own personal growth, while at the same time creating an atmosphere for continuing study and research for everyone within the company.

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  3. Become a model in what you do and say, and build the qualifications that will earn you respect from other employees.

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  4. Be the first to fight against injustice and unfairness in the company, and build the prospering moral fiber of the company

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  5. Try to care about employees, instead of dominating them, so that you can move their heart and make them follow you.

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  6. Avoid being selfish in your views; respect the opinions of others, and always work to reach peaceful and amicable agreements with them.

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  7. Show modesty and kindness to all visitors, and take the initiative in improving the corporate image.

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  8. Carry out and manage all assignments systematically, to ensure the highest efficiency of work performance and build a solid management foundation.

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  9. Always try to improve your foreign language skills in preparation for the globalization era, and try to inspire others to do the same.

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  10. Have compassion when training junior employees, so that together you can build a better KISCO in the next generation, with them, the future leaders.

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  11. Reaffirm your commitment and proactively strive for the new KISCO of the future, beginning today.

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## 03 KISCO Goes Public

By successfully going public, KISCO promoted the credibility of the company, and renewed its mission to grow as a company that contributed to national economic development. The company also laid the groundwork for transparent business management by assuming social responsibilities as a public corporation, and establishing a functional system.

### Going Public and Becoming a Listed Company

In October 1995, KISCO published and listed a total of 1.08 million stocks on KOSDAQ, reaching a turning point to becoming re-born as a public corporation.

With the paid-in capital of 6.5 billion won, the two biggest shareholders were chairman Kim Dong Gil and president Sung Nak-gwan with 25% and 21% of the shares, respectively. For two days from August 20 to 21, 1995, the company held its initial public offering, which showed the competitive rate of 4.4:1. On October 5, the company issued 350,000 common stocks in registered nominative form, and listed them on the stock market, completing the company's offering of stocks. The initial offering price of the stock was 15,000 won, which was slightly lower than the company had expected. But beginning the following year, the price started to go up, due to the company's healthy financial structure and steady sales records.

At the time, KISCO was the fourth largest company in the dye industry with a 12.2% market share, as well as the highest share of export sales in the country at 60. The company's biggest selling item was high-quality reactive dye, which accounted for 60% of the total sales, followed by disperse dye, which accounted for 20%. Since the operation ratio of the Siheung company — which was manufacturing disperse dye products — was showing continuous growth due to growth in the



Stocks Listed on the Stock Exchange Market (October, 1995)  
Receiving the 12th Venture Capital Award (December, 1994)

synthetic textile sector, the company was expected to show stable growth well into the future.

In terms of the financial structure, the company had a healthy 221.18% current ratio, 57.68% of net worth to equity, and 73.36% of the debt rate. In terms of profitability, the company was recording a solid 6.87% of gross net profit, 9.21% of ordinary income on total assets, and 13.6% profit ratio of net worth. The company's growth ratio was higher, with net sales growth rate of 31.56%, net profit growth rate of 7.92% and the net worth growth rate of 39.10%. All these positive indexes made the company stand out as a company with good-

performing stocks.

The company demonstrated a remarkable increase in business management performance, recording a total 70 billion won in sales as of 2000, while other companies in the industry were struggling in the bad economy. It was a 15% increase over the previous year, and the ordinary profit recorded a 333% of increase during the same period. As a result, the KISCO stocks were considered to have both great potential for growth and profit.

Consequently, KISCO was recognized as a company with good performing stocks, and in 2000, the company ranked number 10 for the fiscal year of 1999 among about 700 listed companies in terms of the growth rate of ordinary profit and net profit.

By successfully going public, KISCO promoted the credibility of the company, and renewed its mission to grow as a company that contributed to national economic development. The company also laid the groundwork for transparent business management by assuming social responsibilities as a public corporation, and establishing a functional system.

Internally, the company also laid the foundation for a stable financial structure, by securing funding capability directly from the financial market, in such forms as paid-in capital increase and issuing debentures. The company built a foundation for the rationalization of business

operation as well, by separating ownership and business management through the distribution of shares.

In the meantime, the company was recognized as a downstream industry that contributed to the development of the textile industry, when the company received the Venture Capital Award in December 1994, followed by the Grand Prix in Korean Textiles in the development of dye and pigment category in July 1995, and another Grand Prix for The Promotion of Textiles in the production of dye and pigment category in June, 1996.

### Establishment of a Quality Management System with ISO 9001 Certification

A Quality Management System is ultimately aimed at building the foundation for sustainable growth, and has long been considered one of the most important strategies in company management. Successful quality management requires the participation of all employees, and the commitment of the highest level executive management. Therefore, it is considered the groundwork upon which all-directional quality improvement and innovation activities can be realized.

It was not until 1987 that the ISO 9000 certification system was adopted in Korea; a year after the ISO (International Standardization Organization), based in Geneva, Switzerland, started to issue

the ISO 9000 series of certifications. At the time, acquiring the certification was understood to be part of the quality improvement activities to meet the demand of customers. But gradually, awareness of the certification grew to the point where companies started to realize it was essential to acquire the certification for stronger competitiveness.

The ISO 9000 standard was established in order to have an internationally acknowledged quality guarantee system; break down the technological barriers; build a trading environment where countries could acknowledge the quality of products made in other countries; and guarantee the credibility of products both to suppliers and buyers in the worldwide markets.

In Korea, the quality certification system was established in 1993 when the Quality Management Promotion Act was created, and various legal and systematic measures for the ISO 9000 series of certification were set up. In the beginning, the certification for quality assurance models such as ISO9002/9003 were limited to manufacturing industries, but soon, it extended to construction and service industries, as well as public organizations. Beginning in December 2000, all the quality assurance models were integrated into a single quality management system, and became the international standardized system.

Responding to the global trend where the focus was shifting from suppliers to consumers, KISCO

also began to prepare for the acquisition of ISO 9001 certification beginning in 1994. With it, the company could launch products that satisfy consumers, and have the international standard of quality competitiveness with which the company could compete against advanced companies.

The company's efforts paid off in May 1995, when the company acquired ISO 9001 from Lloyd's Register Q.A. of England, which was the world-renowned quality certifying organization.

From then on, the quality control of KISCO was conducted in three stages, in accordance with strict quality control standards. The first stage of quality control was applied to the purchasing, warehousing and analyzing of raw materials. During this stage, various tests were conducted on the materials, using different spectroscopic equipment such as UV, HPLC, GC, and CCM.

The second stage was applied to process analysis at each stage of mixing; the company conducted thorough analysis based on the standardized

process when mixing dyes during this stage. The last stage was the standardization of the final product, through which the company used the dye products in actual dyeing, and ensured that the color, color fastness, materials, packaging and warehousing met international standards.

Each of the three stages was broken down into several other sub-stages, so that the company could build a quality management system that ensured customers did not have to experience any inconveniences when purchasing and using the company's final high-quality dye products.

With the establishment of the ISO 9001 quality control system, KISCO moved beyond the post-production quality control level, and had a more professional and strict quality control system that covered everything from the purchasing of raw materials to production, quality management, order delivery, and even sales management, all based on the painstakingly conducted quality analysis and data collection.

Recognizing the importance of technical support for an advanced quality control system and achievement of the perfect quality, KISCO reinforced the human resources in the technical sales department, while shifting the previous focus of the customer service system from post-sales customer service to pre-sales customer service. With this shift, the company advanced its customer service system, and could prevent any possible complaints in advance by having better



ISO 14001 Certification  
ISO 9001 Certification

understanding of the demands from customers and the markets, instead of waiting until the problems were identified and complaints were filed while KISCO's dye products were on the market.

In December 1996, KISCO became the first company in the dye industry to start building an online website. A project to commemorate the 25th anniversary of the establishment

of the company, the website was designed to serve as a space where information and technology can be shared online. The company also expected the website to help build an open and dynamic corporate image, and introduce the corporate vision for future growth. In May 1997, the website was launched, and a wide variety of content designed to encourage the employees' participation and improve customers'

#### KISCO's Information System Building Process

Year	Details	Note
May 1986	Introduction of MFC-5000	
May 1990	Introduction of AS/400-E35 (3.4RPR)	
Dec. 1990	Introduction of AS/400 Package	Sammi Computer
Aug. 1996	The first introduction of AS/400 Host System Upgrade(500 Model 9406-500(12.6RPR) LAN System	
Oct. 1996	Mail, DNS Server was built(Sun Ultra 170)	
May 1997	Website was built	Namo
Aug. 1999	Authorized Software was purchased for the company (100 copies)	
Nov. 1999	Introduction of bar coding system (inventory and warehousing management at factories)	
Mar. 2001	Work schedule automization system (R/F ID)	
May 2002	Introduction of ERP System	G&Net
Jul. 2002	Introduction of Notes and Mail System	
Jan. 2004	Introduction of Video Conference system	Polycom
Apr. 2004	Introduction of spam system	Kynee
Jun. 2004	Introduction of document security system	Fasoo
Aug. 2004	Introduction of the Exit and Entry control system	Computer Team
May 2005	Introduction of the break-in detect system	Safezone IPS
Aug. 2005	The second introduction of the bar coding system CPT-8500 DAITO-KISCO computing system was built	CPT-8500
Nov. 2005	Network system was built at Shanghai office, China	SecuwayGate
Oct. 2006	Website was re-built	Master C&C
Aug. 2007	SSL(Secure Sokets Layer) VPN was built	
May 2008	Signed E/A with Microsoft Group mail integration (Outlook)	Microsoft
Mar. 2010	JMC ERP was built	G&Net/Computer team



Company website as of today  
 Company website in the beginning

understanding about the company were provided, along with a variety of expert information about dyes. The website served as a channel of internal communication for the company, as well.

While advancing the quality of dye products, the company introduced the production management computing program so that yield improvement and cost analysis could be carried out in the field. With this program, the company secured an integrated services digital network that covered production, management, and logistics, all within one program. This program also provided the company with a logical and efficient communication system,

which connected two factories in Incheon and Siheung with the headquarters, and even the factories of Eastwell, a raw material agent as well, through the LAN (Local Area Network.)

This distance information communication network made paperless offices possible, and contributed to the automation and precision of the production process and the management of various raw materials, all on a real time basis. It greatly promoted efficiency in the management area. In addition, individual employees could have easy access to trends and information about the dye industry through the system, and advance their level of expertise. All 250 employees were assigned their own email addresses, so that they could sign and approve documents even while they are on a business trip overseas, as well.

In May 2002, KISCO built the ERP (Enterprise Resource Planning), a remarkable resource management system, and integrated all business activities, from the purchasing to capital management, bookkeeping, production and sales. This system allowed employees to have access to management status on a real time basis, and brought about fast and efficient business management.

### Promotion of a Sense of Ownership with an Advanced Welfare System

Understanding that the personal growth of an

employee is the growth of the company, KISCO has been following a human-centric business management philosophy that respects the human.

In October, 1989, KISCO was the first in the industry to construct apartments to rent to employees to ensure a stable and enriched life for all company employees. The company built 35 units in Seo-gu, Incheon, and another 36 units in Bugok-dong, Ansan-si, Gyeonggi-do for employees, thereby promoting the pride of the employees, and ensuring more stabilized job performance.

The company also instituted a job performance-based, annual salary system beginning in 1997. This system was a strategic measure to promote work performance, by providing compensation based on the nature and quality of job assignments, and ultimately build a stronger corporate competitiveness. It was an improvement from the previous seniority-based

compensation system, in which the employees were paid based on their age, years of working for the company, and their educational background.

It was also a decision made out of necessity, because the company realized they could no longer expect better efficiency in work performance and stronger international competitiveness with the conventional, rigid compensation system. This was the late 1990s, a time when competition in the industry was growing fiercer, as dye companies throughout the world were merging and taking over other companies to grow bigger and stronger.

In the beginning, KISCO made sure there was a certain grace period to minimize trouble caused by the change in payment, and to give employees enough time to come to a full understanding of the new system. The company also added flexibility in the annual salary system by excluding some employees working in special areas. The company started the new payment system exclusively for executive level employees in 1997, and later gradually extended it to the directors, ordinary employees, and factory labor workers. By 2001, the new compensation system was applied to all employees, from the top executive management right down to field workers.

With the annual salary system, wages were determined based on job performance and the nature of work assignments, instead of seniority or work hours. With this system, which was an



KISCO Employees Apartment (Oct.23, 1989)



Chairman Kim Dong Gil and the group of presidents are taking a tour inside the employees' apartment (October 23, 1989)

effective human-centric compensation system, the company added vital energy to its workplace because they were able to hire people based on the individual's capabilities. In addition, the variable pay system had a crucial effect in motivating company employees.

Thanks to this payment system overhaul, KISCO reached a turning point where it left behind the low-cost, low-performance system, and moved forward to become a highly efficient organization, where communication became more dynamic between employees throughout all the levels from the top to bottom.

After successful adoption of the performance-based variable pay system to promote the work performance of employees, KISCO decided in 1999, during the stockholders meeting, to offer stock options to employees who made great contributions to the development of the company. As of 2011, 31 employees hold 2.5 million won worth of stock options (face value of 500 won

each). It was one of the many unconventional systems KISCO adopted to encourage the work performance of employees.

KISCO also offered a generous benefit package to employees, which included an employee welfare fund, home loans, educational fund for employees' children, language training, support clubs, and group insurance, all of which were designed to provide employees with a favorable work environment, so that they could work together as a team with a sense of belonging to an organization with a higher work moral.

The company's support for employee language training was particularly well received, because the company supported employees — all employees, including those working in the international trading and export offices — to develop a better command of foreign languages, so that they can achieve personal growth and be better prepared for the era of globalization.

### Emerging with KISC and the Birth of the Korea's Largest Dye Manufacturer

With the beginning of the 1990s, the biggest topic of interest in the business community was globalization.

Companies concentrated all available resources on building stronger international competitiveness, in response to the government declaration of the year 1995 as the first year of

globalization, while the WTO system went into effect worldwide, putting companies around the world on the alert to the new challenge of infinite competition with each other.

This new business environment that forced companies to face borderless, infinite competition impacted the dye industry as well, and brought about sweeping changes in the landscape of the overall dye industry. Some of the advanced dye manufacturers for example, moved their manufacturing facilities to third world countries in preparation for a decline in the domestic textile business and soaring costs of manufacturing, while some others reshuffled their company structures by merging different departments within their organizations.

While the business environment was experiencing sweeping changes both inside and outside of the country, KISCO established a five year plan designed to help the company grow into a superior precision chemical industry by 2000, and declared the year 1995 as the first year of their plan. Under the management mission of



A scene of the company after merging with KISCO

“international quality, international technology, and the international market,” the company put all its efforts into increasing sales, until the company recorded 36.1 billion won in sales, and \$30.6 million dollars in exports to over 50 countries in 1995. It was a 32.5% growth over the previous year.

The following year, in 1996, the company recorded an astonishing 20% growth rate over the previous year, by pursuing profit-oriented substantiality

#### The Net Sales of the Five Leading Companies, 1997

(unit: ton, a million won)

Companies	Total Supply		Acid Dye		Fluorescent Dye		Disperse Dye		Reactive Dye	
	Q'ty	Amount	Q'ty	Amount	Q'ty	Amount	Q'ty	Amount	Q'ty	Amount
RIFA	89,725	100,429	865	6,518	144	366	2,357	12,163	4,659	24,270
KISCO	7,905	56,921	794	4,747	132	586	1,582	12,846	5,306	38,124
Taeheung	8,232	52,803	1,149	8,334	11	85	877	4,785	4,468	26,580
Ohyoung	5,877	33,278					1,457	4,078	4,420	29,170
KISC	3,239	21,582	37	323	1,173	3,494	575	7,899	1,311	9,078

management that greatly improved the quality and price competitiveness of the company products. At the same time, they drastically eliminated all irrational and inefficient factors in the workplace that could have increased costs for the company, with the goal of breaking away from the carefree mentality and pursuing perfection through conscience renovation. With this achievement in growth that surpassed the average rate for the industry, the company confirmed its unrivaled leadership position in the dye industry. The company's growth streak continued throughout 1997. When the country was rocked by the unprecedented national default, the company still

recorded 56.6 billion won in sales. Even though the business environment was hostile, the company made impressive achievements through dynamic business management, and built confidence in the globalized management that the company had envisioned.

Beginning in the first half of 1998, the domestic prices of raw materials started to drop, and so did the company's cost of production. Supported by this favorable market change, the company enjoyed a 236% increase in operating profits from the previous year. The company was able to achieve such remarkable profit growth because the price of raw materials such as the

#### Sales-per-Company of Reactive Dyes

[source: Korea Institute of Industry and Technology Information, Market Data in Korea]

Companies	1996(1~6)	1997(1~6)	Growth Rate(%)
KISCO	2,550	3,049	20
OHYOUNG	2,200	2,900	31.8
Taeheung	1,800	2,400	33.3
RIFA	1,671	2,210	32.3
BASF	396	337	-14.9
Ciba Specialty Chemicals	350	360	2.9

#### Effects of Merging with KISC

[source: Samsung Economic Research Institute]

Category	Before		After
	KISCO [As of the end of 1997]	KISC [As of the end of 1998]	KISCO [As of the end of 1998]
Assets	78,217,629,991	18,013,120,302	85,026,591,314
Liabilities	45,999,056,534	6,048,637,246	39,449,950,358
Size of Capital	32,218,573,457	11,964,483,056	45,576,640,956
Debt Ratio	142.77%	50.55%	86.56%
Earning Rate per Share	23.72%	39.46%	36.10%
Earnings for Share	1,186 won	1,973 won	1,805 won

intermediate p-base dropped as much as 30-50% from the previous year, 1997, while the exports of the company's high-quality products kept increasing. Still, the company expected more growth in profit because their highly-profitable eco-friendly dye product was soon to be launched in the market.

Supported by confidence in their products and an improved profitability index, the company was secured its position as the leader in the domestic market, and moved on to merge with KISC — which had been the company's affiliate — so that the company could have the competitiveness necessary to grow into an international first-class corporation. The merger of the two companies took place in December, 1998.

At the time of merging, KISC had a healthy financial structure, with sales of 21.5 billion won as of 1997, 649 million of which was the current term net income. In the first half of 1998, KISC recorded 14.2 billion won in sales, which was a 40% increase from the same period the previous year. The company's ordinary profits also showed a 3.68% increase, and recorded 2 billion won.

KISC and KISCO merged at the rate of 1:1, and the total capital of KISCO became 12.3 billion won, which was an increase of 3.8 billion won. The assets of the company also increased from 78.2 billion won to 85 billion won, while the debt rate dropped from 142.7% to 86.56%.

There were more benefits from the merging of

the two companies. After the merger, KISCO took over the production of FBAs and other high value added dye products that KISC had been making, consequently increasing the earnings per share from 23.72% to 36.10%.

Now, KISCO could maintain a super healthy financial structure with higher sales and less debt. The market share of the company in the dye market also increased to 32%, thereby helping the company emerge as the leader among dye manufacturers.

Having obtained a remarkable synergy effect by taking over the non-listed company KISC, KISCO set up a new sales management department at the end of 1998 for better efficiency in managing the sales that kept growing at a significant pace. The company also separated the sales and administrative management teams, in order to have a higher degree of professionalism in each department. The company had a certain degree of balance through the separated sales and management teams, and concentrated on exporting to the overseas markets and supplying the domestic market. The company's sales management department was primarily in charge of account receivables (including export payment negotiations), in addition to the tax refund, import management (shipping and customs clearance), bond management, and sales-related legal issues.

In November 1997, the company entered a joint

venture with Papitech, a specialist in special papers such as those for computers and color printing. The special papers Papitech produced were used for printing from digital cameras or computer color prints, and they were popular as an alternative to ordinary photo printing paper.

## 04 Ambitious Advance Towards the Globalization

KISCO's challenge to the world began with the vision to become a company that could compete on a par with major corporations from around the world with an eye to the global market, instead of remaining in the domestic market and joining the cut-throat competition over the 300 billion won domestic market.

### Taking the First Step to Become the World's First-Class Corporation

In the mid 1990s, the world dye industry that had been growing with Europe as its center, entered a new era. When Bayer and Hoechst merged and were re-born as Dyestar in 1995, it signaled a major shift in the landscape of the dye market that the European and Japanese companies had been shaping till then.

Dye manufacturers in Europe and Japan instituted various strategies — such as the automation of production, advancing quality, and more streamlined distribution — to recover from the serious loss of profits that they were experiencing during the 1990s.

However, they were falling behind the manufacturers from Korea, Taiwan, India, and China in terms of price competitiveness, while being forced to deal with more serious problems with regard to environmental issues. Eventually, they had to put all their efforts into creating profit by reducing the burden of payroll costs and eliminating unnecessary production equipment. The dye manufacturers from advanced countries also started to relocate their production facilities to such countries as India, China, and Indonesia, so that they could have better price competitiveness and supply a large quantity of products to the dye markets around the world at lower prices.

The situation was not much different in Korea: the Korean dye manufacturers were faced with

such problems as the price of dye products when the price of raw materials kept increasing. During this process, they slowly began to realize how they could be up against even bigger risks in the future if they remained at the status quo, doing business as usual, when changes were taking place rapidly in the market and business environment. As a result, they strived to create strategies not just for production and sales improvement, but also for exploration and getting a better grip on new markets.

Having initiated their globalization strategy in the 1980s, with an eye to becoming a first-class global corporation, KISCO has since been following the principle of developing and producing essential technologies. From the beginning, they have focused on manufacturing the most up to date products in Korea, and mid-priced products in countries with plentiful cheap labor, while selling all their products in big markets.

Therefore, KISCO was in the best position to apply a three-dimensional production system, through which their Korean headquarters was used as the center for managing production, research and developing new products, and factories in such resource-rich countries as Indonesia served as the center of product manufacturing. For the exploration of new markets, the company established a local branch in Thailand.

KISCO's challenge to the world was initiated by its corporate vision, which was to compete on a

par with the world's major corporations in the global markets which were doing almost a trillion won a year in business, instead of remaining in the domestic market and engaging in cut-throat competition over the 30 million won in domestic market shares.

In exploring overseas markets, KISCO always had the largest markets with the highest demands in mind, and established joint ventures in countries that were closest to the markets the company was targeting. All these efforts were part of KISCO's intention to meet the demand of consumers as locally as possible.

Supported by these export-driven, customer-centric management strategies, KISCO explored sales channels in over 50 countries around the world, and became the leader in introducing Korean made dye products to the global market, and increasing pride in the Korean domestic dye industry. Beginning in the 1990s, the company focused more proactively on export policy, and started to make inroads into global markets.

### Entering Market in Turkey with an Eye to the European Markets

In May 1997, KISCO established Kimsoy Dyes Trade Company Incorporated in Turkey, and took its first step towards entering the markets in Europe.

Turkey is a country eight times the size of South Korea. Due to the geographical positioning of



Tape Cutting Ceremony of the Local Turkish Company (June, 1998)

Asia and Europe, the country has easy access to both the ocean and land. Therefore, international trading has existed there since ancient times. The country also has deep ethnic and historical connections to neighboring countries, such as Turkmenistan, Kazakhstan, and Uzbekistan, making it the gateway to markets in Central Asia, and the Middle East, as well.

Due to these geographical advantages, Turkey was considered to have enormous potential to grow into a major market, and it was a much sought-after location for companies that wanted to build a production center in Europe, because the country could offer labor that was cheaper than most other European countries. In 1996, Turkey signed an agreement to concede tariffs with the EU, and all products manufactured in Turkey could be supplied to the markets in Europe with almost zero customs duties.

Turkey was the last destination on the Silk Road, which connects the East and the West, with all the geographical advantages to serve as a gateway

for entering the European markets. In addition, the country was experiencing a rapid growth in the textile and leather industries — with cotton spinning industry at its center — making it an attractive market in itself.

At the time, there was only one dye manufacturing company in Turkey. Because the company's scale was small and the technology was straggling behind others, they were planning to stop manufacturing low-priced products all together, and import from China and India, instead. KISCO's export to Turkey as of 1996 accounted for 17.9% of the total exports, and in the following years showed an annual growth rate of about 30%.

Since KISCO was looking for new opportunities, and sales in Indonesia through a joint venture were not picking up due to the weak local market, the company decided to do multi-directional market research on Turkey, and gauge the scale of demand from the local Turkish dye market, as well.

KISCO's move in Turkey was largely motivated by European countries which had decided to stop providing the General Preferential Tariffs (GPT) agreement to Korea. The general preferential tariffs agreement was applied by advanced countries to developing countries and their agricultural, fishery, and manufactured products. The agreement was adopted at and went into effect after the United Nations Conference on

Trade and Development in 1968. However, the European countries decided to stop applying the general preferential tariffs advantage for exports from Korea beginning in 1997.

Realizing that it could deal a serious blow to dye exports, KISCO had to seriously consider expanding its investment in the European markets, which were growing. The company decided to pursue solutions through aggressive investment. By building a joint venture factory in Turkey which was geographically close to the European market, and producing products with Turkey as the country of origin, the company expected to benefit from the GPT agreement, while at the same time securing a foothold to jump into the European market. There were many advantages in building a joint venture factory in Turkey, as well, including the low cost of transportation, logistics, and labor, all of which would significantly reduce the cost of production for the company.

Subsequently, KISCO invested \$5 million dollars to establish Kimsoy in a joint venture with the Turkish company Eksoy (CEO Ender Soydan) in May 1997, at the rate of 5:5. Named after the two companies, Kimsoy became the only dye manufacturing company operating in Turkey.

KISCO decided to build the joint venture dye manufacturing factory in Adana, a local city in the south central part of Turkey, and the ground was broken on August 1, 1997. The construction was

completed in August, the following year. Built over a 33,000m<sup>2</sup> of site, the local factory in Turkey had an annual production capacity of 3,000 tons. It was built with all the latest production equipment, and the company ensured all equipment and facilities were in accordance with the environmental standards of Europe, as well.

The company had to be sure to meet the European standards of environmental protection, because beginning in 1996, Germany prohibited 20 environmentally harmful substances, and the German initiative was followed by many other European countries and even the US. As a result, the company had to ensure all equipment was suited for processing dyes that were harmless to the human body, so that the company could prevent any possible problems in exporting the products.

After establishing a sales base in Turkey in the form of a joint venture when the construction of the factory was completed, KISCO was set for a test run. On June 11, 1998, the company ran the first test run, and produced the reactive dye, Kimsoline Black B 133% at the newly built local factory. After the company produced and launched other black series dye products, following the first Black B, the company started building a reputation in the Turkish dye market under the new name of Kimsoy.

KISCO had a smooth beginning to their business in Turkey, because the company recovered all the



Chairman Kim Dong Gil planting a tree to commemorate the completed construction of the company in Turkey (June, 1998)

Tape-cutting ceremony for Kimsoy, the joint venture in Turkey (June, 1998)

investment in equipment through sales thanks to the Turkish government's policy of forgiving surtax on foreign investments in equipment. Beginning in 2000, the production lines extended to reactive and color dye products, and the company's investments in equipment continued until 2003. The company recovered all these additional investments thanks to the surtax exemption policy. The recovered capital investment in turn was invested in increasing the production capacity and the number of items produced, and was eventually translated into increased sales.

However, Turkey had little know-how in dye production, and it required a lot more effort until the production could be stabilized. After many trials and efforts, the company started regular manufacturing of liquid type dyes beginning in 2001. The company sent technicians from the Seoul headquarters to Turkey, so that they could visit customers throughout the country, and promote and market the liquid products personally. The company also introduced their technologies to Eksoy, which was the local trader and distributor, so that the company could ensure professional customer service and respond to customers on a real time basis through the local company.

The company attempted direct meetings with customers even though two partner companies agreed on the division of work in the market — KISCO in charge of production, and the partner company Eksoy in charge of sales, when signing the joint venture agreement — because the company wanted to earn the trust of customers by visiting them in person for marketing purposes.

In fact, the marketing strategy of sending the Korean technicians to the local customers was received enthusiastically; it earned the company the trust of the customers, and in turn translated into favorable response to their products.

Eksoy also recruited experienced technicians from dyeing companies in Turkey, and retrained

them so that they could provide technical support for the distribution centers that opened in neighboring countries. The company also arranged to invite customers from neighboring countries to the factory so that they could demonstrate the entire dyeing process in person. All these efforts resulted in greater credibility for the products, and the company achieved a higher market share in the Turkish market, all while facilitating entry into the neighboring countries and the European markets.

With the successful establishment of the joint venture in Turkey, KISCO had a stronghold from which to enter the European markets, and begin a full-fledged global business management system.

### **KISCO, USA is Established as the Bridgehead to the Central and South American Markets**

KISCO's quest to enter the global market accelerated until in June 1997, the company established a joint venture company, KISCO USA, in Charlotte, N.C., USA.

Beginning in the mid 1990s, the dye market on the east coast of the US started to grow, and the company needed to promote sales and marketing activities in the area to dynamically respond to the new demand, while at the same time supporting local agents with technologies and human resources, as well. Since the company had the

growing South and Central American markets in mind as well, they also needed a base in America, through which the company could make a successful entry into the South American market.

Beginning in the late 1980s, KISCO secured local agents on the east coast and the west coast of the US with the goal of exploring the vast markets in America; LA Supply was in charge of the west coast, and TH International was in charge of the east coast. Through these two agents, the company has been expanding the business territory in the US. TH International in particular played a critical role in helping the company explore the South American market, in addition to promotion and marketing in the local markets.

With an eye to the Guatemalan market, the company obtained a logistics warehouse in Miami, as part of the company's detailed plans to secure the market.

Nonetheless, the entry into the South and Central American markets did not move forward very fast, because of the difficulty in making adjustments in regions with such huge cultural differences.

With the establishment of KISCO USA, the company built a network that dynamically connected the New York and LA offices. With this network, the company built a stronger partnership with local agents, and started building the company reputation in the local markets with marketing strategies that were tailored specifically to the region.

But beginning in the late 1990s, the dye markets started to move to Central America, while the dye markets in the US were declining. In response to this environmental change, KISCO put more effort into promoting sales in the South and Central American markets. The company also moved away from the existing system through which the company made sales through local agents, and secured a logistics warehouse in Guatemala, and operated it directly. The company hired locals to work for the company, and carry out direct promotion of products at local dyeing factories. In this way, the company gained the upper hand in the South and Central American markets, where the price competition was fierce.

Supported by their successful entry into the markets in Turkey, the US, and even South and

Central America, KISCO did business in over 50 countries around the world by the late 1990s. This achievement brought the share of exports in total sales to as high as 70%, efficiently putting the company solidly into the global market.

### Technical Tie-in With a Major Japanese Corporation

As a part of the globalizing strategy, KISCO signed a strategic technical tie-in with the largest Japanese dye manufacturer, Sumitomo, in June, 1997. This agreement was intended to promote production and technological support for the disperse dyes. In addition to the technological partnership with this advanced Japanese corporation, the company gained an 80 billion won increase in sales with this agreement, because



Production and Technology Partnership Signing With Sumitomo Chemicals(1997.06.04)



Signing of the Production and Technology Tie-In with Sumitomo Chemicals (June 4, 1997)

the two companies agreed that KISCO was to produce disperse dyes in Korea and supply them to Sumitomo for three years.

KISCO had maintained a relationship with the Japanese company since the earliest days of the company's history. By 1995, the company was exporting about 10% of the total exports through the Japanese company, and when the company went public, the relationship between the two companies was so close that Sumitomo participated as an institutional shareholder.

At the time the company signed a technical tie-in with Sumitomo, the large Japanese dye manufacturer had been looking for a partnership through which the company could produce higher-quality products overseas, instead of producing them in Japan, while changing over to production of more diversified items in small quantities.

In the case of disperse dyes, the operation rate at Siheung factory — which had been producing disperse dyes since the mid 1990s — went up

to 100%, and the production capacity of the factory was also increased to 1,800 tons after the production facility was expanded in 1996. The factory was well into the mature stage, and was in the process of expanding its sales network through exclusive distribution contracts with domestic companies.

The two companies agreed to share the technology and technicians for joint research and development projects, and to advance professionalism and economic efficiency by producing special products for each company. While focusing on the development of the latest high value-added dye products, such as eco-friendly dyes, the two companies agreed to make the best out of the domestic and overseas market networks on a global level. This was all in preparation for the world's largest dye manufacturers such as Bayer, Hoechst, Sandoz, and Notabis growing in size through a series of M&As.

The two companies also agreed to produce azo-based disperse dyes — Blue 257 100%, Blue 301 200%, Violet 77 200% and Blue 139 200% — in succession by refurbishing and upgrading existing equipment, and supply Red 360 100% and Orange 148 100% — which required registration as new materials —beginning the following year. In the case of disperse Red 191, Red 302, and BWF, which required new production equipment, the companies agreed to begin supplying it in 1998

when all the equipment was introduced and set up.

In accordance with this production and technology tie-in, the Japanese company sent their staff in charge of the KS project to KISCO, in addition to the staff in charge of technology and administration for the transfer of technology. The production of special dyes began while the company was learning the technology from them, and improving the equipment.

While KISCO was developing and producing high value added dyes with support from the partnership with a major Japanese corporation, Korea was hit by a major foreign exchange crisis, and fell under the IMF management. As a result, the company was faced with expenses that had doubled from the original investment projection. Consequently, the company decided to put aside the development of new items until later. However, the OEM production of special azo-based dyes continued, and the company acquired the new compounding technology and advanced methods to evaluate dyes.

In addition, the company was able to sell products through the sales network of two companies. Instead of limiting its business of supplying the domestic markets, the company extended its sales channels to countries around the world.

As a result, KISCO established the QR (Quick Response) system, which was one of the major issues in the dye industry, thus ensuring the

smooth supply of dye products, while expanding the global production and sales network.

The company also upgraded the disperse dye production technology, and in September, 1998, the company successfully signed a disperse dye sales partnership with Ciba Specialty Chemicals of Switzerland.

### Strategic Partnership with Ciba Specialty Chemicals and Changes in the Global Market

With the strategic partnership agreement with Ciba Specialty Chemicals, KISCO experienced the upgrading of disperse dye technology throughout the production areas, including the disperse black and navy range of disperse dyes.

Ciba Specialty Chemicals sent technicians for the dyeing equipment and production to KISCO on a short term basis, while KISCO sent research fellows to the Ciba headquarters in Switzerland twice each year to discuss technological issues.

During this process, KISCO served as the channel for development of new products that Ciba Specialty Chemicals was in need of. As a result, KISCO could concentrate on the development of high purity disperse dyes that are used for inks for digital printing, in addition to disperse dyes with high light fastness, such as yellow 51 and 65 for automotives, and a group of other products with high washing fastness, such as Terasil Blue W-RBS, Red W-4BS, Yellow W-6GS and others,

with improved technology and quality.

As the sales network of disperse dyes expanded throughout the world, KISCO laid the foundation upon which the company earned a reputation in the global market and joined in the group of advanced corporations with advanced technologies.

However, the dye industry was swept into a whirlpool of mergers and takeovers by the world's major corporations sometime in the late 1990s.

At the time, the leading major dye manufacturers in the industry included ICI of England, BASF, Bayer, and Hoechst of Germany, and Sandoz of Switzerland. These were companies built on the precision chemical industry, with the dye business at its base.

Later, Japanese companies such as Nippon

Kayaku, Sumitomo and Ciba Geigy joined the industry, creating two pillars along with European companies in the group of advanced companies in the industry.

Later, Korea and Taiwan joined in the race, creating a middle group in the industry by emulating and modifying the technologies of advanced countries, followed by Southeastern Asian countries such as Thailand, India, and China that penetrated the market with low-priced dyes beginning in the 1990s. With this group of dye manufacturers, the global market evolved into a competition among three major groups of players.

Under the circumstances, European companies turned to signing partnership with others, instead of doing business operations on their own. In 1995, Hoechster and Bayer merged and were reborn as

#### Trend of the Major Dye Manufacturers Since the 1990s

[source: Japan's Chemical Economics, 2002]

Restructuring of Major Dye Manufacturers since the 1990s	
1993	ICI of England separated precision chemical sector, and independently established Zeneca
1995	Dystar was established (by merging the dye sector of Bayer and Hoechst)
	Clarinat was established (by separating the precision chemical sector of Sandoz)
1996	BASF took over Zeneca through absorption merger
	Ciba Specialty Chemicals (CSC) was separated from Ciba
1997	CSC takes over Matangi of Thailand through absorption merger
	Dystar takes over Casera through absorption merger
1998	CSC takes over Syno Kimia through absorption merger
1999	Yorkshire of England takes over Crompton & Knowles of the US through absorption merger
2000	New Dyster was established (the old Dystar took over the dye sector of BASF)
2001	M.Dohmen was established (through the merging of the dye sector of LG of Korea and Dohmen of German)
	Dystar closed two factories in Japan, 2 factories in Brazil, and 1 factory in the US
	Yorkshire closed two factories in Europe
	Clariant announced the plan to close 10 factories



Signing agreement on the sales of disperse dyes with Ciba Specialty of Switzerland (August, 1998)

Dystar. Bayer Korea and Hoechst Korea merged the textile dye parts of their organizations, and started to build stronger sales and customer-centric services.

At the time, the dye manufacturers from advanced countries were faced with the need for an increase in investment because they were required to have various pollution prevention systems, and were looking at higher costs in developing new products, as well. Therefore, they tried to find a solution to the economic slowdown by seeking out new management measures such as relocating their production facilities

to Southeastern Asia, instead of building new factories within their countries, or integrating dye-related business sectors within their own organizations.

A new century began in this unpredictable business environment in 2000, while KISCO was also moving fast forward to new opportunities at that time of change.

Chapter IV

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# New Challenge for the New Era

2000-2007

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01  
Leading Company in Material Export

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China

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Transparent Business Management and the  
New Labor-Management Culture

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# 01 Leading Company in Material Export

Contrary to the most major domestic and international dye makers who have suffered a decrease in sales and loss of profits, KISCO has been in the black for over 30 years since its founding.

When the market share reached 30%, KISCO announced its Vision 2001 Plan, with the aim of growing into the Color Leading Company that would spearhead the dye industry of the world.

## The Rise of Environmental Issues

Beginning in 2000, environmental issues emerged as a major concern throughout the world, and the dye industry was faced with strengthened environmental regulations. Most of the companies proclaimed themselves a Green Company, and went all-out building an environment management system.

Since dyes with substances that could cause cancer were identified through German-led research in the early 1990s, the industry had predicted that the environmental issues would have a serious impact on business competitiveness. Research on dyes with a possible risk for causing cancer did indeed give birth to various environmental regulations throughout the world, and dealt a serious blow to the dye industry. Since 1993, dye companies started changing direction to producing and using eco-friendly dye products, while striving to expand the applications of dyes to other related industries — instead of being geared only to the textile industry — such as the production of ink jet dyes for printers and heat-sensitive dyes for fax machines. Nonetheless, the world dye industry started to crumble due to environmental regulations that grew stronger than ever, and many of the dye manufacturers either went bankrupt, or turned to re-structuring through M&A.

It was around the same period that dye manufacturers from advanced countries, which

had been building stronger competitiveness in terms of environmental issues since the 1990s, began to launch more eco-friendly dye products. This new move — started in 2000 as environmental regulations continued to get tighter worldwide — helped increase their market share by selling products that were distinguished from those made by developing countries. In addition, the German and Dutch governments put a ban on textile and clothing items that were manufactured using azo-based dyes, and this banning trend gradually spread throughout the EU member countries, ultimately putting Korean dye makers who had a high dependency on exports in a position that called for dynamic response to changes in the business environment.

Consequently, the dyeing companies had to be careful in purchasing only eco-friendly dyes for their dyeing process, which meant the demand for eco-friendly and more economical dye products started to increase. They preferred products with higher color fastness and bonding rate so that they could reduce the cost of processing wastewater after the dyeing process, and they became more conscious of the amount of dyes and dyeing auxiliaries that they needed to use. All these changes in the dyeing companies translated into a boom in developing eco-friendly dye products in the dye industry. The size of the global market for dyes and dyeing auxiliaries — which were essential for the dyeing process — was \$13.13

billion dollars in 1996, but in 2001, it grew to \$13.93 billion, recording an \$800 million dollar increase over five years. But the applications and the size of the market kept on growing, and today, the dye industry is closely watching the trend, predicting that for each of the next five years, it will record an annual growth rate of over 5%.

Given this, the Korean dye manufacturers were faced with many challenges both inside and outside of country: the pressure to meet worldwide demand for environmental standards; improving the quality of products to achieve price competitiveness with low-to-mid price ranged Chinese and Indian products; and developing energy-saving and high value-added dye products.

Companies that had already been making higher-quality, eco-friendly dye products could respond dynamically to the changing environment, and furthermore, they could build competitiveness in other areas by using the eco-friendliness of their products in the aggressive exploration of new markets.

### **Building the Environmental Management System and The Green Project Department**

In response to the global trend of Green Management, KISCO has been striving to build competitiveness in environmental issues, and secure an eco-friendly business management system since the 1990s.



ISO 14001 Certification Awarding Ceremony (Jan. 1998)

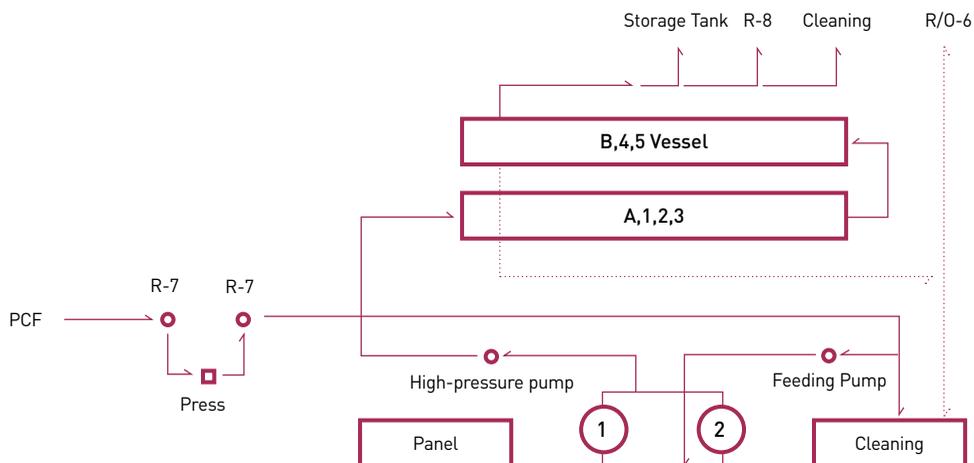
In December 1997, KISCO became the first Korean company to acquire the internationally recognized environmental management standard ISO 14001 from KAS QA, and was recognized as the leading eco-friendly company in the industry. ISO 14001 refers to the environmental management standards whose certification is performed by authorized organizations. It is awarded to companies as proof of their successful environmental management programs and

practices, after a comprehensive evaluation of the company's environmental management system and capabilities. KISCO secured an upper hand in the industry by acquiring this environmental management standard, and having its high-quality products certified as eco-friendly.

Following the acquisition of ISO 14001 Certification, KISCO joined ETAD (Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers) in 1999, and further promoted their corporate image as an eco-friendly company.

FTAD is an organization based in Basel, Switzerland, and over 40 dye and pigment manufacturers around the world, including Dystar, are members. It is a purely private organization, and was established in 1974 with the mission of dynamically responding to the ongoing efforts to strengthen international regulations

**Wastewater Treatment Process by Reverse Osmosis**





ETAD Certification

on the environment. The organization has a strong credibility in the industry, because each member carries out various measures to stop the production of all kinds of dyes and pigments that could cause environmental pollution, or generate toxic pollutants.

With membership in the ETAD, KISCO promoted its corporate image as a dye manufacturer that cared about the environment both inside and outside of the country, and entered the markets in Europe and the US without being hampered by regulations on environmental pollutants that could be found in exporting dye products.

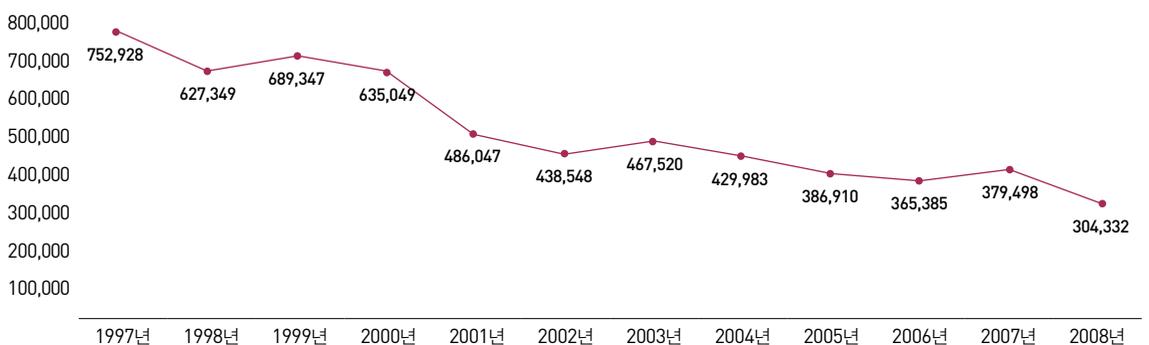
As the global awareness of the need for protecting the environment continued to grow, companies around the world became more conscious of abiding by green business management and more committed to following various environment-related regulations, using technologies that can prevent pollution, and continuously improving the environment. KISCO is no exception: the company has dedicated itself to being eco-friendly in every aspect of the business from the development to production of all dye products, so that the company can aid in the prevention of environmental pollution.

As a natural progression of that dedication, the company attempted to enter the environmental equipment business, by developing the GM System. Built on the principle of reverse osmosis membranes, it was an advanced membrane separation-based wastewater processing system that could minimize the discharge of wastewater.

The reverse osmosis process that the GM system is built on refers to a technical filtration method,

Yearly Environment Management Results

[Unit: a thousand Won]



which efficiently removes pollutants from water by applying pressure to the water when it is on one side of a selective membrane. The result is that pollutants are retained on the pressurized side of the membrane and pure water is allowed to pass to the other side.

The membrane separation that is used in this system has many advantages over the conventional distillation/adsorption system, because it can separate pollutants better through a simpler process, using less energy. It is also applicable to wider areas of usage than general chemical or bio processing, and returns better processing results. It is more economical, and the space it requires for installation is 5-6 times smaller, with a labor operation cost that is half of most other methods.

In response to changes in the business environment, where issues regarding wastewater processing for the preservation of water resources and the prevention of water pollution had become more serious, KISCO set up the Green System Project Department, through which the company built a membrane separation-based wastewater processing system, GM, in addition to all related parts and equipment, and launched their environmental equipment business.

The GM system, which was built using the technological power and know-how the company accumulated while producing highly-concentrated liquid type dye products, had

a wide range of applications: production of dyes, wastewater processing and recycling, desalination & concentration, and purification. The system was expected to bring about a significant increase in the efficiency of eco-friendly management for dye manufacturers. The system was built to meet the demands for higher quality and maximize results during the production process in chemical factories, as well as for businesses that required desalination, concentration, and a purification system. The system could also be used in recycling industrial wastewater or for businesses that required ultra pure systems, such as in the semi-conductor or power plants where a wide variety of chemicals were used.

In August 1999, shortly after the development of the GM System, the company signed MOU for the construction of wastewater processing system pilot factories through local liaison offices in Thailand, Turkey, and the US, and exported \$5 million dollars worth of equipment. This successful start to the environmental equipment business enabled the company to grow as a company specializing in eco-friendly business management.

## Stronger Environmental Competitiveness with the Development of Eco-Friendly Products

KISCO's quest for eco-friendly business management bore fruit in 2000, when the company adopted ICP-AES at the central research institute, and began to examine all raw materials and finished dye products to determine if there were any harmful and toxic heavy metal pollutants. The system allowed the company to prevent any harmful substances from getting into products through scientific analysis of everything from the purchasing of raw materials to the finished products.

KISCO also increased the production capacity of non-Benzidine acid dye products to 1,500 tons in 1995, in the wake of the German government's decision to ban 20 toxic substances including

**20 disperse dye products that have been banned, according to the Oeko-Tex Standard**

Disperse dye for Acetate	
	C.I. Disperse Blue 1
C.I. Disperse Blue 26	C.I. Disperse Blue 3
C.I. Disperse Blue 35	C.I. Disperse Blue 7
C.I. Disperse Blue 124	C.I. Disperse Blue 102
C.I. Disperse Orange 1	C.I. Disperse Blue 106
C.I. Disperse Orange 37	C.I. Disperse Red 1
C.I. Disperse Orange 76	C.I. Disperse Red 11
C.I. Disperse Yellow 1	C.I. Disperse Red 17
C.I. Disperse Yellow 39	C.I. Disperse Orange 3
C.I. Disperse Yellow 49	C.I. Disperse Yellow 3
	C.I. Disperse Yellow 9

Benzidine in the early 1990s, followed by the governments of European countries and even the US.

The non-Benzidine dye was the most suitable for export to meet the demands of the global market, because it met the Oeko-Tex Standard 100, which was the environment benchmark that spread throughout European countries including Germany. It could eliminate the azo-based toxic substances that are discharged from existing leather processing factories.

Among the 20 disperse dyes that were banned was Orange 76, which, according to the Oeko-Tex Standard 100, was identified as a skin sensitizer that could cause skin trouble. Orange 76 was an allergy sensitizing disperse dye, found in Black EXN-SF and Navy EXN-SF, which were most widely used to dye polyester textiles. When it was banned, it brought about sweeping changes in disperse dye products, while emerging as a major issue among dye manufacturers throughout the world.

The dye industry only found the solution when Orange 288 came out, after having used orange 61 in place of orange 76, because it had a similar structure.

KISCO also used orange 288 to make most of the black and navy disperse dyes, and used orange 61 for some other products, all in the efforts to join in the move to produce eco-friendly products.

While joining the dye industry response to

environmental concerns, KISCO renewed its commitment to sustainable growth with awareness of environmental issues, and focused more on the development of eco-friendly dye products.

In 1997, the company launched the Papizolon series that was designed to reduce the amount of wastewater by dyeing synthetic textiles such as polyester and cellulosic textiles in the same batch, followed by eco-friendly dyes for acetate textiles that eliminated toxic substances from the previous dyes for acetates, thereby building on the corporate image as an eco-friendly company.

### **A Leading Material Exporting Company Honored With the Grand Prix of Global Business Management Award**

Contrary to most major domestic and international dye makers suffering from a decrease in sales and loss of profits, KISCO has been in the black for over 30 years since its founding. When the market share reached 30%, KISCO announced its Vision 2001 Plan, with the aim of growing to become the Color Leading Company that will spearhead the world dye industry.

In 2001, when the company was commemorating its 30th anniversary, they declared it the first year of the second founding of the company, and renewed their commitment to realizing the vision of a super healthy corporation for the 21st century,

supported by the technological power and know-how that the company had been accumulating.

Accordingly, the company set a sales goal of 10 billion won, which was a significant increase from the 70 billion won of the previous year. The company also set the goal of making over 10 billion won in ordinary profits, and doubling the current term net income from the previous year. With these new goals, the company took its first ambitious steps for new growth, while determined to make their best efforts to increase exports.

In spite of the global economic recession and fierce price competition, the company recorded \$44 million dollars in exports, which accounted for 72% of the total sales of the company. In November 2001, the company was selected as the parts material export leading company by KOTRA and the Ministry of Commerce, Industry and Energy. With this achievement, the company added to its reputation as a major exporting corporation, while raising awareness of the importance of dye manufacturing in the chemical material industry.

Beginning in 2002, most domestic dye manufacturers were showing a decrease in profits even though they were recording a two digit growth rate, making a striking contrast to KISCO. Their decreased profit rates were attributed to the increasing imports of Chinese made dye products beginning in the mid 1990s, while the inventory in the domestic market continued to pile up. Consequently, their profit rates took a



Ceremony commemorating the 30th anniversary of the company (October 24, 2001)

plunge because they had to compete with the price competitiveness of limited quality products.

As competition for the domestic market share continued, some of the domestic dye manufacturers decided to stop manufacturing dyes all together, and import cheap dye products from China and sell them in the market, instead. The business conditions in the dye industry were going from bad to worse. In fact, the price of disperse dye as of August 2003 had dropped to 3,300 won per kg (5,199 as of 2000), and the price of disperse dyes 4,000 won per kg (6,028 won as

of 1999). It reached the point where there was no profitability left on domestic dye products, whatsoever.

KISCO was no exception; even though the company carried out an export-driven growth policy, and recorded a 20% increase in sales with 65% of it from exporting, the company was experiencing a rapidly decreasing current term net profit rate.

The domestic dye manufacturers all struggled to find a solution to the decreased profitability in their business, and the sense of risk continued to spread, until there were talks about the urgent need for restructuring dye manufacturers.

KISCO decided to find their solution in streamlined business management and higher quality of products. Beginning in 2002, the company carried out a strategy to improve the quality of products by pursuing perfection all the way from the planning stage to the processing and final performance results under the management slogan of Perfect 3: Planning, Process, and

#### Yearly Market Statistics on Dye Products

(source: Korean National Statistical Office, Industrial Production Survey)

Period	Production Volume		Shipping				Inventory	
	Production Volume	Year-on-Year Growth Rate	Shipping	Year-on-Year Growth Rate	Domestic Supply	Export	Inventory	Year-on-Year Growth Rate
2000	92,369	-	89,498	-	57,146	32,352	6,766	-
2001	90,511	-2.01%	91,700	2.46%	59,110	32,590	7,406	-8.42%
2002	99,882	10.35%	98,890	7.84%	66,539	32,351	7,272	-2.98%
2003	80,760	-19.14%	98,788	-0.10%	61,355	37,433	8,746	17.87%
2004	79,538	-1.54%	79,818	-19.20%	50,042	29,776	7,774	-1.23%
2005	72,327	-9.06%	73,073	-8.45%	45,811	27,262	8,927	14.83%

Performance. In terms of sales, the company built a stronger partnership with existing affiliates, and reinforced their globalization strategies, so that the company could increase exports through the exploration of new markets.

By this time, KISCO had over 300 sales channels in the domestic market, including the dye and dyeing companies and distributors, and had distribution centers and agents in over 70 countries. The company ranked number one in exporting dye products.

In November 2003, the company recorded \$50 million dollars in exports, and was honored with the Bronze Tower Industrial Award. It required selling products to fill 1,500 containers with a capacity of 10 tons each, to export \$50 million dollars worth of products, or 15,000 tons of products a year. In the case of KISCO, the three factories had been shipping 4-5 full containers on average every day to over 70 countries around the world.

With such a remarkable achievement in exporting, the company put more speed into global business management supported by their distinguished technological power and quality of products, until in August 2005, the company was honored with the Grand Prix of Global Business Management award in the chemical manufacturing category, thereby promoting corporate competitiveness, as well as national competitiveness.



## 02 Market Expansion Strategy and Investment on China

On November 26, 2001, KISCO officially founded KISCO China (KSC) in Shanghai, China, and declared the company's entry into the Chinese market. The company also opened a liaison office in Shanghai through Eastwell, which was an affiliate of KISCO, and used it as the base to make inroads into the Chinese market. In February 2001, the company took over all business shares of Eastwell in China, and renamed the company KISCO CHINA, completing its preparation to enter the market in China.

### Making Inroads into Markets in China with KISCO, China

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The dye industry in China began to bloom starting in the late 1970s. Later on, private companies joined the industry as China began to open its doors to the markets, achieving rapid growth and creating a production system that is unique in China. Intermediate products were mostly produced in large-scale factories, but the manufacturing of finished products was done by relatively smaller-scale companies that were located near the markets.

In April 1995, the Chinese government announced the "95 Plan," which was a long-term project to renovate the textile industry, triggering rapid growth in China. The winds of change shifted the direction of the industry from production of low-quality dye products to higher-quality dye products, and the industry's efforts to develop advanced dyeing technology and to upgrade the



Establishment of KISCO, China (Nov. 2001)

dyeing equipment started to pick up speed when Zhu Rongji was elected prime minister in 1998.

During his inaugural speech, Prime Minister Zhu Rongji stated, "China will carry out a sweeping reformation to advance the textile industry for the next three years, and make the textile industry a breakthrough for government-owned corporations." Under his flag of reformation, the Chinese government destroyed over 4,000 outdated spinning machines in China, and laid off 1.2 million employees. This extraordinary revamping of the industry alarmed all companies in related businesses. The Chinese government's initiative began in Shanghai first, and the region around Shanghai became a special district where the Chinese government's three major goals for the textile industry reformation were going to take place.

Supported by these changes, the dye industry in China showed continuous growth beginning in 1996, until the country eventually became the hub of the global dye industry, with its export of

disperse and basic dyes reaching 170 thousand tons a year. Beginning in 2000, China emerged as the largest dye producing country in the world, with over 530 different products in 11 categories being produced in a year. The number of dye and organic pigment producing companies reached 1,000, as well. But in the dye industry, there were so many small-scale manufacturers saturating the market that, in some cases, dozens of them had to fight over the market share of a single item. The competition in the market was creating chaos.

In 2002, when KISCO was establishing KISCO, China, the total dye production recorded in China was 421,300 tons, showing a 31.11% of year-on-year increase. The total import and export volume was 263,000 tons, a year-on-year increase of 15.39%, as well.

According to the statistics of the Chinese dye industry association, the dye market in China reached its peak in 2002 in terms of production and sales of dyes and organic pigments, which was largely attributed to the overall growth rate of 20% in the dye industry, and an over 30% increase in the import and sales of dye products. After China joined WTO in December 2001, the growth rate of the textile and fashion markets in China recorded 13.3% and 10.3%, respectively, consequently increasing the demand for dye products as well.

It was also during this period that reactive dyes started to show rapid growth in the market, along with disperse dyes — which had been leading



KISCO China was established

the dye market in China. The total production of disperse dyes was 226,000 tons, at the year-on-year growth rate of 29%.

Korean companies were alarmed at this market trend, because until then, they had been in an advantageous position when it came to reactive dyes.

In fact, the Korean companies' exports to China had been growing rapidly at a two digit rate since 2000, but starting in 2003, the exports to China began to decline significantly.

However, even within the Chinese markets, price competition grew fiercer, and the environmental regulations in the dye industry grew stronger. With this change in the market, some of the companies with straggling technology and a simple line of products suffered a huge loss of profits, or went bankrupt.

Eventually, the dye market in China for high value-added products and mid to high-quality dye products was dominated by products made by foreign corporations or imports, while the Chinese

manufacturers were focusing more on mid to low-priced products. To find relief from the situation, the Chinese dye industry was carrying out a restructuring of their domestic products.

In response to the rapidly growing Chinese economy and its dye industry, KISCO developed a strategy of making inroads into the Chinese market by making products in China with cheap labor, and importing them back into the domestic market, consequently increasing the market share in Korea.

The company also considered exporting directly to Russia from Japan, all in their endeavor to win the global race. Eventually, the company decided to set up a company in China.

The local company in Shanghai, China, opened for business in 2002, and recorded \$400,000 dollars in sales during the first year. Later, in 2005, the local company recorded \$8 million dollars in sales.

While exploring new sales channels in China through KISCO, China in Shanghai, the company continuously expanded the business territory within the Chinese market. But while KISCO was penetrating the reactive dye market, the Chinese market was dominated by major foreign corporations that relocated their production facilities to China, and KISCO had to face fierce competition with them.

To make things worse, the Chinese companies that had been investing in reactive dyes started to grow in the mid 2000, and KISCO was falling

behind in price competitiveness compared to them.

Besides, the government imposed a 9% customs duty and an additional 17% surtax on imported products, making KISCO's dye products one of the most expensive black dyes in the world. Now, the company found it hard to compete with Chinese products. Eventually, the company came to realize that they had to manufacture their products in China, if they were ever to get the upper hand in the Chinese market.

### Establishment of KLC and Strategy for Market Expansion

With the need to build stronger competitiveness by producing and making sales on location, KISCO signed MOU with the Chinese government for

the establishment of a company in December 2004, and purchased a 81,200m<sup>2</sup> site at in Xinpu, Lianyungang, China.

The construction of KLC began in October, 2005, and the company was officially founded in July 2006 with the investment of 1.5 billion won in capital.

Even though KISCO had experienced some difficulties both in terms of production and sales during the early days after it entered the Chinese markets, the company was soon recognized for their product quality, and continuously built a reputation in the local markets.

Even though the Chinese dye industry was recording a remarkable growth rate, KISCO earned the trust of the market with an overwhelming difference in quality from the



Entire View of the KLC factory



KLC's Monthly Conference (Mar. 10, 2007)

#### KLC's Sales and Production Results

Year	Sales		Production
	Net Sales (1,000 RMB)	Q'ty (M/T)	Q'ty (M/T)
2006	11,135	543	
2007	59,449	2,762	2,852
2008	63,906	2,788	2,835
2009	104,667	5,046	5,174
2010	160,660	6,252	6,072

#### History of KISCO's Entry into China

Year	Details
Jan. 1994	Liaison office was opened in Shanghai (belonging to Eastwall)
Nov. 2001	The sales company KSC was founded
Dec. 2004	MOU was signed for the production company KLC
Oct. 2005	Ground was broken for the construction of KLC factory
Jul. 2006	Kim Sang-woo took the office as the first CEO of KLC
Aug. 2006	The first construction of KLC was completed
Dec. 2008	The second construction of KLC was completed
May 2009	KSC's international trading business part was moved to KLC
	Lee Jin-han took the office as the second CEO of KLC.

Chinese products, with a 1.5% standard deviation of color reproduction rate, compared to the 0.5% of the Chinese products.

KLC products continuously recorded an increasing demand from the Chinese domestic market, by securing outstanding quality and washing fastness, in addition to consistent quality management, even though Chinese products had the upper hand in the market with mass production systems and price competitiveness. As the hub of production for the textile industries of the world shifted to the Asian market, and the landscape of the dye market began to change, KLC enabled the company to expand its global business management, serving as the base through which the company explored the infinite potential of the overseas market.



## 03 Transparent Business Management and the New Labor- Management Culture

KISCO has been known as a company with productive labor-management relationship built on co-existence and harmony, as proved by the fact that there have been no labor-management related disputes. The harmonious relationship between labor and management contributed to the company growing into a leader in the dye industry with distinguished technology and product quality, and secured its position as the largest dye exporting company.

### Winning the Grand Prix of New Labor-Management Culture Award and the Harmonious Labor-Management Relationship

KISCO received the grand prix of new labor-management culture award in 2002, and was recognized for its achievement in promoting labor-management relationships built on co-existence and harmony, and for its contribution to the building of a stronger national competitiveness.

The new labor-management award was established in 1995 by the Korea Economic Daily and the Ministry of Labor to promote a labor-management culture built on trust and coexistence, acknowledging that harmony and the participation of labor and management was necessary to improve the quality of life for workers, and to build corporate competitiveness in the latest borderless competition in the global market. The award has been given to companies recognized for their achievement in promoting harmonious labor-management relationships and open business management after a multi-directional evaluation.

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Selected as a company with outstanding labor-management culture (2008)

KISCO Family Council

industry with distinguished technology and product quality, and secured its position as the largest dye exporting company.

The growth of the company and its healthy labor-management relationship has been largely attributed to the KISCO Family Council, which has served as the bridge between labor and management, by facilitating agreements between both parties on such issues as employee welfare policies, improved product quality and increasing production capacity.

The KISCO Family Council was established in 1988 as a labor-management union, with representation from three factories, including the Incheon factory. The council consisted of eight executive members: three representatives each from labor and management, and one auditor each from labor and management. The council

had been striving to “advance common interests for both the company and employees through mutual understanding and cooperation, so that the relationship can eventually contribute to the growth of the company and an advanced quality of life for employees.”

Beginning in 2001, the council set up a special complaints committee, and assigned two complaint resolution officers from every business area, so that they could solve issues on location. Issues that are not resolved through the field officers are decided by the KISCO Family Council.

The KISCO Family Council holds regular meetings four times a year, or once every quarter and a special meeting can be called once a week to discuss issues regarding employee welfare and improvement of the work environment. Opinions from these meetings are reflected in the company policies. The council has been critical in establishing dispute-free labor-management relationships in the company.

The company was able to grow without a labor union, largely because of the corporate culture where all employees and executives have a sense of belonging to the organization. The labor-management relationship was built on mutual understanding and trust, which in turn resulted in improved business management efficiency and development of advanced technology for new products. It is part of KISCO’s corporate culture that all employees are considered members of the



Sports Event at the 2nd Factory (Apr. 1 2005)

extended family, and grow together to become the best employees working for the best company.

The top executive management's view on labor-management interaction was also aimed at building a relationship built on coexistence and mutual trust, while continuously striving to improve the work environment, under the common goal and recognition that all employees are partners in business management.

KISCO established Action Guidelines for a Harmonious Labor-Management Relationship, and offered various programs intended to build a cooperative relationship between labor and management. The company also ensured an open communication channel between labor and management.

On the first Tuesday of each month, the company holds a monthly meeting, where all the employees meet the highest level of executive management staff to share information on business management, and address issues and complaints that have been identified in the field and various

departments within the company through the joint labor-management business advisory committee. The business management strategy committee consists of representatives from the KISCO Family Council and company executives with a position of manager or above, to discuss plans and performance results.

The agreements made by labor and the management are announced through the bulletin board and the company website to all employees. These are mostly about plans and results of business investments, human resources policies and plans, and the financial and economic situation of the company, along with other practical information.

In addition, there are daily meetings and tea time for representatives from the management and production departments, video conference meetings for the CEO of the company and workers from the field, and email exchanges, all of which are designed to build a new labor-management culture, where "the executive management staff can learn about all issues coming from the production areas, and transparently disclose all business management statuses to the employees."

KISCO has also been striving to promote a sense of belonging among the employees, in addition to sharing all information relating to business management. This move is intended to promote a sense of family among all KISCO employees,

so that they can work together as a team for the common vision of the company.

Accordingly, the company has been offering a wide variety of programs for both the employees and executive management staff, such as a labor-management joint workshop, periodic training and friendship events for the representatives from the KISCO Family Council and employees, sports events including a marathon race for the promotion of labor-management harmony, and labor-management communal events, all of which are designed to promote a sense of belonging to the same organization. The company also has programs for employees, such as voting for the Smile Employee, Survey to improve the menu and the taste of food served in the cafeteria and a meeting where individual employees are encouraged to communicate with company executives over workplace complaints.

Beginning in 2004, the company started bringing in instructors from outside, and provided lectures for employees on such topics as "how to grow into a fantastic I, and Us (healthy labor-management relationships, self-innovation, and creative life), changing business environment and shift in the conscience and innovations, creative sense of professionalism in the era of globalization, and ways to improve labor-management cooperation.

In 2007, the company constructed a training institute for employees on a 662m<sup>2</sup> site in Gangreung, Gangwon-do, where employees can

come and rest, and renew their work ethic, while building a sense of belonging to the company. This institute, named Hojoonhae, is a five story building, and is equipped with a seminar room, outdoor showers, and an aquarium. Each year, an increasing number of employees visit this wildly-popular institute.

With all these efforts designed to promote open communication between labor and management, and find common solutions to issues that arise between them, KISCO came to be known as the leading company in showing how a healthy, cooperative labor-management relationship can promote corporate growth.

Above all, the company's transparent business management supported by the open channel of communication between labor and management has been contributing to the improved quality and production capacity. Labor and management jointly carried out a campaign to save 10% of expenses by sparing use of the raw materials whose prices were continuously growing, and they also promoted an accident-free work environment to ensure a pleasant and safe work environment for all employees. Many other achievements of the cooperative labor-management relationship includes: action to prevent job safety accidents, ceremony to declare labor-management harmony, training to promote safety in the workplace, pension programs, and on-call job opportunity for retired employees, etc.

## Transparent Business Management and the Value of Human Resources

Recognizing that the harmony between labor and management begins with trust among all employees and management principles that cherish humans, KISCO has always strived to be transparent in business management, and stay one step ahead of others in terms of an advanced employee welfare system and work environment.

The company has adopted the performance-based compensation system to build stronger corporate competitiveness, and continuously invested in development of human resources and employees' personal growth, all with the goal of building a stronger corporate competitiveness and improved quality of life for the employees.

Realizing that Manpower is an Asset, KISCO authorized the KISCO Family Council to decide on the size of funds to support education for the children of employees and employee hobby clubs, and reflected their decisions in the annual management plans as base data. There are over



Boramae Safety Experience Center

56 programs designed to train employees, in such work-related areas as safety, gender equality, fire-safety, as well as environment management, vocational training for industrial technicians or on chemical substance discharge issues, all designed to help individual employees realize personal-growth at work.

The company also operates a company welfare fund (capital: 850 million won) to support stable living conditions for the employees, and they also adopted a performance-based annual salary system for all employees.

Based on the performance-based annual salary system that the company adopted in 1998, the company distributed 50% of the annual profits for reinvestment in the growth of the company, 25% for the shareholders and the remaining 25% for the employees. In 1998 when the system went into effect for the first time, the company paid 100% of the performance-based incentives, and in 1999, the amount was increased to 270%, and again to 300% in 2001. By sharing the company profits with employees, the company built a foundation upon which labor and management could grow together, and promote all employees' sense of pride.

Another secret to the harmonious labor-management relationship was fairness in human resources management, and job assignments based on individual employees' aptitude. In human resources, the company followed fair

and strict standards in deciding rewards and punishment for employees, in accordance with the H/R management rules laid down by the human resources management committee, and job assignments were based on the principle of reflecting employees' opinions. The review of job performance and achievement was carried out fairly, and opportunities for rewards were provided to all employees based on equality.

When evaluating job performance, the company obtained a personal evaluation analysis and reflected it in the final decision. Heads of each department also evaluated individual employees' aptitude through personal interviews, so that the employees could be assigned to jobs that matched their abilities and aptitude. In compensating employees, the company eliminated the seniority payroll policy, by which wages and promotions were decided based on the gender, educational background, and others factors, and instead adopted a performance and merit-based annual salary system, by which the wages were decided based on personal achievements and job performance results. The company system also ensures that employees in manufacturing or administrative work have an equal opportunity to get promoted to management and executive level of positions.

In 2008, the company adopted the salary peak system — a mixed form of increased retirement age and extended employment for older

employees — and increased the retirement age from 55 to 58, and allowed retired employees to work for the company on call, if the company needed them. This system allowed the company to provide employees with improved job security, and brought more vital energy to the workplace. For new recruits, the company provided a better opportunity to learn technology from experienced workers, so that the overall production efficiency could be improved.

Through this human-centric business management, and cooperative labor-management relationship, the company built the foundation upon which they were able to realize sustainable growth and development.



## 04 New Venture : Electronic Materials

KISCO set up a new electronic material business department in June 2003, through which the company announced investment in organic EL, and officially launched the electric chemical business. KISCO's electronic chemical development team consisted of doctoral degree research fellows, and they invested 5 billion Won to develop light emitting materials in partnership with advanced companies from Europe, the US, and Japan.

### Diversifying the Business Territory, Building the Momentum of Growth Through M&A

Beginning in 2000, major chemical companies from around the world started to achieve sizable competitiveness, while domestic companies searched for ways to reshape their production structure and shift their focus from universal products to higher-class products. Advanced dye manufacturers also proactively explored new options by either increasing the size of their business through M&A or strategic partnerships with other companies, or exploring the markets for high value-added products, so that they achieve better international competitiveness in business.

As of 2000, the sales of dye products worldwide were about \$9.9 billion dollars, and accounted for 0.7% of the entire chemical industry. The textile industry was consuming the largest amount of dyes at 76%, followed by leathers, papers, printing ink, plastic, food, medical products, and cosmetics. With the dye industry's high dependency on textiles, the companies were called on to search for changes and develop markets in new areas.

In the case of the dye industry, the supply of dye products was over-saturating the market, due to the newly emerging dye manufacturing countries such as China and India, and the price competition was getting fiercer due to the imbalance between

the supply and demand. Besides, the increasing price of crude oil translated into an increased cost of producing dye, while the price of dye products was continuously dropping. Due to environmental regulations after the researchers identified cancer-causing toxic elements, even dye manufacturers with a hundred year record in business had to struggle with losses.

Due to the economic recession that hit the markets in Southeast Asia — which accounted for 15% of exports from Korea — the Asian currency was devalued as much as 50% once, only to accelerate the decline of the market and the price of dye products. Deeply concerned, many companies decided to close their factories with poor profitability. Clarirant closed 10 factories, and Dystar closed 5 factories. In Korea and Taiwan,

more than 10 small and medium sized companies went bankrupt.

In the face of this, KISCO worked to build the international quality of products and their sales network through strategic partnerships with renowned corporations during the late 1990s. Beginning in 2000, the company became part of the LED display part supplier, Yangwoo Electronics, as a shareholder, in an attempt to diversify the business territory, and search for new growth engines for the company.

While continuously investing in such latest technology ventures as this, the company also took over Seil Chemical Engineering, a company that specialized in manufacturing reactive dyes and basic dyes, in August 2003. With this move, the company solved the problem of lack of sufficient



View of the JMC Factory

production space at the Incheon factory, and made the better use of the facility when it was converted to produce electronic materials.

Later, in November, 2004, KISCO took over JMC, a company specializing in basic chemical manufacturing. The company also signed an agreement to buy out stock held by Sinwon, which was a shareholder of JMC, and bought 380 thousand stocks and debts. With this deal, the company took over JMC as a subsidiary company.

JMC has been specializing in manufacturing basic chemical materials, such as saccharin, N-ASC, and sulfo products, in addition to the basic raw materials that KISCO needed for the newly launched electronic chemical business. Therefore, KISCO could expect a synergy effect by using JMC as the base for the electronic chemical business, and for the expansion of production lines.

By taking over JMC, KISCO secured the basic raw materials for electronic products, and laid the groundwork for the light emitting intermediates business. A profitable opportunity was given to KISCO by finding a new growth engine on top of the existing dye-centered business structure.

## Winds of Change at the Research Institute

The level of technology and the ability to develop new technology are some of the most important elements for the dye industry, which is very

technology-intensive. The development of technology in the domestic dye industry began during the 1980s when new products were beginning to emerge, and market demands started to expand as companies strived to launch higher-class products during the 1990s. In the process, the technology of current finished dye products advanced to a level that is on a par with advanced countries.

Beginning in 2000, the Korean dye industry focused more extensively on the development of eco-friendly and highly functional products, so much so that this period was considered as the renaissance of the highly-functional dye industry. As a result, the industry entered a period when they moved beyond their dependency on the textile industry, and expanded their business lines to other related business territories. Therefore, a series of eco-friendly dye products with high washing fastness and light fastness was launched in the market.

In the late 1990s, KISCO had adopted special analyzing equipment for the promotion of research activities at its research center, in a quest to build stronger competitiveness in that area. It was also part of the company's effort to win in the race for technology development, and eventually have the upper hand in the market.

Along with adoption of new equipment, the number of research fellows was greatly increased. In the early 1990s, there were only 20, but in 2000,



Science and Technology Achievement Award (Oct. 2004)

#### Major Equipment and Facilities at the Research Institute

Appliances/Facilities/ Equipments	Purchased Year	Q'ty	Usage
ICP-MS	2003.01	1	Metal Analysis
ICP-AES	2000.08	1	Metal Analysis
GF-AAS	2003.01	1	Metal Analysis
Microwave Oven	2000.08	1	Pre-treatment
HPLC	1998.04	14	Purity Analysis
GC	1989.04	1	Purity Analysis
GC	2008.02	2	Purity Analysis
GC-MSD	2003.12	1	Structure Analysis
UV/VIS	2005.04	1	Absorbance Analysis
Auto Titrator	2004.03	1	Auto Titrator
Karl-Fischer Titrator	2003.05	1	Moisture Analysis
Moisture Analyzer	1987.03	1	Moisture Analysis
Particle Size Analyzer	2003.11	1	Particle Size Analysis
Viscometer	2003.01	1	Viscosity Analysis
Milling Machine	2004.02	1	Milling Machine
Production equipment for the high purity water	2003.01	1	High Purity Production
DSC	2005.12	1	Glass transition
TGA	2008.03	1	Thermo Gravimetric Analysis
GC/MS	2009.12	1	Structure Analysis
IC	2008.09	1	Anions Analysis
GPC	2008.09	1	Polymer Analysis
LC/MS	2008.09	1	Structure Analysis
UV/VIS/NIR	2011.02	1	Absorbance Analysis

the number grew to 50.

The electronic material research department was set up in June 2003, with four research fellows who specialized in researching electronic chemicals. After that, the existing dye research institute was in charge of researching precision chemical products, such as dyes and mixing technologies, while the newly set up electronic material research team was in charge of developing electronic materials for the semiconductor, LCD, organic EL, and others. The application research and analysis team took over material analysis and application research projects.

The central research institute was honored to receive the presidential Science and Technology Achievement Award in October 2004, thereby proving the unparalleled technology development capability that was uniquely KISCO's own.

## Founding of Daito KISCO and the Launching of the Electronic Materials Business

With the establishment of the electronic materials business department in June 2003, and announcing investment in the organic EL (Organic Light-Emitting Diode), the company officially catapulted into the electronic chemical business.

For this new business venture, KISCO invested 5 billion won in initial funding, and recruited research fellows with doctoral degree from



Signing ceremony to establish Daito KISCO (Feb. 2005)

prestigious universities, and was set to start developing light emitting materials that included both high and low molecular light emitting materials, in partnership with advanced companies from Europe, the US, and Japan.

When research for the OLED<sup>1</sup> related business got on track, KISCO took the challenge in the PR area (Photo Resist), which was the first step to building the OLED business, based on a roadmap the company had set up stage-by-stage. However, the company found out that the Ansan factory was already producing NAS, which was part of the most basic compound required in the earliest stage of producing PR.

It turned out that the Ansan factory had been producing NAS in OEM, and supplying its entire output to a distributor in Japan, not knowing what material it was, or what it was for. Once KISCO found out that the Japanese distributor was importing NAS in OEM from Korea, and then was exporting it back to Korea, KISCO asked the Japanese importer to provide them with the

specifications and technological information about the product. After persistent persuasion, KISCO signed a contract with the Japanese importer on the transfer of NAC technology, which was one level higher than that of NAS.

On the other hand, the Japanese importer had been eyeing KISCO, a company with the technology to produce NAC and the planning to make PAC, until the company suggested a business partnership with another Japanese company, Daito, and the two companies started to discuss the possibility of establishing a joint venture.

Daito was a Japanese specialist in manufacturing photosensitive materials for the LCD display panel. Since 2003, the company had been envisioning the increase of their market share with the development of PAC materials for new

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**1 OLED** | Often called Organic EL, an organic light-emitting diode (OLED) is a light-emitting diode (LED) in which the emissive electroluminescent layer is a film of organic compounds which emit light in response to an electric current. OLEDs are used in display screen of small electronic products, such as mobile phones, music players, or digital cameras.

They can provide resolution higher than LCD on small screens, and the producing process is relatively simple. They have good price competitiveness.

They can be operated under low voltage, and can be made in super thin compact size. Depending on the materials, they can be used in display bending portable screens.

They also have wider viewing angle and fast responding speed. Unlike LCD, the screen doesn't change when it is seen on the side, and they do not leave afterimages on the screen.

The colors are reproduced through the independent resolutions of three colors of Red, Green and Blue, CCM, or color filters. Depending on the amount of organic materials used in the light emitting material, they can be classified either as low-molecule OLED or high molecule OLED. Depending on the operation method, they can be called either passive matrix or active matrix. Korea has the record of the highest market share in the passive matrix type as of 2004.



Outside and Inside view of the Daito KISCO factory

users, and by 2004, the company had a specific goal for becoming the number one business in the PAC area. Therefore, considering that the display market kept growing in Korea, the joint venture between Daito and KIASCO was worth a try, in order to have an overseas base for the production of PAC for the LCD panel business.

Eventually, the two companies evaluated the joint venture plan, and signed an agreement for the joint venture in February 2005. On March 14, 2005, the joint venture company DKC was established in Incheon, and a Japanese technician became the CEO.

DKC (Daito KISCO Corporation) started with 8

billion won of capital, with the share possession ratio of 40% each, respectively, with an additional 20% from the S company.

The two companies decided to set up equipment on the land and using a building loaned by KISCO, following the PAC production line of the Japanese company. They introduced an open front type of centrifugal separator and decompression type vacuum dryer to meet the quality demand from consumers. The two companies also ensured strict control of equipment management, and finally built a factory with an annual production capacity of 180 tons.

On July 4, 2006, DKC shipped the first batch of products to the Japanese importer, and beginning in December the same year, the company started to ship orders to other companies, as well.

Later, the Japanese company, S, sold off their share of stocks, and DKC became a joint venture between KISCO and Daito at a share possession rate of 50:50. In 2011, the inaugural Japanese CEO retired, and Song Ki Yun from KISCO was appointed the new CEO, signaling a shift of company management to the younger generation.

Now, KISCO successfully put its electronic material business on solid ground, and ensured sustainable growth into the future with two pillars of business lines: dye and electronic material.

Chapter V

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# Dreams of Becoming a Global Leader with Colorant Innovation

2008–2011

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01

Innovation on Management, Quality &  
Production

02

Future of Colors & the Power of Value-Creating  
Colors

# 01 Innovation on Management, Quality & Production

In January 2007, KISCO carried out a major reshuffling of the organization structure, and introduced the VP (Vice President) system. The company also broke the dye business down into four divisions of reactive dye, disperse dye, fluorescent dye, and acid dye, with each division operating under its own independent management system for sales, research, production, OS, and technical services.

## Recording 100 Billion Won in Sales After the First Deficit and Re-Structuring

In 2008, KISCO recorded total sales of 125,462,280,000 won, which was a landmark for the company to reach sales of over 100 billion.

The company's current net income also increased from 4.2 billion won in 2007 to 12.8 billion in 2008, which was a triple increase in just a year.

It was a significant achievement for the company to reach sales of over 100 billion won in 2008, after eight years of hard work. The fact that it took that long to reach the goal demonstrates how difficult the business environment for the dye industry was all those years, and also how hard all the employees worked together to turn the risk into an opportunity.

When KISCO was first founded in 1971 under the name of Syno, annual sales were only about 60 million won. But in 1987, the company recorded 10 billion won in sales, and broke the record again in 2000 when sales reached over 70 billion. In the thirty years since its founding, the company has increased its sales 10,000%.

But beginning in the early 2000s, the dye industry of the world was challenged with decreasing profitability and an economic slowdown, and KISCO was no exception. Even though exports and sales kept on growing, the company's profit rate did not show any sign of improvement, and eventually, the current net income started to

decline. In 2005, the company recorded a 40% decrease in the year-by-year current net profit, and the following year, in 2006, the company went into the red both in terms of sales and operating profit, hitting rock bottom for the first time.

### Reshuffling of the Organization With the New KISCO 2010

KISCO decided to reshuffle the company from top to bottom, and innovate in every way: product quality, production, and even business practices.

The major reshuffling of the company began in January 2007, with the introduction of the VP (Vice President) system. The company also broke the dye business down into four divisions of reactive dye, disperse dye, fluorescent dye, and acid dye, with each division operating under its own independent management system for sales, research, production, OS, and technical services.

The main objective of these moves was to re-engineer strategies to get the company back on the right track by innovating and reshuffling everything about the business structure, while channeling all available resources into finding a breakthrough in the disperse, reactive, fluorescent, and acid dye business lines which had been going down the drain amidst the changing business environment in the dye industry.

The company went with dramatic measures for restructuring so that it could face the biggest risk the company had ever experienced since

its founding, and forge opportunities out of the risk instead, to grow into a healthy, first-class corporation by eliminating all downbeat factors that had been accumulating during the company's rapid growth all those years.

KISCO set different profit goals for different business divisions, so that the company could ensure professionalism in production, sales, and quality control, and fully supported the employees' business activities so that they could come up with results. However, the company decided to keep management support the same as before, so that the company could minimize the confusion that rapid changes can cause.

Along with the introduction of the VP system, the management announced that decisions regarding human resources and restructuring could be made any time throughout the year, and created the sweeping winds of change within the organization and among the employees. Under the new organization structure, decisions were made faster than before, and each division within the company could make more of the employees' abilities and creativity. If the year 2006 was the year of challenge, the year 2007 was the year for growth; KISCO left behind the old business-as-usual mentality, and moved forward into a company where all employees were motivated to devotedly commit themselves to increasing sales and cost savings for the company.

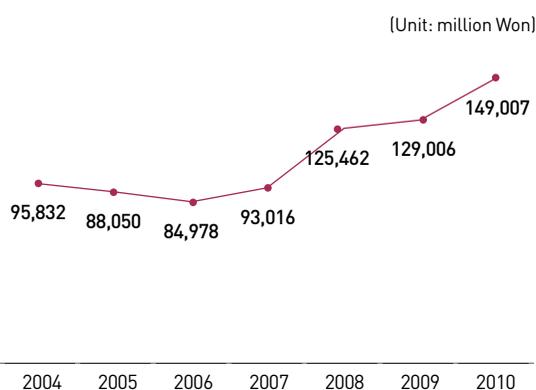
Supported by the organic working relationship

between all the business divisions of production, research, quality control and sales, the company was able to reach the 100 billion won in sales goal. Then beginning in 2008, the company stepped up its innovative company restructuring efforts, under a new slogan, The New KISCO 2010.

After years of continuous growth, KISCO was ready for a new start that would come to fruition over the next three years. The company-wide innovation for the vision of the New KISCO 2010 began in 2008, three years before the target date. With the spirit of challenge, the company put itself into high gear to achieve the specific goal of “management innovation, creation of value, conscience reformation, and becoming the leader in new products and new technologies.”

The company increased the level of support for the local Chinese factory so that it could respond more swiftly to changes and snag bigger market shares in the global market. It also hired Roy Stones from a foreign corporation as the general manager in a move to build a global sales network,

**Sales Growth Before and After the Introduction of the VP System**



Ceremony commemorating the 38th anniversary of the company (Oct. 23, 2009)

carry out one-step advanced sales strategies for retailers, and build stronger international competitiveness in sales marketing.

Beginning in 2009, the company launched a horizontal communication system, and eliminated the hierarchy structure within the organization. The company also set up a TFT 2010 department to bring in fresh new air of change to the organization.

The TFT 2010 department, which was in charge of professional support for purchasing, production and sales of products, consisted of: customer service team for strategic quality control; strategic marketing team, and cost management team. The company also appointed PMs (Product Managers) to support purchasing and sales for the dye products, and to promote the work performance of employees under the leadership of professional team leaders. Another new system was adopted to have the general team managers facilitate the teamwork among the four different business fields.

These changes resulted in a more simplified human resources structure, and improved professionalism in work performance. In addition, the fast decision making process that resulted from the changes was expected to better prepare the company for the future and new opportunities that could be found in the rapidly changing global market.

### Re-Engineering of the Company with the Establishment of Quality Management System

KISCO's quality management campaign continued, with the goal of having international-class quality management that could put the company on a par with the major corporations of the world.

On October 24, 1986, in commemoration of the founding of the company, KISCO held a TQC divisional contest, as a part of the company's pursuit for cost reduction and improved product quality.

TQC (Top Quality Control) was defined as a company-wide quality control campaign, developed by the company to improve the quality of products and build corporate competitiveness on the organizational level through the process of Plan, Do, Check, and Action. The campaign was acknowledged as a management rationalization move, because it was designed to promote the participation of all levels of employees in working together in all business activities, such as cost reduction, production and sales.

The TQC contest, which was designed to facilitate the management innovation campaign throughout the research, production, and management, was participated by all three factories at Incheon, Siheung, and Ansan. The suggestions that came out during the preliminary and final matches of this contest were directly reflected on the business management, and made significant contribution to the stronger corporate competitiveness.

The quality guarantee system progressively extended throughout the company with the acquisition of quality guarantee system ISO 9002 in 1995, and the company set up a division exclusively in charge of ISO with the goal of continuous upgrading of its quality control system.

Later, in 2005, the quality guarantee system was integrated into ISO 9001, and KISCO established a system that allowed comprehensive quality control at all stages from production design to the development, installation, and customer services. When the New KISCO 2010 campaign started, the company reshuffled the organization and separated the division in charge of production from the division in charge of quality control in all three factories. Previously, the production and quality control were all carried out under the same factory managers. With this move, the company could evolve the quality management into the strategic quality control system (SQC).

The TQC contest, which marked the 21st contest in 2008, was able to raise the employees'



Scene of the TQC Contest

awareness of the quality control of a product. Beginning in 2009, the contest was linked with the Six Sigma Movement, and evolved one more time into a comprehensive innovation campaign whose goals were to: increase sales through changes and innovation; practice customer-oriented business management; maximize process-centered work performance; and ensure that result-producing organization management was followed.

The Six Sigma Campaign was carried out under the recognition that true innovation and growth can be realized only when innovation culture spreads throughout the company and each employee is empowered with stronger competitiveness, and the company is there to provide all employees with the right system and methods to realize their goals. Accordingly, all activities associated with the innovation campaign were designed and developed with the expert help of business consultants to tailor them to the nature of different job assignments.

The innovation campaign was different in all three

factories because each factory was specializing in a certain type of dye products: reactive dyes at Incheon factory; disperse dyes at Siheung factory; and electronic materials at Ansan factory. In terms of the business administration, the company also designed different innovation campaigns for domestic sales, overseas sales, purchasing, sales management, computer, and technical service teams, as well. The company fulfilled 19 goals in 2009, and 21 in 2010 through this campaign.

Along with the Six Sigma movement, the company also began the suggestion campaign in 2009, with the goal of realizing its vision through the re-engineering of the company. The suggestion campaign was about encouraging employees to submit their suggestions for the company, such as how to improve work conditions in the field and how to prevent workplace accidents so that employees could avoid being injured at work. Of the suggestions submitted by employees, 30% were about process improvement, 30% about environment improvement, 30% on safety management, and 10% concerned cost reduction. As of 2010, Siheung factory had collected 267 suggestions, Ansan factory 16, Incheon factory 45, and the second Incheon factory 66 suggestions.

## Health and Safety Management with the Goal of Tenth Zero-Accident Achievement

In December 2001, KISCO became the first company in the industry to acquire KFQ's OHSAS 18001 certification, and established the certified safety and health management system. Under the recognition that safety is the foundation of all business activities, the company has been including safety and health activities as part of the essential mission of the business management.

In November 2002, with all executive level employees attending, KISCO declared it would become an accident-free, safe and healthy workplace, in accordance with the OHSAS 18001 procedure.

Under the slogan of a zero-accident workplace, the company carried out this campaign designed to build an optimal work environment and prevent any possible workplace injuries in advance. As a result, the company received its first zero-accident certification on January 25, 2003 from the Korean Safety Regulation Department, and as of December 12, 2010, the company had achieved its 9th zero-accident free certification.

When the ISO certification organization was changed in 2005, and the safety and health management system came under the control of LRQA, the company stepped up its safety campaign in accordance with the international safety standards system, and carried out a wide

variety of measures to promote safety in the workplace, based on detailed plans and goals. The results were reported and evaluated by the management so that they could be reflected on the company policies. The management also evaluates risk factors periodically, so that the company can ensure a safe workplace and prevent any possible job injuries in advance.

The company has been investing in various safety measures as well, such as an improved packaging system designed to prevent any bone and muscle-related injuries, purchasing of electric forklift trucks to prevent injuries while transporting raw materials, and installation of racks inside the product warehouse. The company invested about 200 million won in 2008, 300 million won in 2009, and 500 million won in 2010 to promote safety and health for employees.

In addition to these measures, the company set up an industrial health and safety committee, with the factory manager as chairman. The committee holds four meetings a year, and the decisions made in the meetings are announced to all the employees, so that the company can raise awareness of work safety among the employees, and reflect their decisions in improving the work environment.

The company also adopted a daily safety patrol program, through which employees take safety into their own hands and inspect their work environment. The company carries out safety

inspections jointly with the employees, and ensures all standards and safety measures are being followed in the workplace.

After having achieved the ninth zero-accident certification (3,180 days of zero-accidents), KISCO began the 3R&5S and TMP (Total Productive Maintenance) movements, while reinforcing the existing safety suggestion program. The company also offered One Point Lesson safety training, so that safety becomes part of work at the company. Encouraging all employees to join the safety campaign, the company designated a morning hour safety practices time. Depending on the conditions of the day, the employees are asked to put different color of ribbons and have their work assignment reschedules so that the company could prevent any accidents before it happens.

At the Siheung factory, where the inflammable substance MeOH is one of the materials used, the PSM system was applied for safety in the workplace. It was in accordance with the Industrial Safety & Health Act, article 33, paragraph 1 that requires “a company that uses over 5 tons a day, or store over 200 tons of inflammable substance is subjected to the PSM.”

The PSM (Process Safety Management) was established by the Industrial Safety & Health Act, article 49, paragraph 2, and it applies to those workplaces that handle hazardous substances. All factories are required to have an inspection by the labor commissioner from the department of

labor to determine if they are following the PSM-related regulations.

In accordance with the law, the company abides by the required safety management procedures, which include process safety information, process risk evaluation, safe driving, inspection of facilities, equipment, and maintenance, guidelines for job safety, training, safety management for contractors, pre-operation inspection, variable factor management, independent inspection, process accident investigation, and contingency plans.

KISCO’s endeavor to realize a “safe factory, healthy factory” will continue until and beyond when the company breaks the record by achieving 10th zero-accident status through the solid establishment of a health and safety management culture within the organization.



Acquisition of the Safety and Health Management System Certifications (K-OHSMS 18001:2001, OHSAS 18001:1999)

## 02 The Future of Colors & The Power of Value- Creating Colors

In 2008, the company developed dyes for the PDP color filter, and had its organic synthesis technology recognized in the industry. The achievement also helped the company earn credibility for its electric material business line. In 2010, the company achieved another milestone: the development of the world's first dye for color filtering for LCD display. This product was supplied to S Electronics to make their smart TV products, and helped the company to become the leader in the development of high-tech dyes.

### Value Creation Through Colors, From Dyes to Electronic Materials

KISCO has been growing into the leading technological company with a goal of realizing the world's highest quality products since the founding of the company. On its quest to be the best in the industry, the company has been recognized for its contributions in the development of colors that advanced the quality of life for man, and for adding vital energy to various products with color.

Beginning in early 2000, the company prepared to enter the electronic chemical business, and began building a successful line of products in light sensitive materials, such as NAS, NAC, and PAC. Later, the company made remarkable achievements in such areas as the photo initiator, infrared absorbing pigments, and functional monomer. The company also built a reputation in the production of highly-purified chemical substances and industrial pigments.

The industry had been using pigments in the dyes for the LCD color filter before KISCO successfully replaced them with dyes that had better heat, light, and chemical fastness.

The company was also selected to become a member of the Committee of Innovative Technology (CIT), and was recognized for its contributions in innovating product development and production. With this honor came an opportunity for the company to grow together with other member companies, by working together

with them in the development of new products, and receiving assistance in the technological development area.

The Committee of Innovative Technology operates as an open sourcing system, to proactively discover and support small and medium companies with cutting-edge technology and competitiveness. During the process, the committee facilitates small and medium companies becoming a part of the shared-growth and participating in the development of new products and technologies.

After demonstrating remarkable growth in the development of new technologies through its newly launched business, KISCO's electronic materials business is expected to show further growth in the future, now that the company has secured a smooth supply of raw materials through their affiliate company, JMC, and realized sales through DKC, a joint venture with the Japanese company, Daito Chemix.

Sales in the electronic materials business were about 800 million won in 2007, but that figure jumped to 9 billion won by 2009. The sales have continued to grow, reaching 12 billion won in 2010.

With the visible increase in sales in the electronic materials business, KISCO secured stability in business by diversifying its revenue sources, and adding more growth engine to the existing dye-centered business.

Along with the improvement in technologies

for the dye and electronic materials businesses, the company made significant changes in the technical service areas that deliver quality customer services, as well.

The company upgraded its expertise in the customer service sector by welcoming the applied science research team from the central research institute to the organization in 2002. The company also recruited a Japanese technology consultant to build a more powerful database for the products, and share it with technicians working in overseas factories so that they can apply the most updated information about KISCO's wide variety of products.

As a result, the company was able to build the Technical Networking System with technicians from factories and liaison offices overseas, through which the company shared market information and issues, identify the technologies and products that are demanded in markets around the world.

Another new program developed to advance the company operations was the Flying Doctor program that began in 2007. This program is about sending technicians to the field to find solutions to various problems that happen in the factories.

The title of Flying Doctor is given only to technicians with over 30 years of experience in European countries, and they are professionals who can provide total solutions for technological issues. They are also capable of providing



Acquisition of the Certification by the Committee for the Innovative Technology

technological coaching on such subjects as the most efficient ways to use dyes for the dyeing process, not to mention solutions to simple problems. The adoption of this program signaled that the company had evolved its technological support to the total solution methodology.

With the help of outstanding technical support service, the company was able to build cooperative relationships with large-scale dyeing companies. Later, the company was able to provide color solutions to fashion brand companies and textile supply companies, as well.

Through this color solution service, the company provides the most ideal mixture of dyes for different retailers, so that they don't have to find the right color simply through visual measures. This service enabled the company to build a win-win partnership with customers from the fashion

and textile industries.

KISCO has recently started a co-work project with a dyeing company in Pakistan, in addition to many other major synthetic textile manufacturers from inside and outside of the country. Now that more companies are striving to develop new materials and the environmental regulations are getting stricter, companies in the dye industry are expected to compete harder than ever with each other, in order to develop dyes and dyeing processes that can best serve the demands of the markets.

Beginning in June 2007, the REACH (Registration Evaluation Authorization and Restriction Chemicals) went into effect in the EU, and companies could no longer sell their products unless they had a harmful chemical control system within their manufacturing facilities. When the Global Organic Textile Standard (GOTS) certification emerged as an issue for organic cotton — the textile that is known to have the least amount of harmful substances to the human body — companies could no longer survive without developing measures to protect the environment.

Having predicted the trend in advance, KISCO started to create measures to deal with toxic chemicals in 2005. The competition with the Chinese companies that were producing low-priced dye products grew fiercer, and the company needed strategic quality management and sales measures. As a result, the company

turned to a dynamic system in which innovative safety control was possible within the existing quality management resources. For example, the company authorized PMs to take charge in the control management system for toxic chemicals and Claim and Complaints for customers, and to register 'the best cost for sales,' strategic market exploration marketing, and new chemical materials developed in other countries for the TFT 2010 business division.

As a result, the company operated a control system that dynamically corresponded with outside test organizations as well as the analysis team of the company's research institute. This was all possible with the support of the SQC system, which connected all research teams from the factories via one channel, so that they worked together to prevent any toxic chemicals from entering the business operation beginning with the purchasing of raw materials. Later, the company established the MSDS (Material Safety Data Sheet) control system, so that the company could ensure the safety of a product, and guarantee safety for customers.

The company's dynamic response to the safety control of toxic chemicals started to bear fruit, when the company was certified GOTS in 2007, and won membership as a Blue Sign System Partner in 2010.

Blue Sign is issued by Blue Sign Technology based in Switzerland, and is an environmental

standard certification that guarantees textile products have been made through safe processes using safe materials, and are free from substances that are harmful to the human body and the environment. It is recognized as the most strict global eco-friendly certification system, because only products that meet all the requirements regarding wastewater, exhaust gas, and chemical substances used during the production process can be certified with the Blue Ribbon.

The title of Blue Sign Partner, therefore, signals that the titled company is part of a chain of apparel and related manufacturers that supply only clean products that have been manufactured in accordance with strict standards on the stable quality of products, health and safety system, carbon gas control and toxic wastewater throughout the manufacturing process. More recently, the Blue Sign has been considered a required part of the initiation for companies that wish to work with world-renowned retailers, because internationally-renowned outdoor wear brands, such as Patagonia and North Face, are adopting the blue sign for sustainable plant environment, and only purchase materials that are certified by Blue Sign.

KISCO was able to become a Blue Sign System Partner in 2010, after all employees — the staff in charge of quality and environment, research fellows, technical service teams, and



Blue Sign Certification

all other employees — worked hard together to receive the honor. It was also possible because KISCO was already recognized for its eco-friendly management by winning various ISO certifications, and adopting the PSM system. By acquiring ISO 9001, ISO 14001, and OHSAS 18001, the company has proved that it has followed all standards on quality management, environment management and safety management. The company earned the Blue Sign, all thanks to the systems and processes that the company has developed and polished during the many years of hard work to acquire all the above prestigious certifications.

After becoming the Blue Sign System Partner as the first in the Korean industry, the company was able to build the foundation upon which the company could compete with global companies in the international market, and reborn as a corporation that customers can trust, a corporation that can give hope for the green planet to the future generations.

## Making 150 Billion in Sales and Building the Global Competitiveness

Even though the global dye industry was suffering from wide-spread economic recession and the worsening profitability, KISCO could record 100 billion won in sales in 2008. Other factors that worked in the company's favor were the foreign exchange rate fluctuation, and the stronger environmental regulations in China as well as the consequential decline of competitiveness of Chinese made products.

After reshuffling the company organization, and ensuring a vertical channel of communication under the New KISCO 2010 campaign, KISCO continuously evolved its organic communication channel, which significantly contributed to the increase in sales. In 2010, KISCO easily recorded 149 billion won in sales, and the profit from electronic materials kept on growing, until the company enjoyed an unprecedented peak in business both in the dye and electronic chemical business lines.

The achievements the company made in the electronic business area was evidence that the company had entered the high value-added market that has been dominated by advanced companies, through the advancement of applications, instead of external expansion.

In the case of functional dyes for industry, whose price is over ten times that of the high-quality

dyes for textiles, the market is still dominated by major corporations. However, most of these companies are transforming into comprehensive chemical corporations, and their share of dyes in the business is continuously declining. Lately, the demand for dyes has been also decreasing due to the economic slowdown, and companies are unable not avoid the decrease in sales. In this hostile market situation, most large-scale companies are destined to cut their investments in business lines that are not among their major focuses. Within this context, the companies with competitiveness strong enough to overcome technological barriers in producing functional dyes, and who can remain focused on dye businesses, will be in a better position. KISCO is

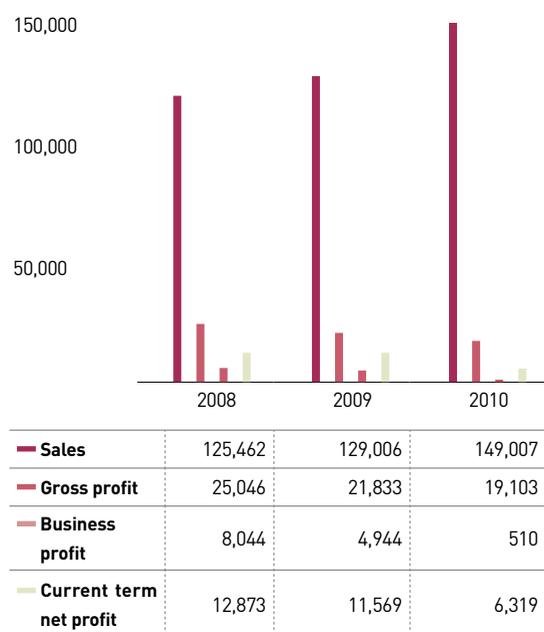
expected to find new opportunities to continuously grow as a dye manufacturer while focusing on the development of highly functional dyes for industry.

In November 2010, KISCO established KISCO INDIA, and made an entry into the markets there.

The company has also been successful in South and Central American countries including Brazil and Guatemala, and when the textile industry in Turkey was picking up, Kimsoy recorded an increase of over 30% in orders from the global brand companies. These changes are calling for a shift in the company’s global management strategies.

### Vision of a Hundred Year Corporation, 40th Anniversary of KISCO’s Founding

**Sales and the Net Income & Loss for the years 2008–2010 (including electronic materials)**



After a relentless strive for innovation and changes under the New KISCO 2010 management campaign, KISCO is re-born as a company with a new vision as it celebrates the 40th anniversary of the company’s founding.

Vice president Kim Heung Joon stated in his congratulatory speech, “The past forty years of history have been a time when we created something out of nothing. As we stand on the threshold that will take us into the next chapter of company history, where we are called on to achieve growth in quality as much as growth in quantity, we should renew our commitment to creating a new history that will make the past 40

years all the more brilliant and significant.”

Stressing how “we all have to think differently to make further advances in the next 40 years,” he added, “our devotion and commitment as we stand ready to open a new chapter in history is to do our best for the honor of KISCO, and take action, so that we can advance ourselves as well as the company.”

Believing in New Turn KISCO, the company stands poised on a new start line, promising to become a little giant company, supported by internationally recognized technology and finding new opportunities, and by swiftly responding to the global market and building more powerful control over it.

The new beginning for a hundred year corporation has just begun.



# TODAY OF KISCO

KISCO 40-Year History

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Pictorial





# E FFORT

It is the all employees of KISCO who made KISCO what it is today with the devotion and commitment for the last 40 years. With their passion and efforts, KISCO could move beyond the borders, and stand tall in the world as the leading dyestuffs manufacturer.

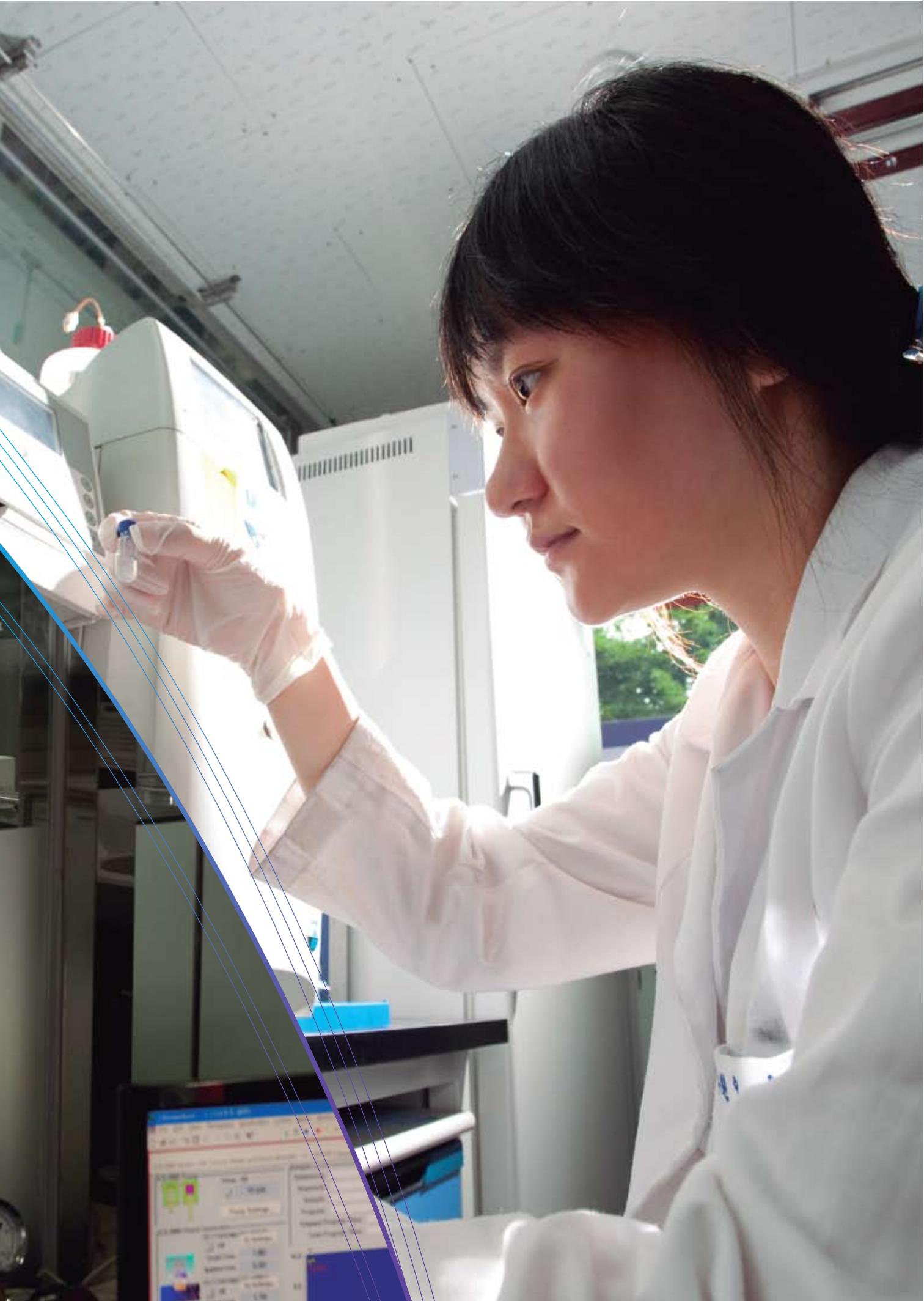
KISCO is prepared to take a flight into the new world with the butterfly wings that sparkle with brilliant colors.





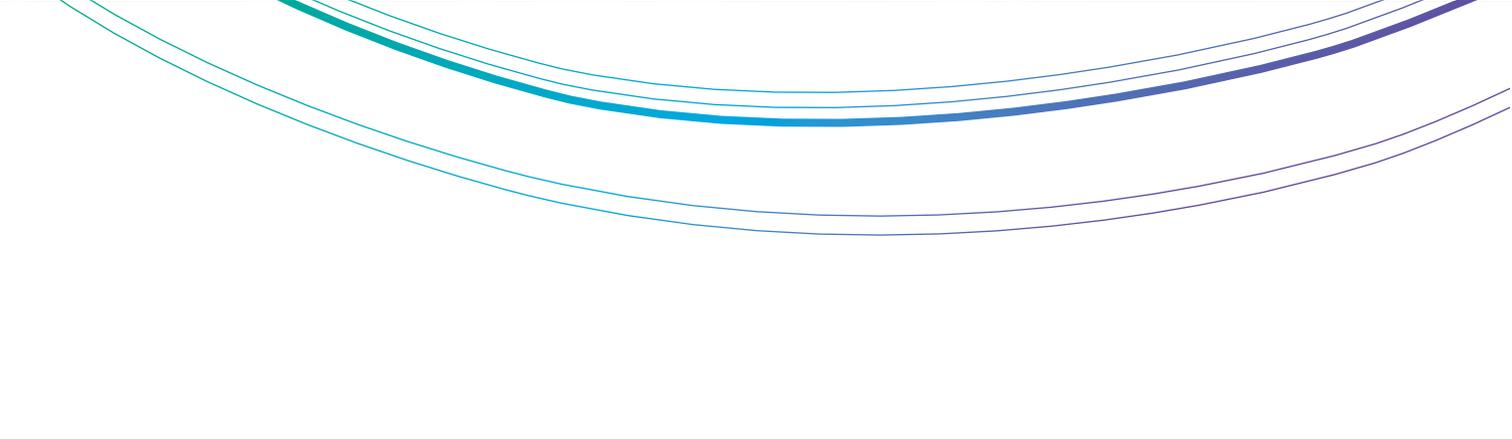












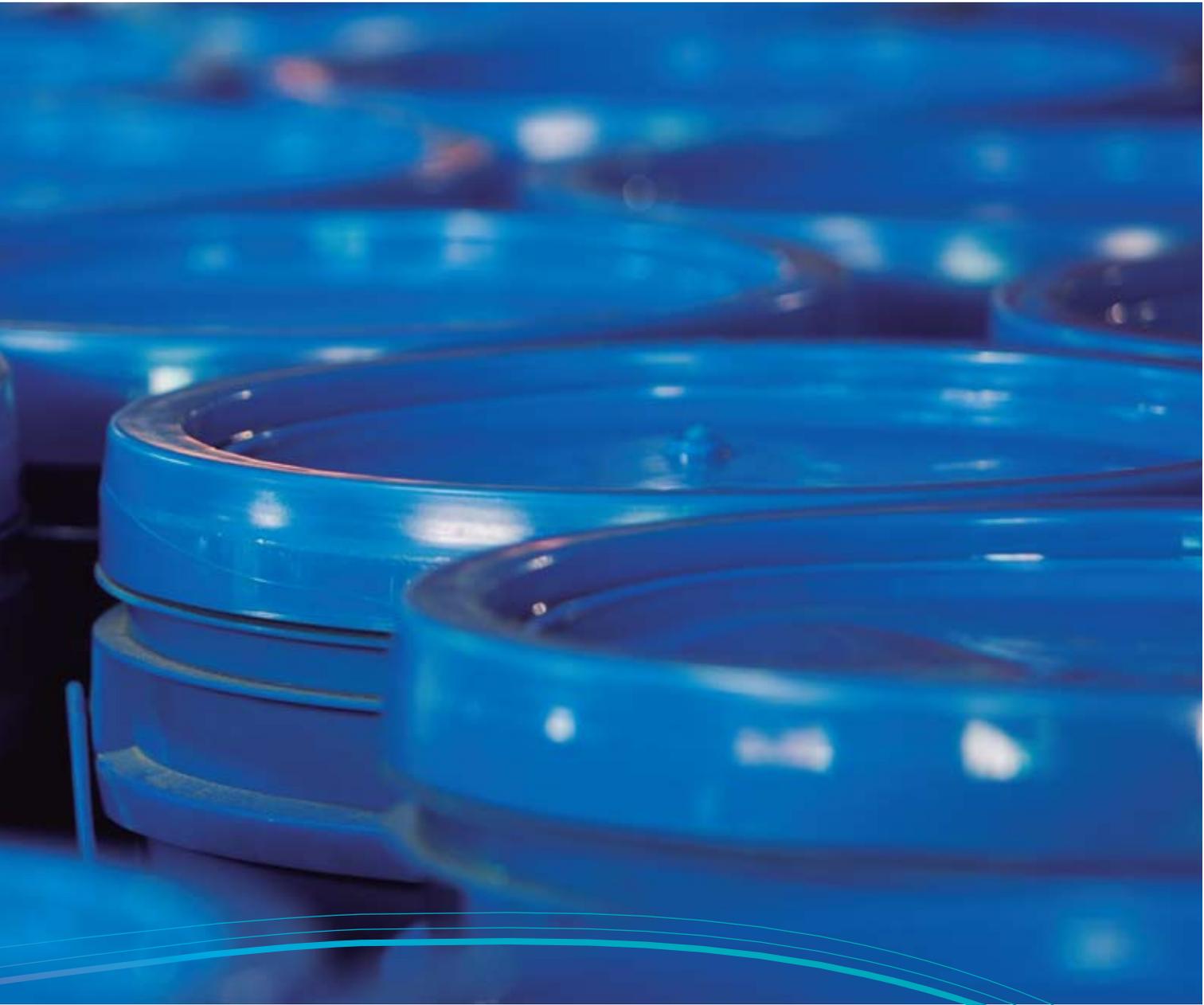






Synozol  
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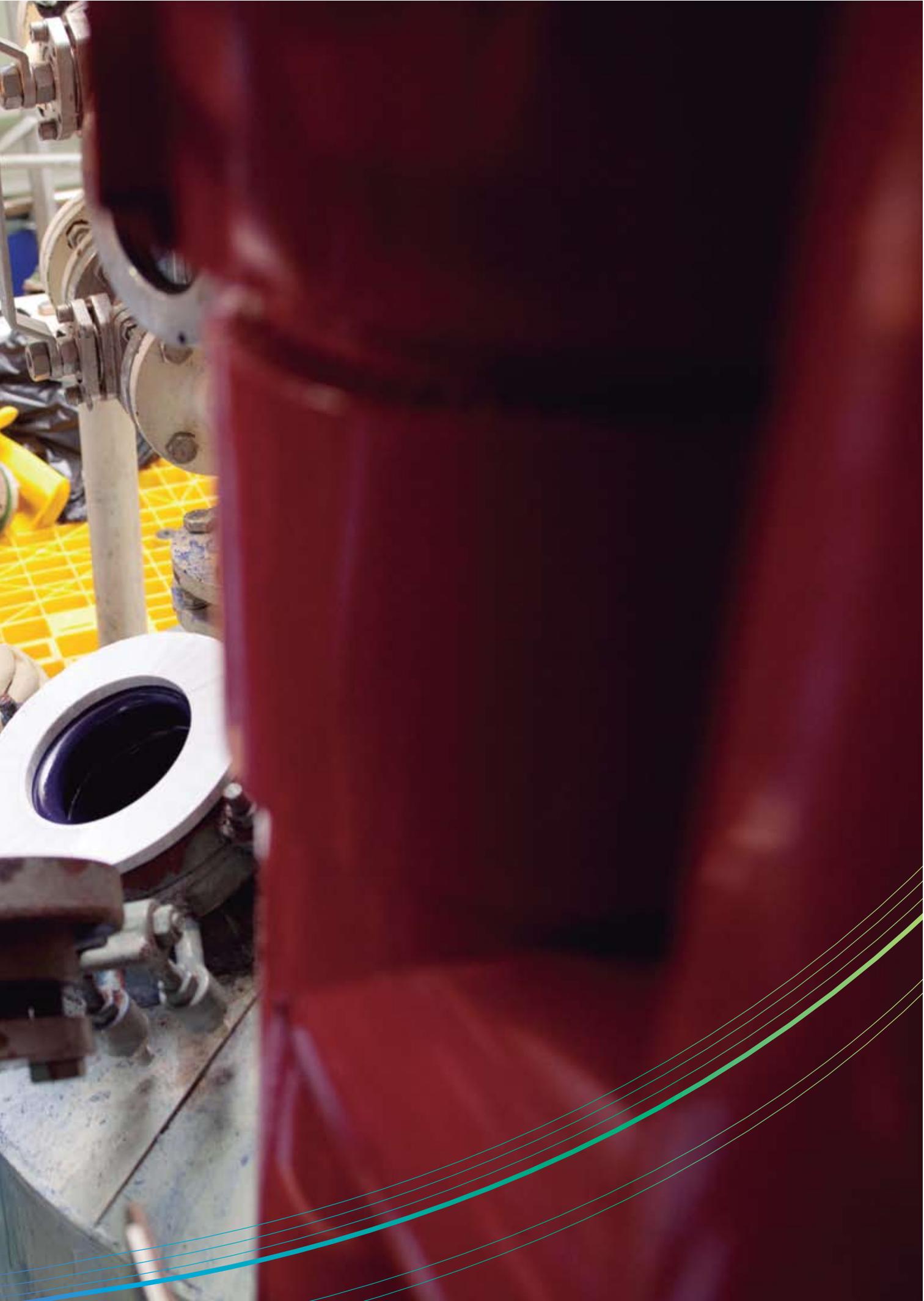


# HARMONY

KISCO always cherishes the harmony among the employees and between the labor and the management. It is the secret to what makes KISCO a company that everybody wishes to work for, a company where all employees find the sense of rewards and happiness.

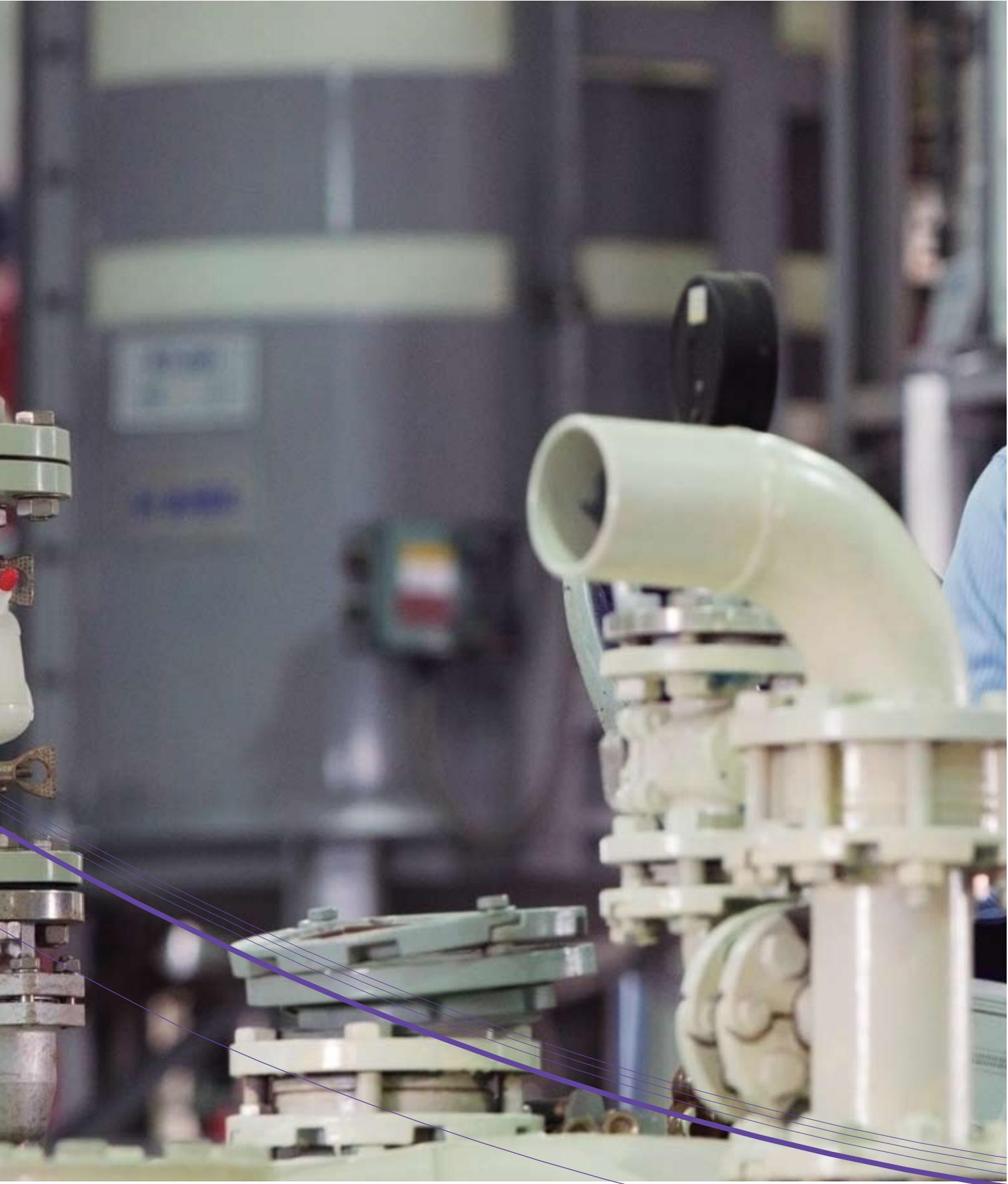
All employees of KISCO are moving forward to the future as one, with happiness and joys in hearts.







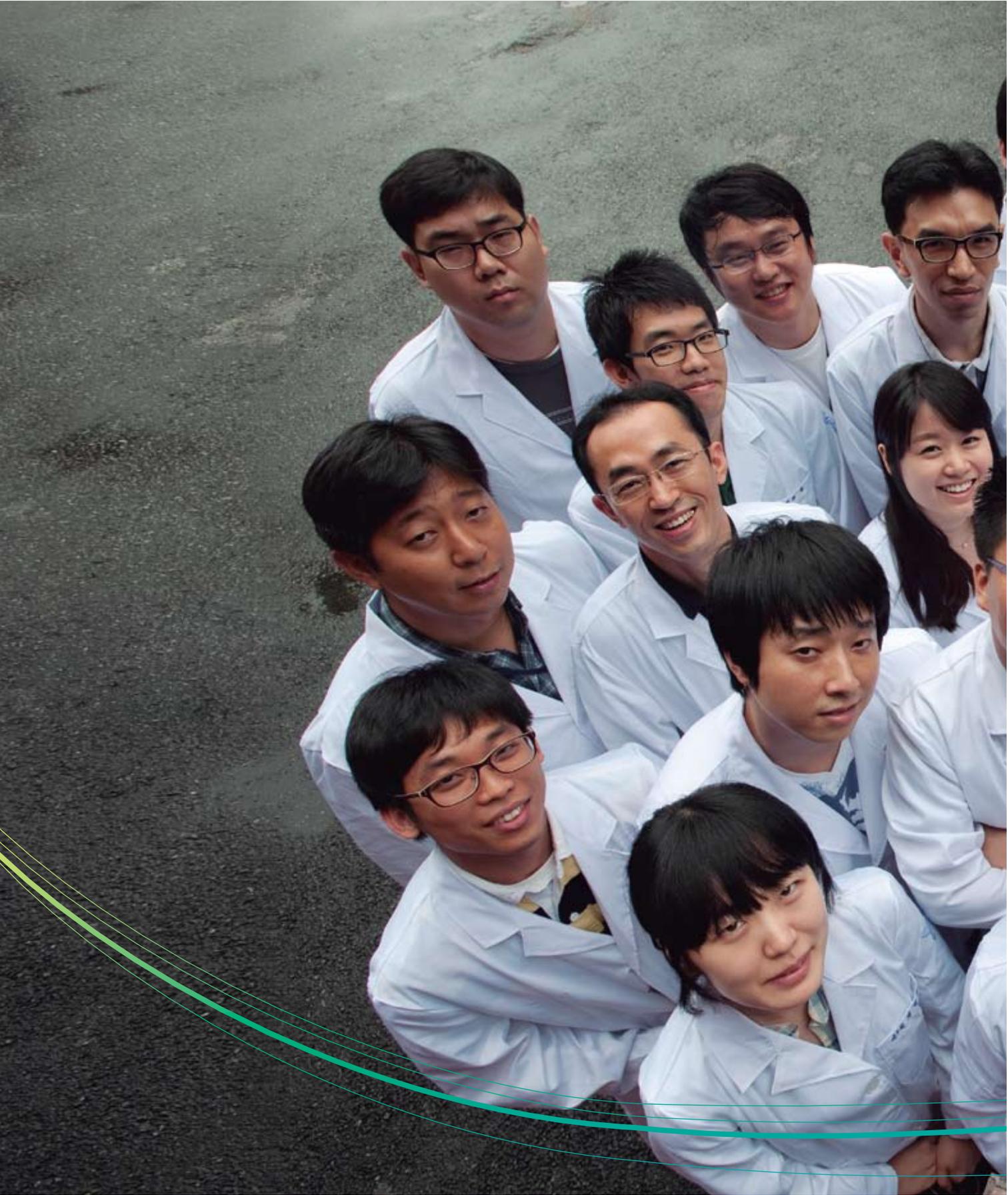
















# RIGINALITY

The colors we envision of creating are the colors that are closest to the colors of nature. The colors we dream about the colors that will beautifully fill the future world. KISCO will continue to find and create new colors from a wide variety of sources, and move beyond the dyes.

KISCO's ambitious challenge will continue on, until we create a new world with new colors.





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DISCO

















# COLORFUL STORY

KISCO 40-Year History

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History of the Landmark Products



1. KISCO Technology Leading the Reactive Dye Market
2. Triumph in the Disperse Dye Market
3. Never-ending Challenge in Colors, Electronic Materials

# Color, Challenging the Possibilities, and Achievements

When KISCO was founded, the domestic self-supply rate of dyes was less than 20%. It is not an overstatement to say that nobody thought it would be possible for KISCO to triumph over major corporations from Europe and Japan, and introduce Korean made dye products to the global market. Therefore, KISCO's challenge for the 40 years since its founding, or 14,600 days, was a grand quest to a dream of turning out domestic production dyes with the highest-quality; it was a quest whose stake was the pride of the Korean dye industry.



KISCO made its first impression on the dye industry when the company developed fluorescent brighteners. Upon founding the company in 1971, Chairman Kim Dong Gil — who already had a patent on fluorescent brightening dyes — launched a fluorescent detergent for synthetic textiles ahead of major internationally-renowned dye manufacturers, and started to supply it to large Korean corporations. At the time, the fluorescent brighteners that were being imported to Korea were made by large German corporations, such as Hoechst or Bayer. Compared to them, KISCO was taking its first baby steps. They were alarmed when a small company from Korea made such a splash in the market with fluorescent brighteners.



The newborn company's terrific march continued onwards after delivering a shock to the market with the domestic production of fluorescent dye.

KISCO established Korea's first dye specialized research institute in

1980, and took on the challenge to produce reactive dye. In 1981, the company created a stir in the market again, by launching reactive black dye 5. With the development of the black dye — one of the most widely used color dyes of all — KISCO scored two clear marks in the industry: fluorescent dye for the color white, and reactive dye for the color black. Reactive black 5 was developed as a liquid, a first in Korea, offering greater convenience for consumers. It was an instant hit in the market.



The success of reactive dye did not end with black 5. In 1982, the company developed the world's first reactive full black dye for cotton, which prepared the ground upon which the company would prosper with reactive dye products during the 1980s and 1990s.

The Full Black (Synozol Black HF-GR) product was the company's landmark achievement; it realized a bluish black color, which was only possible with the company's independent development of an orange color dye exclusively for creating black. It was one of the most widely-talked about products in the dye industry during the 1980s. In addition, the orange color dye, which was critical in realizing the company's unique black color dye, was registered as a new chemical substance in Europe and under Japan's Chemical Substance Control Law, thereby promoting the reputation of the company as a global technology leading manufacturer.



With strong technological competitiveness in the reactive dye area, KISCO successfully developed a vinyl reactive Turquoise dye in 1984. Compared to similar products made in Europe or Japan, this product had better color reproduction and leveling effects, and helped the company build its image as a technologically advanced company. This was a product that greatly contributed to the competitiveness of the country's dyeing and textile technologies. It also upgraded the

technological competitiveness of domestically produced dyes, when it was designated by the government as a technology to be protected for three years after its development.



After their success with the reactive turquoise blue dye, the company moved on to develop a disperse type of turquoise blue, and proved to the industry how they were growing as a consumer-oriented company with technology that could identify and meet the needs and demands of consumers.

In 1998, the company successfully developed Korea's first formazan dye, Synozol Blue SHF-BRN, and built a reputation as a leading technology corporation.



Beginning in 1990, disperse dye was the biggest issue in the domestic dye industry.

Up until the early 1990s, disperse dye had been the biggest selling export item. But when the center of production shifted, the low-priced dyes made in China started to penetrate the Korean disperse dye market.

By 1994, the entire production of disperse dyes was about 12,200 tons, and over 20,000 tons were exported, according to statistics.



KISCO started developing disperse dyes in 1987, first producing Synolon Turquoise Blue K-GL. In 1993, the company also developed Korea's first highly concentrated black and navy blue colors, including Synolon Black K-XNF 300%. The company continued developing new products with a high washing fastness and color reproduction rate.



In 1997, the company carried out a technological partnership venture, KS Project, with a renowned corporation, and advanced

its technology to mix dyes and analyze them. In 1998, the company signed an agreement to carry out the KC project with C Group, and manufactured products in the OEM for C Group while learning advanced production technology and quality control technology from their partner company.



These opportunities enabled KISCO to build the solid foundation upon which the company could move to the center of the global market with advanced technology and quality of disperse dyes. In the process they secured a system to make a wide variety of dye products including eco-friendly dyes with higher washing fastness as well as functional dyes. The company also laid the groundwork to build more dye-related businesses, having entered the industry with dyes for automotives.



Beginning in 2000, KISCO's reputation as a company with advanced technology took a big leap forward.

The company launched a series of K dyes, which included 17 different reactive dyes, after thorough research on the needs of consumers in the dye markets around the world. With this achievement, the company built a strong foundation to advance to the market and earn the trust of clients in the global market.



Along with a series of unique and creative products, the company successfully developed dyes for PDP and LCD, and entered the electronic chemical business. The electronic chemical business added a new growth engine to the company, in addition to the existing dye products.

The dream of KISCO that began with the domestic production of dyes was now taking wing for a brilliant flight beyond their 40 year history.

# KISCO Technology Leading the Reactive Dye Market

KISCO had always focused on the development of new technology since the founding of the company. Beginning in the 1970s, the company started to develop reactive dyes, and launched reactive black 5 in 1981, shortly before the company developed a full black dye product, and made a debut in the disperse dye market. The following year, the company launched Synozol Black HF-GR with great success, thanks to its accumulated technological know-how.



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## The Godfather of the Reactive Black Dye Makes a Debut

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Competition in the globalized era is often described as a war without gun smoke. Having the latest tools in these globalized times means having the latest and innovative technology that can change the landscape of the market.

In 1956, a company from England left a major mark on the history of synthetic dyes when it launched Procion and started the production of reactive dyes.

The launching of a reactive dye created a sensation in the dye industry, as well as in the dyeing and fashion industries. Unlike existing dye products, it could reproduce beautiful and clear colors through direct covalent bonding with textiles. It also demonstrated outstanding washing and light fastness. The reactive dye kept the color intact even after repeated washing and exposure to strong sunlight, almost instantly becoming the most popular product in dye industry. It was the first major achievement in 100 years since the first synthetic dye was developed.

However, in 1982, less than 30 years after reactive dyes were introduced, the world saw another major achievement in the history of dye. It was the emergence of a reactive black dye, Synozol Black HF-GR for cotton. The world's first cotton reactive full black was developed by a Korean company that was unknown in the global market, a company that had started



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developing reactive dyes only recently.

But the reactive black dye was not developed overnight. KISCO had begun development of reactive dyes in the late 1970s, and had already launched reactive black 5 in 1981, shortly before the company developed the full black dye and made a successful debut in the reactive dye market. After meeting with enthusiastic response to the first launch of products that stood out above others in terms of color reproduction and build up, the company launched Synozol Black HF-GR with the support of the company's technological know-how, and scored a big hit in the market.

The biggest advantage of the reactive full black color that the major dye corporations of the world noticed was that it was actually possible to realize full black color. Until then, the color black could only be made by mixing the three primary colors of red, yellow, and blue. But the full black the company developed brought about changes to the existing color matching system, and increased the leveling of colors during the dyeing process. Full black solved the biggest headache for the dyeing technicians, which was decreased work performance due to the difference in lots during the process of mixing the three colors to produce black.

After years of research to develop a technology that would ensure stability in powder dyes, and would produce better dyes for cotton, KISCO developed Synozol Orange HF-GR which included the dichlorotriazinyl reactor. By mixing this orange dye with the color black, the company could realize a full black color dye that had a deep and enchanting tone. Synozol Black HF-GR was made possible by combining the dichlorotriazinyl and black B of vinyl sulfone reactor, making it the world's first full black for cotton; nobody else could even emulate the product. The development was also recognized as an exemplary case where the needs of consumers for

improved quality and improved work performance were realized through a development. It became the main engine for R&D, as the company had always focused on the development of new technologies and products.

Besides, Synozol Orange HF-GR was registered in Europe and under Japan's Chemical Substance Control Law as a new chemical substance, winning trust for KISCO's technological power worldwide. Synozol Black HF-GR was also designated as the standard black at the fashion expo that opened in Switzerland in 1987, and became something of a godfather of all reactive black dyes.



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At a time when the world had no alternative when it came to full black for cotton, KISCO made a mark with its own development and built its reputation in the global market. The product was so wildly welcomed by buyers that, in the beginning, they would wait in line in front of the KISCO office carrying cash to purchase the product.

Later in 1984, the company developed a sulfone type reactive dye, Synozol Turquoise Blue G, and created another sensation in the market with its technology.

The bluish turquoise color KISCO developed had a quality level that was on a par with those made in Japan or Europe, which had been dominating the domestic market. It is famous as a product that moved beyond the technological barriers of advanced countries, and increased competitiveness for Korean dyeing companies. Synozol Turquoise Blue G, which was the first domestically produced turquoise color with higher color reproduction and leveling of color, was designated by the government as a technology to be protected for three years after the development.

In 1991, the company also developed the liquid Full Black Synozol Black HF-GRP 50, the first in Korea, and dominated the black color dye market for print dyeing.

In 1990, the quality of Korean-made reactive dyes for print dyeing was good enough to compete with products made in advanced countries. Reactive Blue 49 (Blue P-3R) was selling at around \$30 per kg, while other similar products were selling at an average price of \$14 dollars; it was acknowledged as a high quality dye product worth the price. It was also popular as an item that was competing with products made by some of the largest dye manufacturers from advanced countries. This product motivated Korean dye manufacturers to follow the company's success, and some of

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them even tried to develop a liquid type of the product. KISCO launched the liquid type reactive blue 49 in 1994. Liquid type dye requires one more process than the power type, and it has less risk of discoloration than the power type, especially when it has been stored for a long time. It also had to be made with a higher level of technology in order to prevent the dye particles from settling to the bottom.

During the 1980s, the domestic production volume recorded an annual growth rate of 23%, and the self-supply level reached as high as 70%. Considering how the self-supply rate remained less than 20% in the 1970s, it was a remarkable growth. Even imports recorded a 22% increase, making Korea one of the advanced dye manufacturing countries.

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## Building the Reputation of “KISCO Technology” with Blue 221

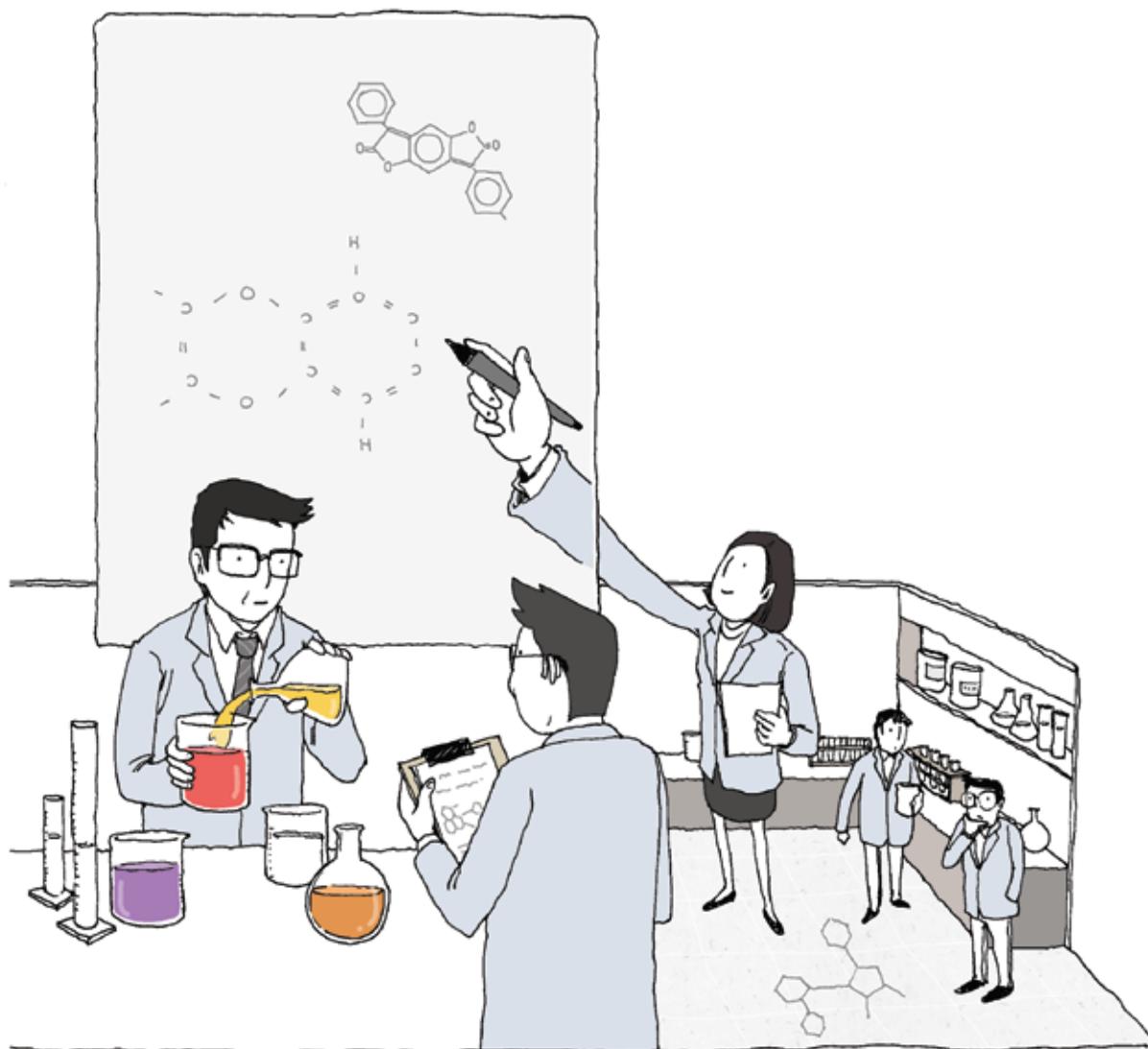
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Beginning in the mid 1990s, the domestic dye industry was expected to have a difficult time due to import liberalization. Even though the economy was going strong, the industry had to find ways to meet the environmental regulations that were spreading throughout the world.

Consequently, the domestic dye manufacturers started to develop eco-friendly dye products that had minimal risk of environmental pollution, while building stronger wastewater processing systems for the same purpose. But their efforts did not return very satisfactory results.

It was around this time that KISCO launched Papizolon HT. Papizolon HT made neutral bath dyeing possible, and it reduced the production of wastewater during the one-bath one-step dyeing process. With this achievement, the company took leadership in the development of eco-friendly products.

One Bath One Step is a procedure that allows the dyeing of synthetic fibers such as polyester, nylon, and wool together in the same batch with cellulosic textiles. Before this procedure was available, companies had to use disperse dye and reactive dye separately depending on what textiles they needed to dye. But with this newly developed procedure, the companies could complete the dyeing in just one shot. This change shortened the dyeing process, and in the end brought about savings in energy and water, because



it required fewer chemicals than before.

The Papizolon brand that KISCO first launched in the market in 1997 was followed by a series of 13 items, including the popular Papizolon Yellow HT-4G, in 2006. With this series of products the company entered and conquered a market that had previously been dominated by Japanese companies. It also created a new market with eco-friendly products. This is a good example of how KISCO created new demands with new challenge.

Beginning in the 1990s, KISCO's challenge was picking up speed with the development of Synozol Blue SHF-BRN that was launched in 1998.

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This highly photo-resistant Synozol Blue SHF-BRN was a blue color dye for primary colors, and the Formazan blue dye market until then had been dominated by Japanese and German companies. With this product, KISCO reclaimed the blue dye market. Even though the product required a complex production process, was difficult to develop, and only advanced companies could produce it till then, there was a downside; it had weak washing fastness.

Acknowledging this problem, KISCO began research to improve Blue BRF, and tried to create a structure that no other company could have developed, instead of emulating the technology of others. The company also carried out painstaking research on the products made by advanced companies to avoid any possible patent issues. Eventually, the company successfully produced the blue dye with a new structure, while maintaining the unique characteristic of the formazan dye.

Vice president Cho Sung Yong, who took the lead in development of this product back then recalled, “At the time, in the Korean market, there were no formazan dyes, and we could expect a synergy effect with other color dyes when we developed blue dye.” He added “I remember how everybody had agonized for two years because we could get the quality and the yield rate that we wanted. We were so frustrated because we realized how production turned out to be more difficult than developing.”

Ultimately, Synozol Blue SHF-BRN was launched in 1998, after years of all employees working together as a team, carrying out repeated experiments and modifications. Today, it is one of the leading profit generators for the company. The formazan dye that KISCO developed had outstanding washing fastness and light fastness, and was widely welcomed as a product that perfectly complemented the shortfall of the previous Japanese made

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counterparts.

The reactive blue dye launched by KISCO, followed by the black and turquoise color dyes, expanded the product portfolio of the company to include the three primary colors, allowing the company to cover over 70% of the dyes for cotton dyeing with its special group of products. In addition, the successful development of formazan dye brought about changes in the direction of research in the industry. The patented formazan dye triggered a series of discussions about the new chemical structure, and many companies benchmarked the company's achievement.

However, it was the series of K-dyes that the company started launching in 2000 that truly made a difference in R&D trends among the research institutes. The emergence of this series of dyes was considered a major event unlike any the industry had ever seen before.

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## Changing the Direction of Product Development with the Customer-oriented K-Dye Series

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In 2000, KISCO introduced seven items that belong to the K-dye series of 17 items, beginning with Synozol Yellow K-HL.

The K-dye series was named using the initial of the company name, K, which was also the first letter of the word Key. The essence of this group of products was the color reproduction rate. Realizing the colors that customers were demanding — instead of colors they could only come up with by mixing different colors together — was one of the most important tasks for dyeing technicians. The K-dye series was made to meet the demand for good dyes with convenient color reproduction for customers.

The key point in the development of the K-dye series was to have the original target colors reproduced, regardless of any possible external factors, during the dyeing process.

There was another key that was critical in the successful development of the K-dye series: confidence. When the company decided to challenge and develop the K-dye series, they had confidence that they could make any color dyes that they planned to develop. The company was confident that they would include 17 color dyes that could reproduce all the colors anybody could ever want, by mixing them in different combinations and at different ratios.

It was a revolutionary series of products, which was made possible with the

cooperation of all research fellows in the central research institute of the company. They were able to establish KISCO's unique research analysis and measuring methods, and they were able to identify the niche in the market by painstaking analysis of products made by other companies and evaluation



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of all dye products made by advanced companies.

Vice president Cho Sung Yong, who led the development of the K-dye series, stated, “After researching the markets and needs of consumers from around the world, and painstaking research on various dyeing behaviors, we identified which products made by which company had stronger points compared to others.” He added, “On analysis, we found that even the products made by major companies had weak points, especially in terms of commercial value, even though they looked perfectly good. That’s what motivated us to challenge ourselves to make the K-dye series, and we were determined to realize the best commercial value with them.”

The development of the K-dye series was particularly significant because it brought about a shift in the research focus: it shifted to the development of customer-oriented products. And it also became the benchmark for all other follow-up research projects.

The K-dye series that emerged in the market in 2000, four years after development started, left a major mark as a group of products that offered a solution to dip dyeing, while demonstrating the distinguished properties of matter. The series was also recognized as a group of products that maximized washing fastness and color value, while reducing the reject rate thanks to the higher color leveling and color reproduction rates. Compared to Sumifix Supra made by a renowned Japanese company, it demonstrated better washing fastness, and was considered to have better commercial value compared to the European products. Supported by all these advantages, the series became one of the landmark developments for the company, and recorded annual sales of 26 billion won.

Later, between 1999 and 2006, the company launched nine more items in the series, in addition to the liquid type of reactive dye, Synocron Yellow

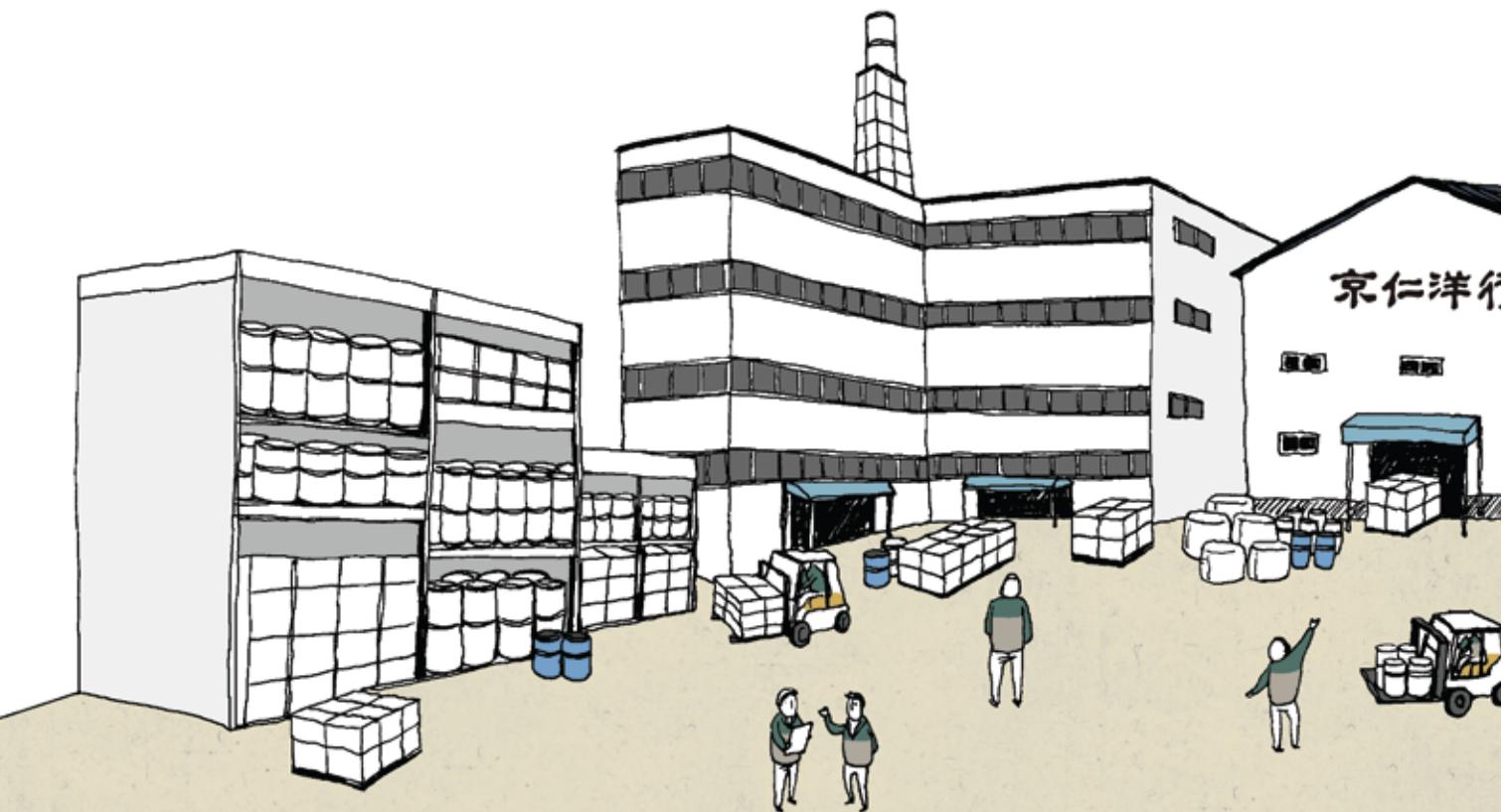
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P-6G. In 2002, the company started the development of reactive dye for scour dyeing, and developed nine more items including Synozol Yellow CP, efficiently getting the upper hand in the scouring dyeing market, which, until then, had been dominated by European products.

KISCO is committed to building stronger sustainable growth through the innovative improvement of its production process and continuous development of eco-friendly reactive dyes into the future.

# Triumph in the Disperse Dye Market

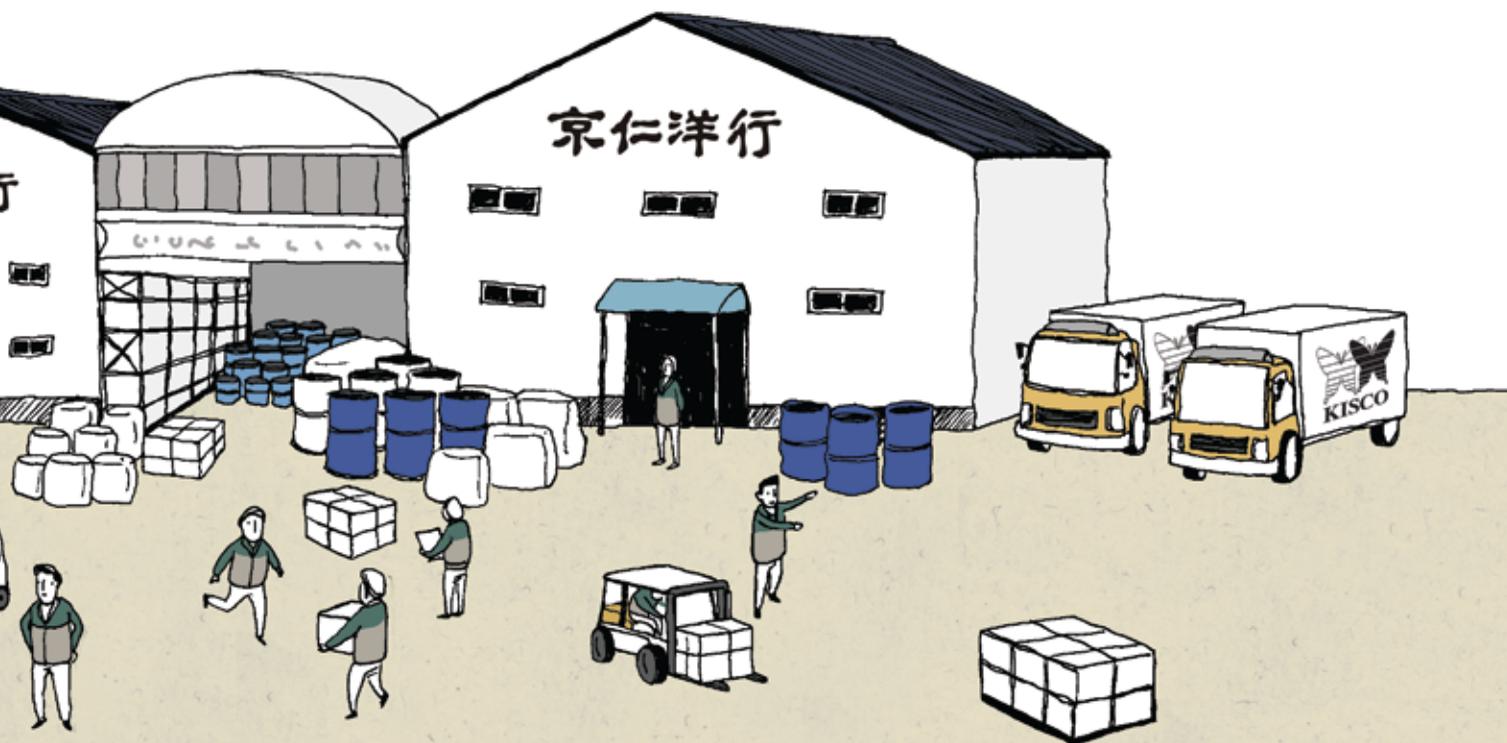
The Synolon EN-F that was launched in 1997 has improved the dye-ability difference of three E-type primary color dyes, minimized the reject rate, and increased sales. This development was significant because it achieved dyeing stability through the mixing of existing color dyes, instead of adding anything new.



## The Completion of Siheung Factory and Its Entry into the Disperse Dye

While the demand for reactive dyes kept increasing throughout the world, there came a major event in the dye industry around 1993. It was a time when the hub of textile production was shifting to Asia, and Asia was emerging as the central market for dye products. It was also the time when research in Germany identified dyes with a risk of causing cancer, consequently forcing governments around the world to develop environmental regulations to directly respond to the issue.

On top of this changing business environment, the bad harvest of cotton in 1993 resulted in a slowdown in the cotton textile market, and decrease in the demand for reactive dyes, while the demand for disperse dyes that



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can be applied to polyester textiles started to pick up. The domestic dye manufacturers that had been geared towards reactive dyes scrambled to find a solution to their dilemma by getting into the development of disperse dyes, and turning to the higher-quality dye products.

Disperse dyes are suitable for dyeing polyester, acetate or hydrophilic type of textiles. Since they don't dissolve in water, they are made in minute particles that are less than 1 micrometer, so that they can be dispersed in water. The quality of the disperse dyes, therefore, is decided by how well the minute particles remain dispersed during the dyeing process.

KISCO began the development of disperse dyes in the late 1980s, and commercialized bright colored dyes, such as Disperse Blue 60, Yellow 54, and Yellow 64, which recorded the biggest sales in the market at that time. After successful development of disperse dyes, KISCO went on to challenge in the black and navy blue range of colors, which had the biggest market in the dye industry. In 1993, the company secured a mass production system at Siheung factory, which was devoted to the manufacturing of disperse dyes only.

Synolon Black and Navy Blue K-XNF 300%, which were the two main products among disperse dyes in the early stage, were produced in greater volume with the construction of Siheung factory. Later, they had significant influence on the production and supply of black dye, which was an essential item in the K project the company was carrying out jointly with the C Company regarding disperse dyes.

The K-project that began in 1998 put KISCO in charge of production, and the other company, C, in charge of sales. It gave the company an opportunity to boost the sales of disperse dyes products, thanks to the world-wide sales network of the Swiss company, C, and their advanced technology.

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The project made contributions to a stronger production and sales network system for the company, which was allowed to become the exclusive supplier of the products. The company made the products with a technology that offered, in addition to high washing and light fastness, stable quality even after mixing lots of three and more color dyes.

In 1997, KISCO signed a technological tie in with Japan's largest dye manufacturer, from which the company learned advanced dye technologies and produced dyes with high light, and washing fastness, as well as higher clarity.

KISCO secured the technology to make minute particles for disperse dyes through technological tie-ins with major international corporations, and maintained higher standards in quality control and stability in the dyeing procedure, effectively upgrading the disperse dye manufacturing technologies.

Synolon EN-F, which was launched in 1997 was the enhanced version of previous products, and improved the problem that was identified in bright colors due to the different dye-ability of the three E-type primary color dyes. It made great contributions to increased sales for the company, by minimizing the reject rate during dyeing. The significance of this product was that, it was made to offer stable dyeability only through the mixing of existing dyes, instead of adding anything new, and it was acclaimed to have brought about significant improvement in efficiency, as evidenced by the fact that the technology was used to develop synthetic products such as SE-NS and KRD-SE. Now that the company could offer a group of products to compete with rival companies, they had an upper hand in the race for sales, as well.

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In 2000, KISCO introduced Syno Acetate Eco Dyes, eco-friendly acetate dyes which were greatly improved versions with better washing fastness, made without any allergy-causing dyes. The company started to develop dyes for acetate after having experienced how the existing disperse dyes for polyester were not suitable for acetate. The company examined existing dyes that had good dyeability and did not have allergy-causing toxic substances first, but they had no luck. However, the company came up with an idea for the product while mixing various dyes. The idea was based on painstaking analysis of the dyeing mechanism of acetate.

This product, which was launched around the time when there was a boom in the development of eco-friendly dyes for acetate sometime in the late 1990s, met the demand from customers who had been using the previously developed toxic substance. It was a product that embodied the company's commitment to eco-friendly products, as well as their devotion to customer-oriented research and development.

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## Growing with Functional Dyes that Have High Washing Fastness

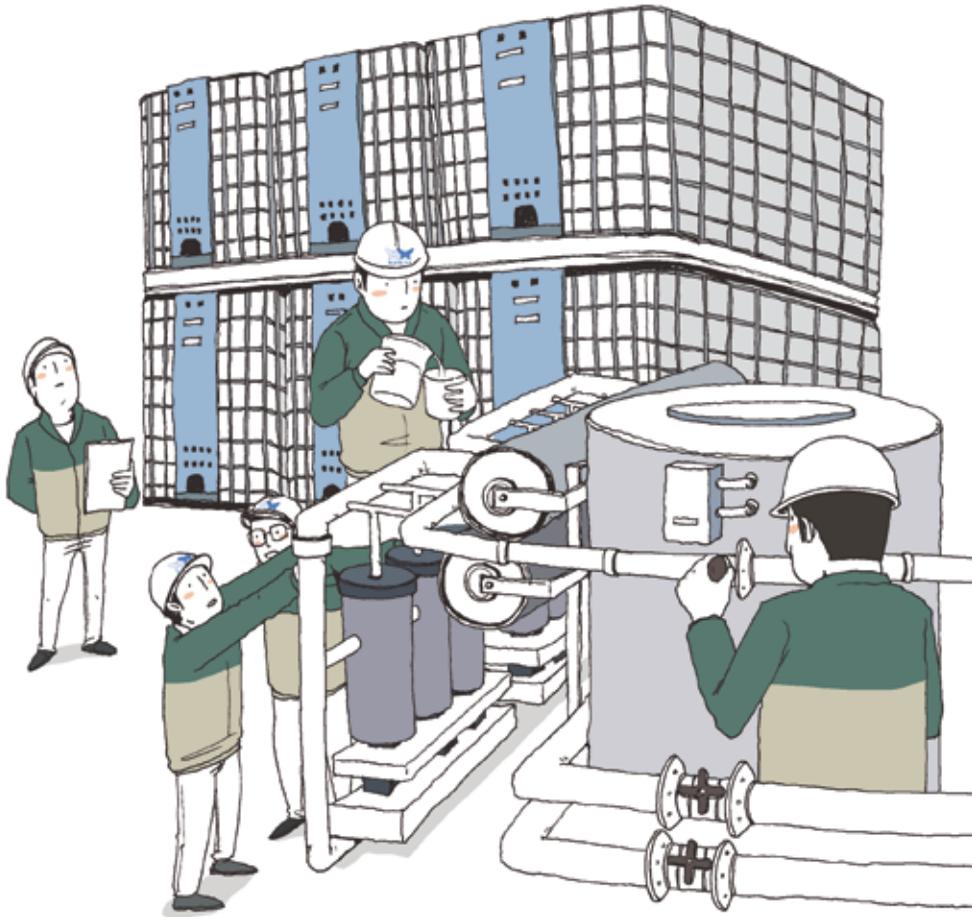
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Beginning in 2000, textiles that excelled as natural textiles in terms of price and quality started to appear in the market, with polyester textiles one of the examples. It was around this time, that the industry saw a new possibility for disperse dye. The result was the emergence of functional dyes, which had stronger fastness in washing and sunlight.

The demand for dyes with higher washing and light fastness started to pick up as the increasing number of companies launched highly functional products made for microfibers, sportswear, or automobiles during the 1990s, and the application range of disperse dyes started to expand.

KISCO entered the market for dyes with higher washing fastness, when the company launched the Synolon K-XF series (later changed to Synolon XF Dyes) in five colors of yellow, brown, blue, ruby, navy & black in 2000. These dyes that were designed to have higher washing fastness in their chemical structure also had less risk of polluting other textiles during the washing.

KISCO had been observing the increase in the demand for dyes with higher washing fastness that had begun at the same time as the opening of markets for functional wear such as sportswear. But it was not until 1998 that the company decided to begin development of functional dyes, and succeeded in domestically producing the product, with a goal of surpassing



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the XF dyes made by an English company and known for their outstanding washing fastness. KISCO developed its own procedure to improve dyeability, under the recognition that the XF dyes were showing an unstable pH level, and the product that they developed had received enthusiastic response in the market for higher washing fastness thanks to aggressive marketing.

Later in 2004, KISCO started the development of red dye with a high covalent bonding for eco-friendly microfibers, as a component of the parts material technology development project by the ministry of industry and

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resources.

The project began with 1.7 billion won in research funding from the government for two years. Since the company had to design a new chemical structure that did not infringe the patents registered by advanced German and Japanese companies, the research team had to conduct numerous experiments and they experienced a series of trials and errors. Since the company had to use an organic solution during the synthesis process, it was not possible to use the existing production facilities, and the company had to introduce production lines exclusively for the project. In the end, the company successfully developed substances uniquely KISCO's own in making disperse dyes, and officially launched Synolon Super Red EXW in January 2006.

The company supplied Synolon Super Red EXW, which was a bright red color tone dye, to dyeing companies that supplied textiles to sportswear manufacturers, and recorded annual sales of one billion won. In addition, the company enjoyed a special surge in demand from the market when in 2002 the Korean soccer fans of the Red Devils, the national soccer team, began snapping up red clothing during the 2002 World Cup games.

In the meantime, the special chemical structure the company developed while making Synolon Super Red EXW acquired a patent in Korea, and it was also submitted for an international patent through PCT (Patent Cooperation Treaty). It is registered as a patented new material in the US, China, and India, and the company is planning to register in Europe, Thailand and Malaysia, as well.

The company's quest in functional dyes continued, until the company developed Synolon SMD Dyes for microfibers. Later, the market was hit by an economic recession and dye manufacturers scrambled to find a way to

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recover, effectively pushing for more dynamic research and development projects for functional dyes.

KISCO launched six items for microfiber, excluding the color orange, after two years of R&D beginning in 2006, and advanced the quality of their products to the level of C, a company that had been dominating the market for microfiber. With this success, the company entered the market with products that offered stable dyeability on such highly-dense textiles as microfiber.

After the successful development of international-class products, KISCO continued to make remarkable achievements, including the manufacturing of products with high light fastness.

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## Business Extends to Dyes for Automobiles with the Development of Dyes with High Light Fastness

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Beginning in 2000, the dye industry witnessed a boom in highly functional dye products, and the dye companies continuously extended their business territory to other related business areas. The dye industry in particular was creating a new business field as they attempted to extend their business territory to include industrial materials beyond textiles, such as dyes for fax machines and printers.

While the winds of change were blowing in the industry, KISCO took a challenge in the dye for automobiles, and launched Synolon AK Dyes and Sonofast UVK-100 in November 2007.

Dyes for automobiles refer to the dye products used for dyeing textile materials that are found in the interiors of automobiles, such as car seats and safety belts. They require outstanding sunlight fastness and stability of coloring. Since cars are often exposed to intense sunlight for prolonged periods, dyes for automobiles are always made with auxiliaries that can improve sunlight fastness. The sunlight fastness auxiliaries therefore, have to be made with substances that can absorb ultraviolet rays. The distribution of dyes of these products are often called the automobile dyes and auxiliaries business, which is an entirely new business world the dye industry was tapping into, one that is clearly different from the existing stream process where products move from dye company to dyeing company, and



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then to the fashion company, the end user.

KISCO took a challenge in this new business area, and began the development of Synolon AK dyes that were to be used for interior textiles for automobiles in 2006. However, the company got into difficulties right from the initial stage of development, because textiles for automobiles were different from textiles for clothing, and KISCO had little experience with them. Even in quality control, there were stricter standards to meet in developing dyes for automobiles.

On top of that, major companies already had the upper hand in the dye for automobile areas as well, and the company had to call on all its available resources just to ensure the level of quality did not fall behind in the market.

Even though KISCO was a late starter in this area, the company soon overcame the initial hurdles by working in partnership with K Company, Korea's largest car seat cover manufacturer, and in the process securing a sales route as well. However, it was not an easy journey for the company, as it experienced a period of serious trials. At one point, the company was in a desperate situation when poor dyeing results put the entire product development at risk, while they were still striving for technological growth in the disperse dye business.

Eventually, the company secured a stable sales channel with support from their client companies and their trust. The growth possibility of dyes and auxiliaries with high light fastness for automobiles is expected to continue growing with the rapidly expanding automobile market.

In the meantime, KISCO launched TP Dyes in 2009, dye for thermal transfer printing, with its eye on the niche market. The dyes for thermal transfer are to be used on printer paper, instead of textiles, and printing on the paper can be transferred to textiles when heat is applied to the paper.

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KISCO won the race for dyes for thermal transfer by achieving the higher quality light fastness; KISCO products were four levels higher than most other existing products that remained on the bottom level of fastness. At the same time, KISCO instantly dominated the thermal transfer market because, while most products contained allergy-causing ingredients, KISCO products were made to be eco-friendly.

In 2010, the company also developed seven types of Synolon EXW dyes with high washing fastness. It was an achievement targeted at dominating the market for a variety of dyes with high washing fastness for sportswear



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which was showing remarkable growth, while at the same time it would meet the demands for black dye products that would lead the market along with the existing Super Red EXW.

Among all sportswear products, the group of Synolon EXW Dyes was particularly suitable for textiles that include spandex. Supported by their popularity in the market, the company was able to record annual sales of 2 billion won. This group of products is particularly significant, because they are made with the world's highest level of technology developed by KISCO, from basic raw materials to synthesis, while most other dye companies were selling imported finished products.

The company is planning to keep expanding the market with stronger competitiveness, by additional development of dyes with high washing and light fastness, while at the same time increasing the number of new products and joint research projects in cooperation with large dyeing and textile companies in the disperse dye business area.

# Never-ending Challenge of Colors, Electronic Materials

KISCO has always strove to find points that need to be improved through dynamic experiments and modification, with a commitment to solidify the business foundation for electronic chemicals, from process management to quality management and safety management, while at the same time building knowledge of products through trial and errors. As a result, KISCO secured technological power that is one step ahead of others.



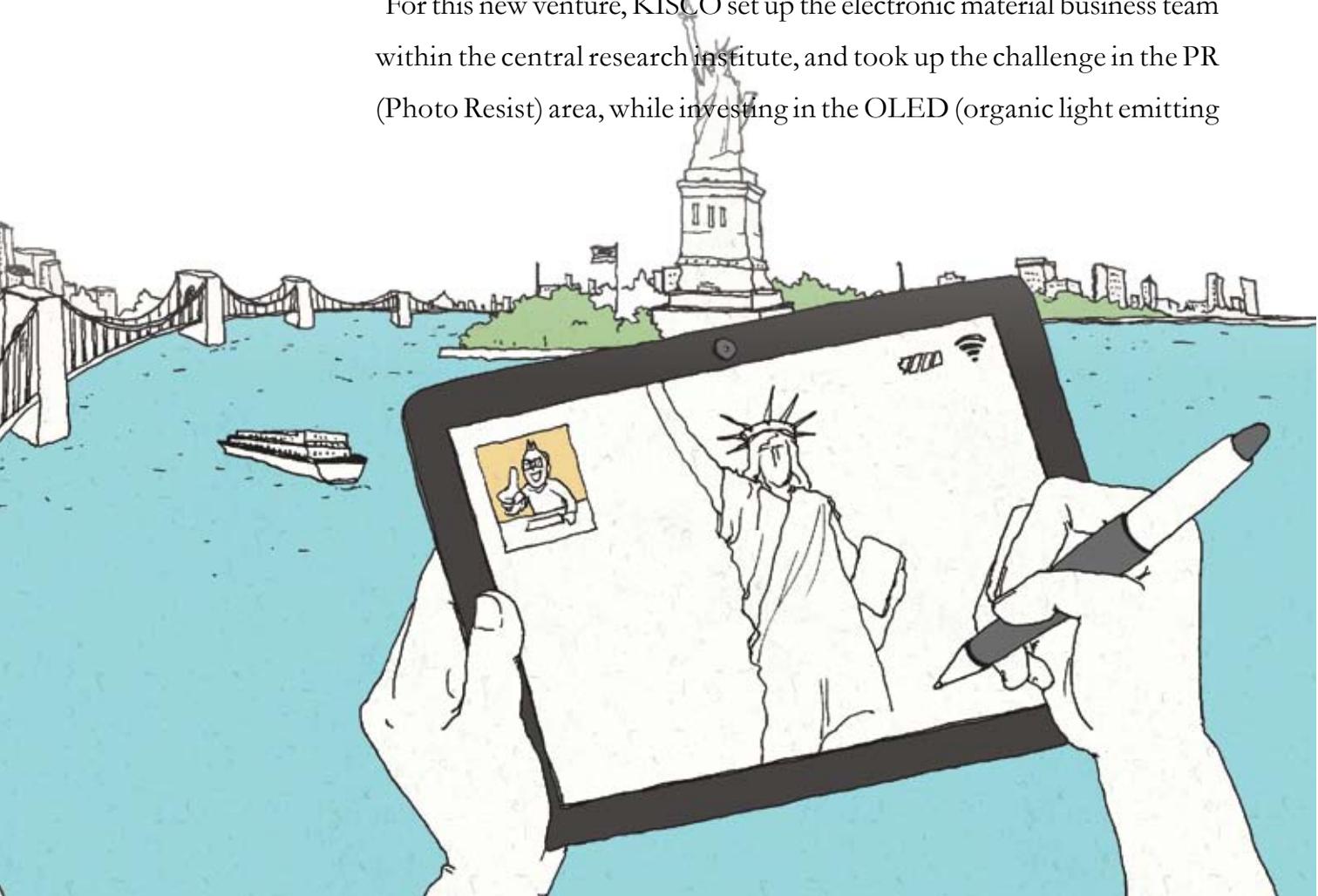
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## Quest for the Electronic Chemical Business

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In June 2003, KISCO made an official announcement of its entry into the electronic chemical business. It was aimed at finding a new engine for sustainable growth while finding alternatives at a time when the dye industry was faced with a difficult business environment due to world-wide environmental regulations and the deteriorating decrease in profitability.

For this new venture, KISCO set up the electronic material business team within the central research institute, and took up the challenge in the PR (Photo Resist) area, while investing in the OLED (organic light emitting



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diode) business.

A photo resist is a light-sensitive material used in the production of IC to form a patterned coating on a surface. Photo resists are most commonly used at wavelengths in the ultraviolet spectrum, and photo resist-based lithography is considered to have contributed to the semiconductor micro fabrication.

After entering the PR business — which has an important place in the electronic chemical field — KISCO found out that NAS-5, the most basic compound used on the lowest level in the production of photo resist, had been manufactured in Ansan factory and supplied to a Japanese importer. When KISCO realized the Ansan factory had been manufacturing NAS-5 in OEM format— without knowing what the product was for — and it was being exported back to Korea, KISCO asked the Japanese importer to provide them with the technological information and specifications of the product.

The relationship between KISCO and the advanced Japanese company can be traced back to the time when KISCO was producing fluorescent brightener. In April 1988, the company signed a technological partnership for the Illuminal BBS Conc, and the two companies have maintained a close business partnership ever since.

KISCO signed an agreement for the transfer of technology to make NAC-5, which is a higher level than NAS, in August 2003, while continuously producing NAS-5 for the Japanese company. NAC-5 is used to make PAC (Photo active compound), which is one of the main materials for PR. The photo resist that uses PAC was used to make printed circuit boards in the past, but now it is used to make TFT of LCD since the growth of the display business.

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## Birth of NAC-5, the Cornerstone for the Electronic Material Business

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Having the production technology of NAC-5 transferred from the Japanese company, KISCO made its first production test run in April 2004. However, the first test run ended up a failure, because the layers were not separated during the crude production stage. The company repeated the preparation work again, and tried a second time in October, but the same problem occurred again. Even though the company entered the new business with the ambition of developing OLED ultimately, they realized it was going to be more difficult than they had expected.

The company was faced with numerous hurdles beginning at the NAS stage until it reached the NAC stage, including strict quality standards and technological barriers. Besides, the company had yet to gain a clear understanding about the characteristics and mechanism of electronic materials and how they were completely different from previous dye production; it required a change in the conscience level, and awareness of safety, quality and mechanism. What was called for was the conversion of conscience.

In this situation, KISCO kept on striving to find points that needed to be improved through dynamic experiments and modification, with the commitment to solidify the business foundation for the electronic chemicals, from process management to quality management and safety

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management, while at the same time building knowledge of products through trial and error. In 2005, when KISCO conducted a test run with a new method that KISCO had developed, the company turned out to have secured a process technology that was one step ahead of the advanced Japanese company.

It was a technological victory for KISCO, a company that had triumphed over the barriers of difference between the dyes and electronic materials.

After the development of its own technology and successful mass production of NAC-5, KISCO started the full production of NAC at Ansan factory, and supplied the product to DKC, which had constructed PAC factory in partnership with the Japanese company.

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## Realizing Display Color with PDP Dyes

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With the confidence built on the success of NAC, KISCO began a full-fledged operation to apply the know-how the company had been accumulating over its 40 year history in organic synthesis to colorants for electronic materials.

The display market in Korea, which started to grow rapidly in 2000, showed remarkable growth in 2003, and the market for DPD display materials recorded peak sales of 400 billion won. However, the domestically produced PDP display materials turned out to account for only 12.6% of the entire market, proving the high dependency of part materials on foreign imports.

In the case of the front filter that takes up a significant share in the market of PDP display materials, two or three Japanese companies held over 80% of the market. In 2002, one Korean company started to produce the front filter as a first in Korea. When a few late starters joined in the race, the market for front filters was poised to enter a warring period between small and large corporations.

It was under these circumstances that KISCO started to develop dyes for display materials, and in May 2005, the company began full-fledged research for the development of PDP dyes. At the time, a major Japanese company was conducting research on samples through an affiliate Japanese company,



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with the goal of developing Dithiolene Nickel Complex-based dyes to apply to PDP display, but the company turned to KISCO when the dissolution rate turned out to be a problem with the other companies' products.

PDP TV has an operation principle that emits orange range rays and near infrared radiation rays. However, in the case of NIR, the frequency is the same as the remote control, and can send signals to other appliances, such as the air conditioner, video and audio players. As a result, it could cause false signal problems. Therefore, PDP TV must have an NIR shielding film that will block the nearby infrared radiation rays, and the NIR dye was what was needed for the NIR shielding.

The Dithiolene Nickel Complex-based dye that the company first tried had the advantage of efficiently shielding NIR because it had a narrow bandwidth compared to other NIR dyes, but it had a lower dissolution rate than others, and no companies in the world were able to find the correct application.



KISCO was successful at compounding the exact same product as the one made by the Japanese company, but like all others, they could not come up with the solution for the dissolution rate issue. So the company began new research for dye with a new structure. In the first stage, KISCO had trouble in synthesis and purification, but eventually, KISCO was able to apply the company's own process and succeeded in synthesizing new dye. This was the birth of NIR-885DTN3, a dye that is used to make a thermal shielding film that could block infrared radiation.

In the meantime, the company began new research at the request of a client in January 2007 for a dye that could block the orange color that is emitted from the neon of PDP filter. The client had examined the Japanese made product, but decided to look for a new structure after the yellowing problem was identified.

After having built the know-how on PDP dyes through research on NIR shielding dyes, KISCO immediately responded to the client's request, and

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in four months, in May 2007, the company triumphantly succeeded in the mass production of NEC-592PZC3. The NEC-592PZN3 that could shield the orange color from PDP TV had high added value; in the beginning, it was sold at over 400 million won per kg. Having made a successful entry into the display business, KISCO upgraded the level of their electronic chemical sector.

KISCO emerged as a display material manufacturer when it made a successful entry into the PDP material market with NIR-885DTN3 and NEC-592PZC3 dyes, and completed its new challenge with success.

Later, beginning in 2008, the company also tapped into dyes for the LDC business, which, along with the PDP, was creating two pillars in the display material market.

## List of National Projects Undertaken by KISCO

(unit: thousand won)

Government Agency	Title of the Project	Project Term	Undertaking Organizations		Research Funds	
			Executed by	Consigned by	Total research funds	Government aid
Ministry of Knowledge Economy	Development of the carbazole dioxazine-base pigment (PV23)	Dec.'97-Nov.'99	KISCO	-	362,063	171,573
	Research about the synthesis and liquidation of reactive black dyes for printing	Sept.'99-Oct.'01	KISCO	-	451,686	178,424
	Development of three reactive primary color dyes for dark colors with high adsorption	Oct.'01-Sept.'03	KISCO	Seoul Nat'l Univ.	389,262	239,517
	Development of three reactive primary color dyes for light colors with high light fastness	Aug.'03-Jul.'05	KISCO	Seoul Nat'l Univ.	542,734	394,500
	Development of eco-friendly red dyes with high dyeability for micro-fibers	Jul.'04-Jun.'07	KISCO	Kyungbuk Nat'l Univ.	1,609,720	1,082,000
	Development of NIR dye with high function and high stability	Jun.'09-May '14	KISCO	Kyungbuk Nat'l Univ.	3,250,000	1,625,000
	Joint project between the textile business streams (light weight, highly functional seat belt development)	Jun.'10 - May '12	KISCO & Jinheung		136,400	100,000
	Development of dyes for LCD color filters	Jul.'11-Jun.'16	KISCO		4,500,000	2,250,000
sub total	-	-	-	11,241,865	2,066,014	
Ministry of Environment	Development of membrane separation technology to process wastewater from dye and dyeing	Aug.'02-May '05	KISCO	Korea Research Institute of Chemical Technology	1,089,349	652,640
sub total	-	-	-	1,089,349	652,640	
Small and Medium Business Association	Development of the high-quality direct Yellow 132 dye	Aug.'03-Jul.'05	KISCO	Fine Chemical	313,208	200,000
	Development of the dye synthesis and the optimal dyeing methods for aramid fiber for high temperature protective clothing	Apr.'06-Mar.'08	KISCO	Korea Institute of Industrial Technology	240,000	180,000
	Development of eco-friendly orange disperse dye with high color reproduction capable of responding to the Blue Sign	Jun.'10 - May '12	KISCO	Korea Institute of Science and Technology	542,858	380,000
sub total	-	-	-	1,096,066	760,000	
Ministry of education science and technology	Development of high temperature one bath one stage dyeing reactive dyes for PC synthetics	Mar.'99-Feb.'00	KISCO	-	35,000	35,000
	Development of high temperature one bath one stage dyeing reactive dyes for PC synthetics and its applications	Apr.'02-Mar.'03	KISCO	-	70,000	70,000
sub total	-	-	-	105,000	105,000	
Others	Invitation of Korean & European experts for advice	2002	KISCO	-	6,500	6,500
	Research about the Chinese dye industry's competitiveness	2002	KISCO	-	9,000	9,000
sub total	-	-	-	15,500	15,500	
<b>Grand Total</b>					<b>13,547,780</b>	<b>3,599,154</b>

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## Writing a New Chapter in History with the World's First Dye for LCD

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Around the time when KISCO started developing PDP related dye products, the size of the world's display market was about \$94 billion dollars, and the size of part materials, about \$78 billion dollars. In the market, FPD (flat panel display) was recording over 95% of the shares in the world's display market, while the CRT (Cathode ray tube) business was gradually waning. As the OLED became a more significant part of the display market, the FPD module market was built on two pillar businesses of PDP and LCD, and the industry was predicting that in the future, TFT-LCD and OLED will take the biggest share in the market.

The FPD market in Korea was also recording significant sales: it was \$40 billion dollars in 2007, and the part materials, \$23.14 billion dollars.

The market for TFT-LCD had already reached a mature stage in terms of technology, and the companies were competing over price competitiveness. Since the part material for TFT-LCD was 60-70% of the module cost, it had to be produced domestically to have any price competitiveness at all. But even though Korea had a high percentage of shares in the world display market, the development of core technology to make part materials was not advancing fast enough.

The domestic self-supply rate of color filters — which is one of the essential parts and accounts for about 25% of the TFT-LCD module



production cost— was close to 100%, but most of the secondary materials for color filters — color resist, black matrix and overcoat — and the third materials such as pigment dispersion liquid, monomer, and functional additives were not domestically produced.

In the case of color resist, some domestic companies tried to domestically produce them beginning in 2005 and were getting some results, but the pigment dispersion liquid, which is one of the basic materials for color



resist, was so dependent on foreign imports that the entire demand had to be imported from Japan.

The pigments for color filters for LCD, where the colors are reproduced through additive primary colors of red, green and blue, had been used in liquid form, where pigments without fastness to light, heat, and chemical substances are dispersed. But with pigment dispersion, the pigment is in the form of particles, and they can disrupt the light. When the particles are uneven, they cannot meet the demand for high definition and contrast. Therefore, there was a limit in developing the product. Beginning in the 1990s, some Japanese companies suggested using dyes, instead of pigments,



and the industry was waiting for the development of dyes that could satisfy the demand for a dissolution rate, heat resistance and light resistance. It was a much needed project for the dye industry to develop the dye for LCD color filters that could replace pigment products.

It was under this circumstance that KISCO jointly began the development of dyes for color filters with D company in 2008. It was a late start compared to most other advanced companies. The job required complex and painstaking attention to details, because the product needed to be developed to have light, heat, and chemical resistance, and have a good dissolution rate, while keeping all the properties of colors.

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KISCO started by examining all the developed dyes for textiles with the required dissolution rate, but the company could not find any dye products that were suitable for color filters. Later, the company conducted experiments with a few dyes to test dissolution rates, but failed to secure the stability that was needed to make color filters. Eventually, the entire project was about to fall apart.

Then a client asked the company to develop a dye-based color filter, and they conducted joint research with a domestic color resist company. Now that the company had discovered through the first try that they could not find the dye they needed in those that already existed, the company turned to the development of a new dye with new structure.

It required significant amount of time for the production of samples for screening, since the company was now required to come up with new development. In the beginning, many clients misunderstood the delay in developing samples and thought KISCO was taking too much time in developing the product.

Once the company secured satisfying results for a dissolution rate then came problems with durability and color reproduction, just to name a few. Yet, the company carried out hundreds of screenings of dyes for two years, during which time the company gained the knowhow that was required to make dyes for color filters.

In March, 2010, KISCO succeeded in producing the world's first dyes for LCD color filters, and wrote a new chapter in the history of dyes.

With the successful development of dyes for color filters, KISCO was selected to become a member of the Committee of Innovative Technology, and their partner company's market share of color resist also took a big jump. After achieving the win-win result through joint research, the two

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companies are planning to continue their joint research projects, targeting a broader range of items.

KISCO is also focusing on the development of a dye only type of color filter, with the goal of developing all main colors for color filters in dye type, as well.

After having surprised the world with its relentless spirit of challenge and passion for the domestic production of dyes, KISCO is now on a quest to create colors for the future, supported by the best synthesis technology in the industry.

The new dream to open a new chapter in the history of electric chemical materials and to grow into an internationally-renowned colorant manufacturer has just begun.

# KISCO's Future

CEO Talks : Challenge To Become a  
Centennial Corporation

## for Unstoppable Growth

KISCO started business with the fluorescent brightener in 1971, and merged with KISC in 1997 to become the largest dye manufacturer in Korea. Today, KISCO is challenging to become a comprehensive chemical company that stands tall both in the dye and electronic material markets, after having tapped into the electronic material business in 2003.

KISCO recorded remarkable growth over the years, because the company has only looked forward, without hesitating to change, while dreaming of becoming the best in the industry, and with a commitment to the domestic production of dyes and contributing to national growth.

KISCO's relentless passion is now pushing the limits to open a new door by integrating two industries: dyes and electronic materials.

The company is now undertaking a new challenge to become a centennial corporation, having built its own unrivaled territory in the dye industry with an unstoppable spirit of challenge during the 40 years of its history.

It stands at a new starting line, ready to sprint forward, set to evolve into a company with its eyes to the future.

# INNOVATION DNA

## “New Turn KISCO”: Change & Add Values

New KISCO 2010 was the prelude to the sweeping winds of change and innovation.

In 2005, Kim Heung Joon, then vice chairman of the company, examined the business status of KISCO, and realized that the company needed to change in every way if it did not want to go down the drain in the face of threats from low-priced Chinese products and the decreasing profitability of dyes. He realized how everybody had believed in the myth that the company was too big to fail, and how everybody had been convinced that, as long as there was a fashion industry, the dye industry was never going to collapse. He awoke to the fact that the entire organization had been suffering from a passive and sluggish mentality, as a result. But it was the very sense of risk that made him delve into the dye industry all the way down to its very foundation, and motivated him to turn risk into an opportunity.

Vice chairman Kim Heung Joon was called in to take action: he was determined to revive the company, and initiated a boom in innovations to change the entire business structure from top to bottom. He adopted a system that allowed each business division to operate under their own independent management structure. Aiming to revamp the company structure as a whole and reform the work conscience, he eradicated all out-dated business practices, as well.

His quest to transform the company into a new organization with fresh new energy generating from the roots culminated in the New KISCO 2010 campaign that started in 2008. The campaign was all about drawing a bigger picture for the company, by evolving the company from a performance-oriented organization to a dynamic motivation-oriented organization, while changing the past 40 years' vertical hierarchy organization structure into a new horizontal structure where all employees from the bottom up were encouraged to work closely together through an open channel of communication.

The transformation of KISCO, which was termed “New Turn KISCO,” was the

manifestation of the company's commitment to move forward beyond their successful 40 years history, to the future of new value creation. If the past was a record of creating something out of nothing, the future was about realizing the vision of innovation with the commitment of the people of KISCO, the main players who had been turning the wheels of history in dye industry.

In 2011, while commemorating the 40th anniversary of the company, vice chairman Kim Heung Joon declared that it is time when we should think about "how much we are going to grow," instead of wondering "how much we could grow." He also declared that the year 2011 would be the first year of the second founding of the company, and how the value system of KISCO was about to shift from quantitative growth to qualitative growth.

Companies that demonstrate sustainable growth have something in common: being open to changes. In general, the life expectancy of a corporation is about 30 years. The Korean Sustainable Growth Society profiled them this way: "Among the companies that made it over 30 years, the longest-living companies are the ones that recorded over 24 years in the black, and had continuous growth in sales for over 15 years." However, the general understanding in business is that one can be defined as a long-living company only when the company lasts over 100 years. There are over eight companies in the world that even have a proud history of over 1,000 years. Of course, they are all either in Japan or Europe. In Japan where businesses are proudly passed down from one generation to the next, there are over 50,000 companies that are more than 100 years old, according to statistics.

All these long-living companies have their own survival DNA, according to experts, and this survival DNA that is internalized in the organization can pass down over the years to the next generation. However, considering that the DNA that engenders long life for corporations is not an absolute superior gene that will emerge regardless of all environmental factors, change is the ultimate factor that determines the fate of corporations.

Even though KISCO achieved a quantum leap by forging opportunities out of risks under the New KISCO 2010 campaign, the company still had a practical problem to solve; keeping the reformed system as a permanent part of the organization, and maintaining it systematically. In other words, the company had to ensure the reformation DNA that had been embedded in the organization culture remains even after the changes in management.

The forty years of history were marked with an unyielding spirit of challenge that pushed them forward towards possibilities, and the growth DNA that will lead the company for the next 100 years will be another side of the reformation DNA of the company.

Vice chairman Kim Heung Joon's commitment has been integrated into the corporate

missions of Harmony, Innovation, and Commitment, and serves as the guideposts for KISCO employees.

# NEW LEADER

## Making of a Great Job, Pleasant Corporation

A corporation is an organism in itself. The minute it stops moving, the company loses its life. That is why the company has to pursue sustainable growth. What companies with over 100 years of history have in common is the fact that they have continuously transformed themselves so that they never stop growing. At the center of all changes that take place in the corporation is customers from both inside and outside of the company : the key is the people.

Therefore, production of qualified human resources are the prerequisites to becoming a company that lasts over a century, and all long-living companies are devoted to building a

“I hope that KISCO becomes a company where all employees have a sense of ownership, and are motivated to grow together, instead of a company that is run by a few executives or owners. I am here not to command as an emissary of the corporate owners; I am here to discover talented human resources who can contribute to sustainable growth and development, and serve them as a supporting prop. Therefore, I hope that, KISCO will be a company with a great organizational culture, where the company is run by all leaders, instead of only by a few select executives.”

new organizational culture that can make the company a great place to work.

With this statement, vice chairman Kim Heung Joon presented the company's blueprint for the future, where the company is looking beyond what is here and now, and forward to the grand vision of tomorrow. His commitment is building a company with a strong foundation, so that it will continue to grow even after he is retired.

His message was that, the success of a company was not determined by a single person; it is earned while every employee works together for common goals, creating value as they move forward to become the best of the best.

The highest executive management therefore, can ultimately be the person who is there to facilitate the accomplishment of KISCO's missions of creating the highest value.

"Perhaps KISCO may not grow to become the largest company in the world, but I believe it can at least grow into a company that can make rewarding and significant contributions to the world. Therefore, I believe that what we need is not a single hero, but a number of leaders, who can guide all employees to work together in harmony.

"KISCO was founded by a single person, but it was the founder's wish to create a company where all employees work together and build together; In order to make that wish come true, I believe the second generation of the management has to be ready to be present fully with the company, and be willing to be there to serve all employees, and let go of any personal greed.

"Therefore, the executive management staff, including any future CEO of the company will come from the KISCO employees, who are respected by all, and who are capable of contributing to the development of the company thanks to the strength and depth of their abilities."

# GLOBAL COMPANY

## Aiming for the Best in the World as an Eco-Friendly Colorant Corporation

"Where do you want to go today?"

This is the slogan, and the corporate mission statement of Microsoft.

The greatness of this slogan, which reads like a Zen question about the goal of life, is that it gives the members of their company organization a reason why they are there. The latest topic in the business community, which is about the belief that the success of a corporation comes from management innovation in the management of people, organization structure

and changes in decision making structure, instead of the development of new technologies and launching of the latest products, eloquently addresses how new technologies and products come naturally as a result, once the organization is imbued with innovation.

The wheels of innovation have started to spin, with the foundation already laid through the New KISCO 2010 campaign.

KISCO stands at a turning point in its history, where the company is moving beyond its old image as a specialist in synthetic dye, and beginning to charge forward to a new future with a new, complex industrial structure. Considering how the company has been contributing to the advanced quality of life by providing dyes &#8211; which are considered flowers in the precision chemical industry — the new business in colors will also be all about the vision to enrich humanity in the future.

“It is true that world-renowned corporations are dynamically growing and expanding, and the late starters from China and India are following close behind us with strategies and policies that we never imagined before. But I think we are still left with many opportunities. I believe there are things that nobody else but KISCO can do. What is important is not the numbers; what is important is the value.”

The electronic material business, which is acclaimed as a new growth engine, will define the new future of KISCO, a company that has always been the leader in the eco-friendly colorant industry with the vision of a healthy life and green planet for all humanity.

Standing at this important gateway to the future, KISCO has carried out a major overhaul of the business structure to grow into the best chemical company. As a result, the founder Kim Dong Gil was appointed the honorary chairman of KISCO group, and vice chairman Kim Heung Joon has been appointed the chairman of the company. Vice president Cho Sung Yong has also been appointed the CEO of the company.

Vice president Cho Sung Yong obtained his masters from Seoul National University, and obtained doctoral degrees from Cambridge University in England. He served as the CTO of the KISCO group in 2007, and beginning in 2010, he has served as the vice chairman of the company whose duties included the business operation of the group, while building the experience to create professional business management.

KISCO is ready to take the next step toward the future with new value under this powerful leadership.



# APPENDIX

KISCO 40-Year History



Former Presidents & Executives

Management Team / Executive Team

Organization Chart / Domestic Facilities

KISCO Divisional Team Leaders

Global Network

Overview of KISCO's Affiliates

Presidents of the Affiliate Companies

Line of Products

Management Statistics

Stock Performance

Intellectual Property Rights

Brief History of the Company

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## Former Presidents & Executives

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**Koo Dong Wook**

Oct. 1977 ~ sept. 1982 CEO of KISCO

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**Sung Rak Kwan**

Jan. 1978 ~ sept. 1982 CEO of KISC  
Oct. 1982 ~ Mar. 1998 CEO of KISCO

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**Ahn Seung Chae**

Apr. 1990 ~ Feb. 1995 CEO of KISC

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### Kim Jeong Hong

Apr. 1994 ~ Feb. 1995 CEO of KISC  
Feb. 1995 ~ Mar. 1998 CEO of KISC

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### Huh David Jung Sun

Feb. 2000 ~ Feb. 2008 CEO of KISCO  
Feb. 2008 CEO of JMC

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### Kim Heung Joon

Nov. 1992 ~ Feb. 1994 CEO of Eastwell  
Mar. 1998 ~ Dec. 1998 CEO of KISC  
Mar. 1998 ~ Feb. 2000 CEO of KISCO  
Mar. 2008 ~ Sept. 2011 CEO of KISCO

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## Management Team / Executive Team

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### Management Team



Chairman, Kim Dong Gil



CEO, Vice-Chairman, Kim Heung Joon



Vice President, **Cho Sung Yong**

## Executive Team



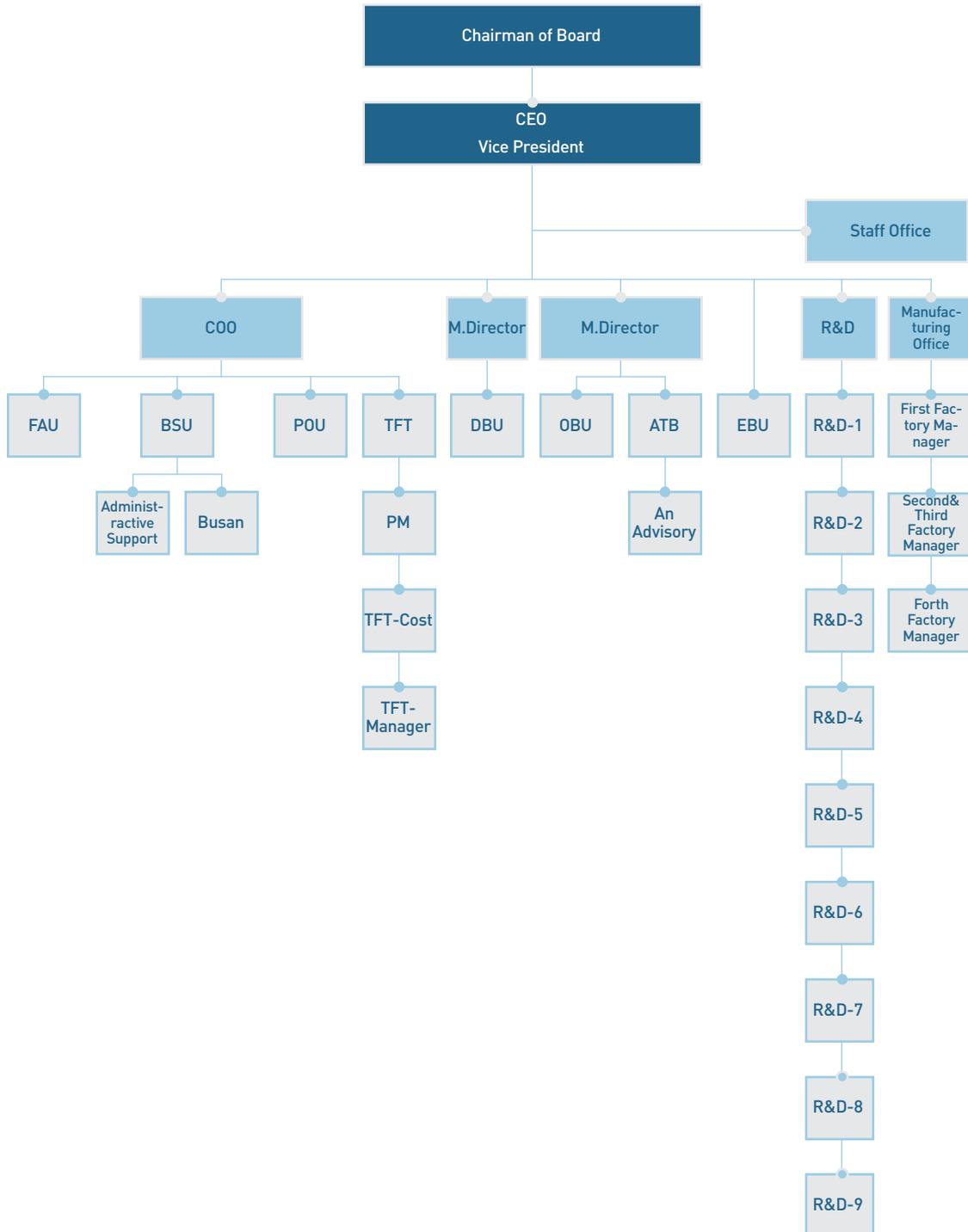
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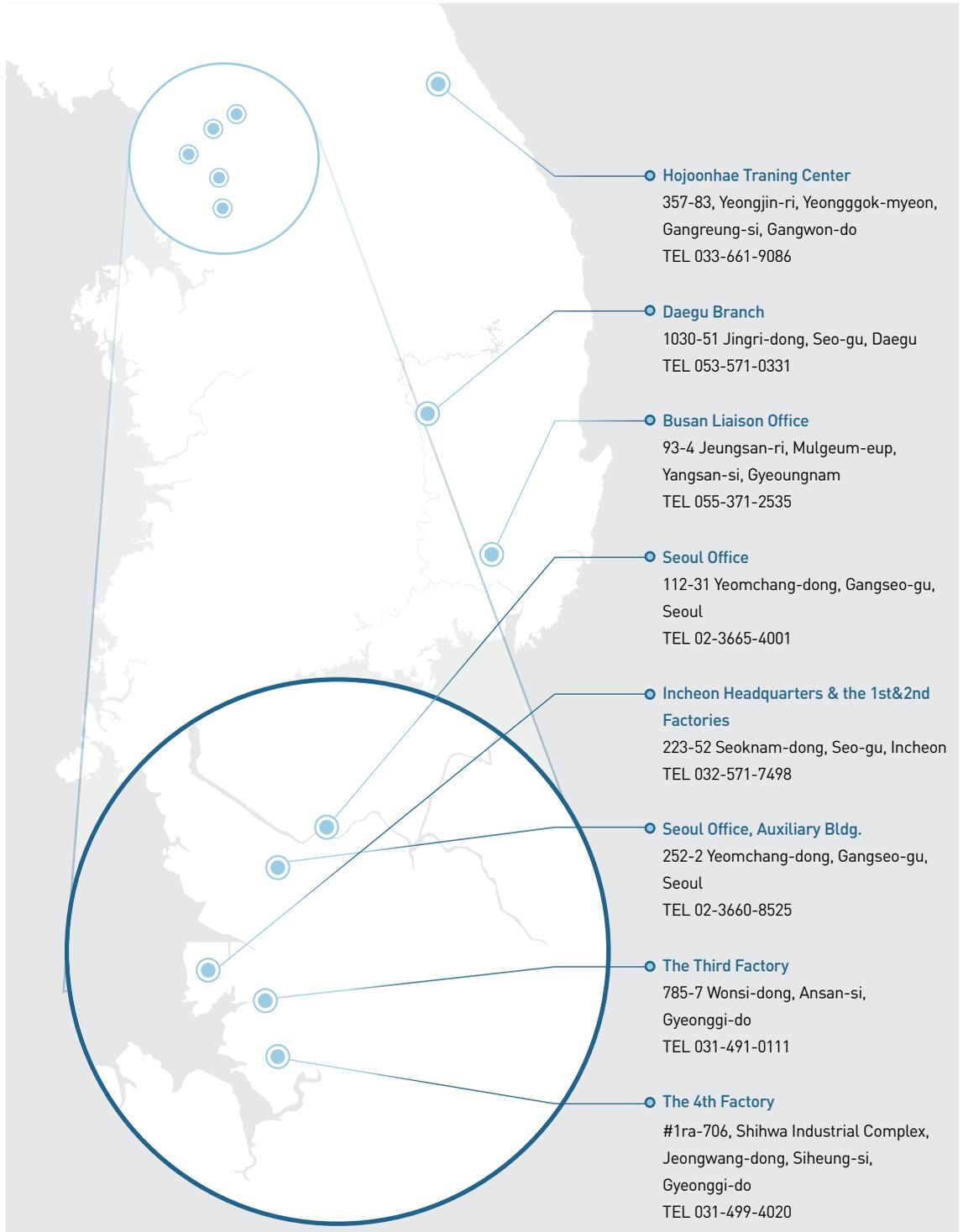
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- 01 Managing Director, **Roy Stones**
- 02 Managing Director, **Hwang Yeon Joon**
- 03 Managing Director, **Kim Byung Gi**

# Organization Chart



## Overview of the Domestic Facilities



## KISCO Divisional Team Leaders

### Dye Division Team Leaders



01 Jaison Lee    02 Kang Yang Kwon    03 Han Man Joon    04 Andrew Hwang    05 Park Joon Young  
06 Christopher Kim    07 Choi Myung Kyu    08 Kim Jin Mi    09 Bernard Kim



01 Lee Ho    02 Kim Young Min    03 Lee Eui Jae    04 Samuel Kim    05 Leon Kwak  
06 Jeremy Yoon    07 Cho Hong Sik    08 Park Joon Hong    09 Kim Go Hyeon

## Electronic Materials Division Team Leaders



- 01 Kang Tae Choong   02 Park Heon   03 Kim Ki Beom   04 Lee Jong Yoon   05 Christopher Kim  
06 Kim Go Hyeon   07 Jung Won Sik   08 Park Soon Hyun

## Global Network





Kimsoy Dyestuff Corp. is a joint venture between Korea's largest dye manufacturer KISCO, and Turkey's large chemical distributor, Eksoy. It has a factory in Adana, Turkey.

The company began business with the exclusive distribution of reactive dye. Backed by their mutual support in technological development, the company has been producing 2,500 tons of reactive color and black dyes since 2007, which is equivalent to 1.3 billion won in sales each year. The company is moving forward to the vision in the precision chemical company.

With the advantages of KISCO's extensive knowhow on dye manufacturing and modernized production equipment and the exclusive sales network of Eksoy, Kimsoy has grown to become the largest dye manufacturing company in Turkey. The company is also playing a critical role in agent trading between Eastern Europe near the Black Sea and CIS countries, while serving as KISCO's gateway to making inroads into European countries.

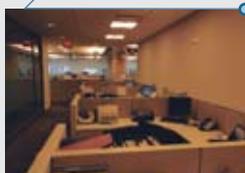


KLC is KISCO's production base built in Hwangong Industrial Complex in Lianyungang Port, China in August 2007, with the vision of making a full-fledged advancement into the global market. KLC is producing the most satisfying dyestuff products by using the highest quality local hires, and with outstanding technician teams from Korea.

With the help of continuous and proactive investment, KLC is now capable of producing 12,000 tons of products a year, and is distributing high-quality dye products to China, as well as other countries around the world.

Through the dynamic cultural exchange with local Chinese consumers, KLC has also been spreading Korean culture in the region. KLC is expected to open a new door for the company, by combining the elegant and detailed touch of Koreans and the bold and audacious traits of the people from China, which is an enormous land.

KISCO USA



KISCO USA is a local investment company KISCO started in order to promote sales in North America, and to research the demands of customers in the region, so that the company can more dynamically respond to the market. KISCO USA is collecting information and data regarding the products and new demands that customers in the US are expecting, and presenting suggestions to headquarters about the development of new products and sales strategies.

KISCO USA is also playing a critical role as the gateway for KISCO to enter the South American market. By securing a logistics warehouse in the US, the company is prepared for swift response to the demands from South America. With KISCO USA, the company has expanded its sales network to the global markets, and manages the vast markets by dividing them into three regional blocks.

## Overview of KISCO's Affiliates

### JMC

Since its founding in 1953, JMC has been the leader in sulfur precision chemicals in Korea, producing and distributing the world's highest quality artificial sweeteners, sulfa-based intermediates, and intermediates for reactive dyestuffs for the past 50 years.

Supported by extensive technology and outstanding human resources, the company has earned the trust of customers and achieved quality of products. The company is a leader in the domestic and global markets, and provides customer services that can best satisfy the expectations of the clients, and help the company identify what the customers are going to demand in the future.

The company is committed to being the best in the industry by providing the highest quality products in the fastest time, and continuously striving to advance product quality, safety and health management system, and an eco-friendly production program.



<b>CEO</b>	Huh David Jung Sun
<b>Founding Year</b>	1953
<b>Share Rate</b>	79.52%
<b>Business Category</b>	Manufacturing
<b>Main Items</b>	Saccharine, Sulfo Products SOP, N-ASC
<b>Location</b>	Ulsan
<b>Capital</b>	3.99 billion won
<b>No. of employees</b>	183
<b>Sales of 2010</b>	61.082 billion won
<b>Sales goal of 2011</b>	59.260 billion won

## Eastwell

Having started as a comprehensive trading company, Eastwell has always strove to have cutting-edge information about all related products, and to provide the highest quality products at the most affordable prices through a sales network that covers the world.

Eastwell's Siheung factory is capable of manufacturing 2,000 tons of dyestuffs a year. The factory exclusively manufactures high value-added special dyes, such as high-purity solvent disperse types of dye, ink dye for printers, and the functional dyes for electronic materials.



<b>CEO</b>	Choi Won Woo
<b>Founding Year</b>	1992
<b>Share Rate</b>	38.96%
<b>Business Category</b>	Manufacturing
<b>Product Category</b>	Manufacturing of other chemical products
<b>Location</b>	Siheung-si, Gyeonggi-do
<b>Capital</b>	1.3 billion won
<b>No. of employees</b>	40
<b>Sales of 2010</b>	14.742 billion won
<b>Sales goal of 2011</b>	20 billion won

## Overview of KISCO's Affiliates

### Daito KISCO

Daito KISCO is a joint venture established in March 2005 between Korea's KISCO and Japan's Daito Chemix Corporation, which is the leading Japanese manufacturer of light sensitive materials for semi-conductors and LCDs.

KISCO was established to dynamically respond to the overseas demand for light sensitive materials for semi-conductors and LCD products by taking the best from the Japanese Daito Chemix's extensive technology of manufacturing diverse electronic materials, and KISCO's 40 year experience and technology on dyes and precision chemicals.

Daito KISCO is successfully mass producing high-quality products using the computer-based automated control system, which in the past was not readily available. The company is committed to building an unrivaled position in the Korean and overseas markets with the most competitive light sensitive materials.



<b>CEO</b>	Song Ki Yun
<b>Founding Year</b>	2005
<b>Share Rate</b>	-
<b>Business Category</b>	Manufacturing
<b>Business Item</b>	Light sensitive materials (PAC for I wire and G wire for semi-conductor and LCD panels)
<b>Location</b>	Incheon
<b>Capital</b>	8 billion won
<b>No. of employees</b>	23
<b>Sales of 2010</b>	12.111 billion won
<b>Sales Goal of 2011</b>	13.1 billion won

## Wisechem

Wisechem is a company established jointly with Korea's largest dye manufacturer KISCO, and is Korea's largest mill base for color filter manufacturer. Wisechem is domestically producing the world's highest-quality mill bases using dyes and pigments that are 100% imported from overseas.

The company is manufacturing dyes that are mainly used for LCD, which is one of the most rapidly growing electronic materials, with the support of the extensive experience and knowhow of the two partner companies.

Currently, the LCD area is recording growth of about 20-30%, with the recently produced LED BL display using similar dye products, and the products made by Wisechem are showing rapid growth, accordingly. LCDs are mostly used in small electronic devices, such as TVs, monitors, cellular phones, cameras, and others.



<b>CEO</b>	Kim Heung Joon
<b>Founding Year</b>	2010
<b>Share Rate</b>	52.5%
<b>Business Category</b>	Manufacturing
<b>Business Items</b>	Electronic materials for semi-conductors and displays
<b>Location</b>	Siheung-si, Gyeonggi-do
<b>Capital</b>	one billion won
<b>No. of employees</b>	11
<b>Sales of 2010</b>	-
<b>Sales goal of 2011</b>	3 billion won

## Presidents of the Affiliate Companies



Choi Won Woo  
CEO of Eastwell

01 Lee Hyun Kook, VP of Wisechem

02 Joseph Lee, CEO of KLC

03 Huh David Jung Sun, CEO of JMC

04 Kim Byung Gi, COO of KISCO Group

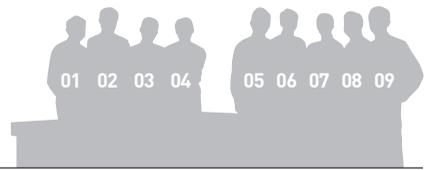
05 Kim Heung Joon, CEO & Vice Chairman of KISCO

06 Song Ki Yun, CEO of Daito KISCO

07 Lee Hee Bok, CFO of KISCO Group

08 Kim Sung Woon, CEO of KSC

09 Cho Sung Yong, CTO of KISCO Group  
& VP of KISCO



## Line of Products

### Main Products Line Up

Dye	Features
<b>SYNOZOL K DYES</b>	Synozol K-Series provide dyes of new generation produced by developing new chemical structures or modifying existing chemical structures in order to provide properties of dyes distinctive from those of traditional reactive dyes. Dyes from Synozol K-Series are less sensitive to various dyeing conditions. In fact, the same dyeing conditions that apply to dyeing with Synozol HF and/or SHF Series dyes may also be applied to dyeing with dyes from Synozol K Series. These reactive dyes provide colors that are brighter than those provided by other reactive dyes. The recommended three primary colors also have a wide range of applications.
<b>SYNOZOL CP DYES</b>	Synozol CP Series, which include dyestuffs of excellent alkaline reliability, low directness, and high reactivity, is recommended for such dyeing methods as the cold pad batch and continuous dyeing. Each dye in the series has high durability against the sunlight and is waterproof. Colors realized by dyes of Synozol CP Series boast of superior reliability and durability despite repetitive washing. Because the series also provide dyes of very bright colors, some of them are excellent for manufacturing fashionable female and children clothing as well.
<b>SYNOZOL CB DYES</b>	Synozol reactive dyes for dark shades can achieve the deepest and darkest colour with the most economical recipe that is not possible to reach with conventional dyes. They have an extremely high build-up, excellent fixation ease of washing leading to sustainable wet fastness.
<b>SYNOZOL RD DYES</b>	Synozol RD dyes have the high build-up rate that can hardly be realized with existing printing dyes, and most of them can be discharged. They have outstanding solution rate, and fastness in general. These are the new concept of printing dyes that only KISCO could have made.
<b>SYNOACID N DYES</b>	Synozol N dyes have outstanding color reproduction and fastness. They can be applied to PA/Co and PA/WO groups.
<b>SYNOLON AK DYES</b>	Synolon AK dyes have outstanding light fastness and can be applied for automotive fabrics. In addition, they have excellent dispersion stability.
<b>SYNOLON EXW DYES</b>	Synolon EXW dyes are state-of-the-art disperse dyes with the highest wash fastness. They meet the requirements of the major retailers and even the most severe fastness tests. They are highly recommended for polyester/Elastin blends, especially for sportswear.
<b>SYNOWHITE 4BK</b>	Synowhite 4BK has outstanding build-up rate and stability for alkali and peroxide. KISCO is the first that started to manufacture this fluorescent dyes. It has outstanding stability and fastness in a wide variety of dip dyeing conditions.
<b>NC6D</b>	KISCO's NC6D series is produced under strict quality control, and they are marked by high-purity and low level of metal content. They can be used to make high-quality PAC, and are sold in Korea and Japan.
<b>NEC series</b>	With high-purity and optical density, NEC series are mostly used for PDP filters. They are sold to major PDP makers.
<b>NIR-DTN series</b>	NIR-DTN series have been selected as materials for PDP filters with its high visible light transmission rate with wide absorption band. They are sold to major PDP filter makers.
<b>KCF series</b>	KISCO has developed the KCF series for the first time in the world to solve the restrictions of the contrast and brightness problem that have been identified in the existing pigment mill base. This series is marked out outstanding brightness and contrast rate, in addition to the excellent durability.
<b>KBR series</b>	KBR series demonstrate higher durability than general acrylic binder. KISCO's KBR series is produced under a strict quality control standard, and can be applied for the production of high-quality B/M.

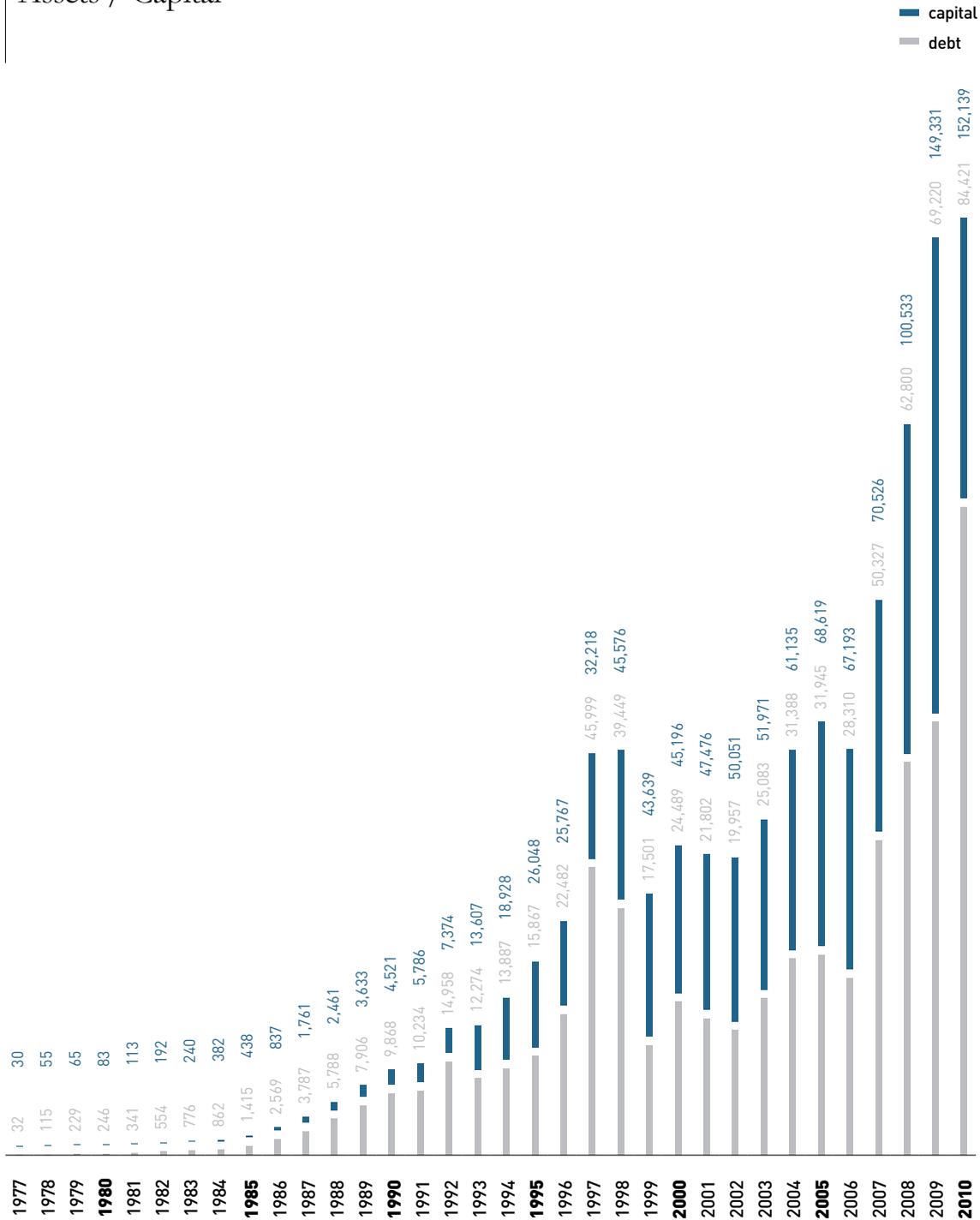
## Products Manufactured in Different Facilities

Facility	Name of Products	
Incheon factory	Synozol Golden Yellow HF-4GR	Synozol Blue K-HL
	Synozol Yellow HB	Synozol Blue K-BR
	Synozol Red K-3BS	Synozol Deep Black E-2RN Liquid
	Synozol Red K-HL	Synozol Black SHF-RW 150% Hi Conc
	Synozol Red HB	Synozol Grey K-HL
Ansan Factory	Syno White 4BK	Syno White KY 250%
	Syno White AD HI CNC	Syno White BYB NEW
	Syno White BYB	Syno White BYR
	Syno White BYB CNC	Syno White NS(1)
	Syno White CK HI CNC	Syno White Illuminarl BBS CNC
Siheung Factory	Synolon Black SE-XNF 01 300%	Synozol Blue CP 10175
	Synolon Navy Blue SE-SF 300%	Synozol Blue K-EF
	Synolon Yellow E-3GE 200%	Synolon Super Red EXW
	Synolon UVK-100 0	Synolon Navy Blue XF
	Synozol Green HF-GG	Synolon Black HWF-FS

# Management Statistics

## Assets / Capital

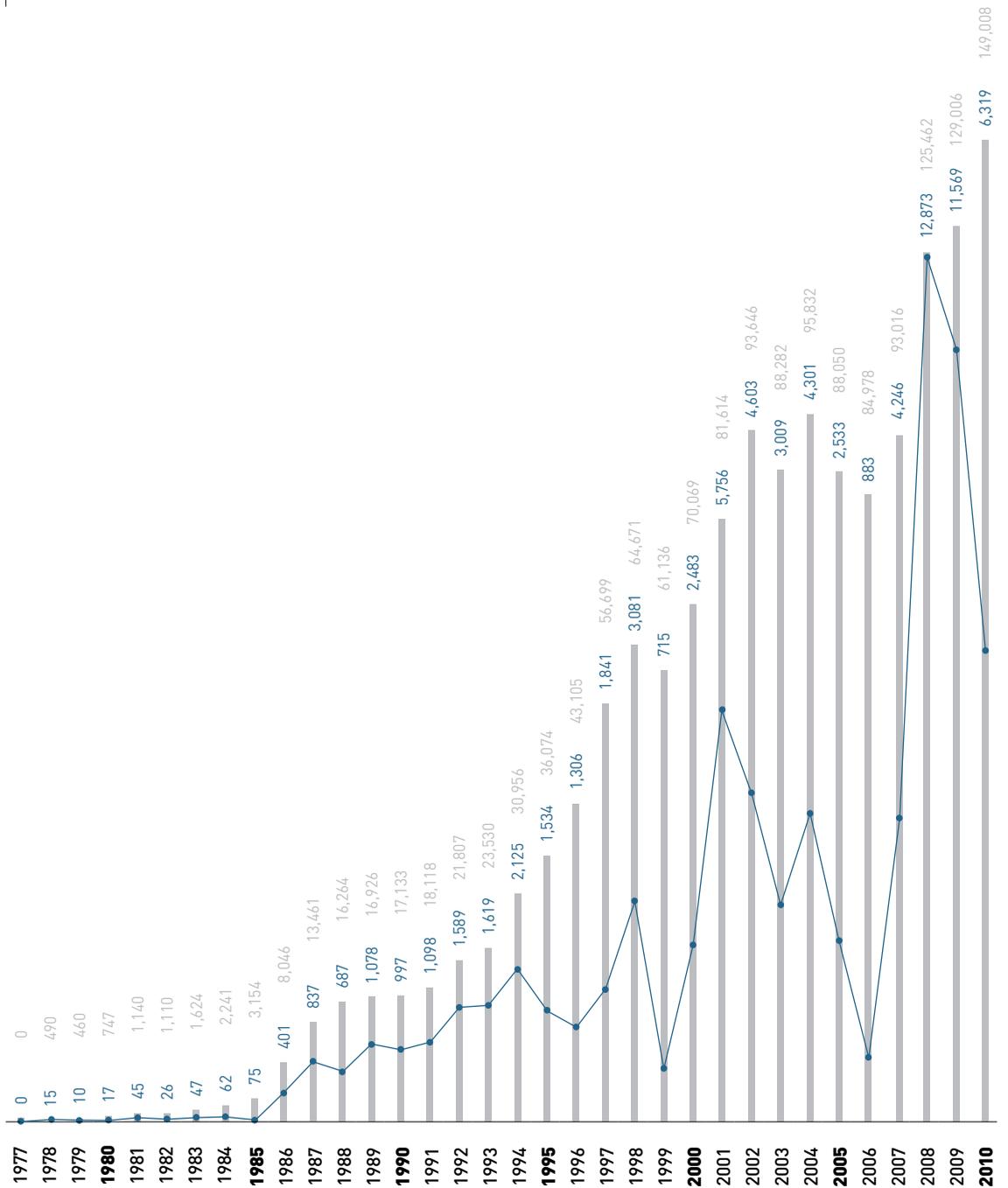
(Unit : million won)



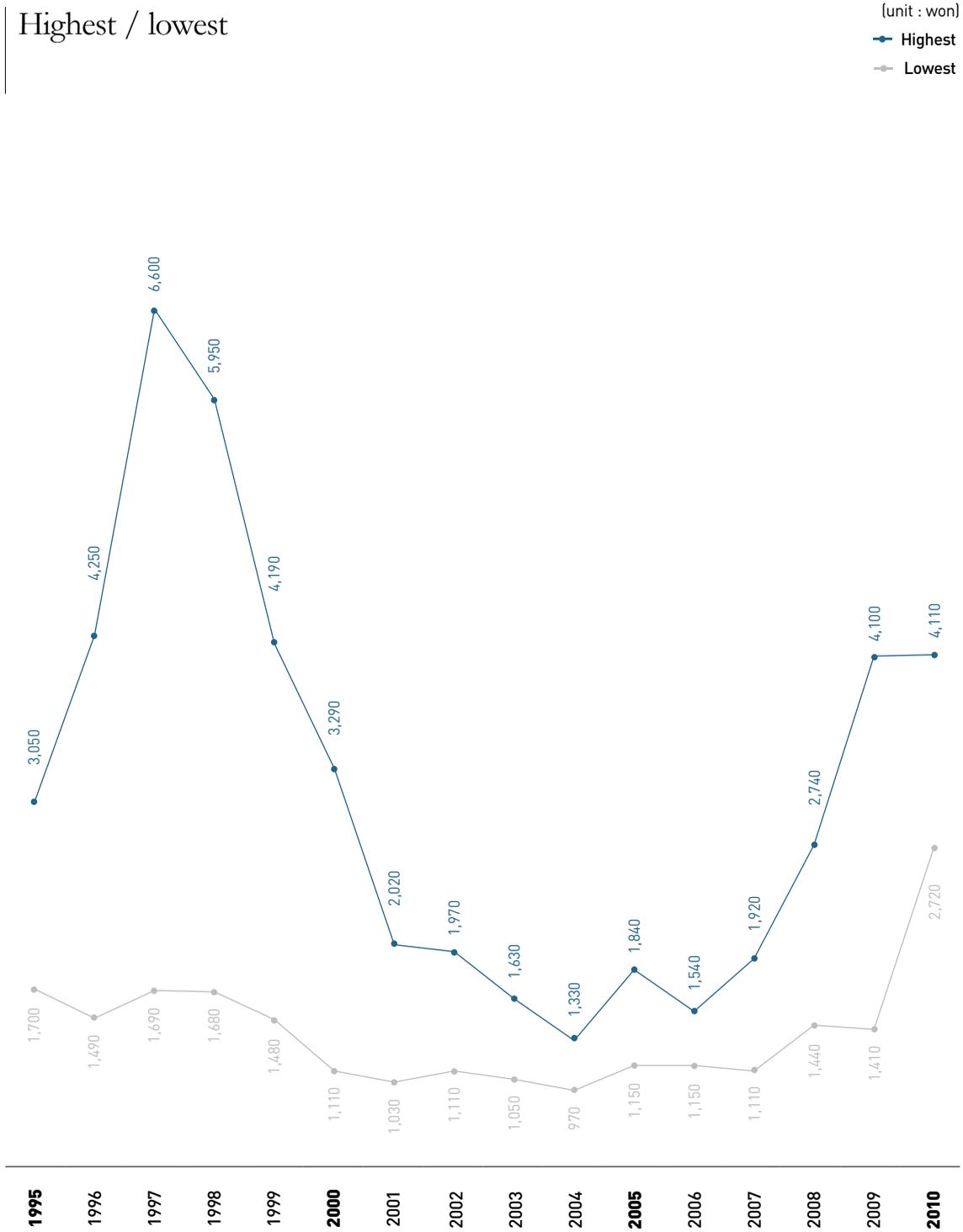
Sales / current term net profit

(unit : million won)

■ sales  
 ▲ current term net profit



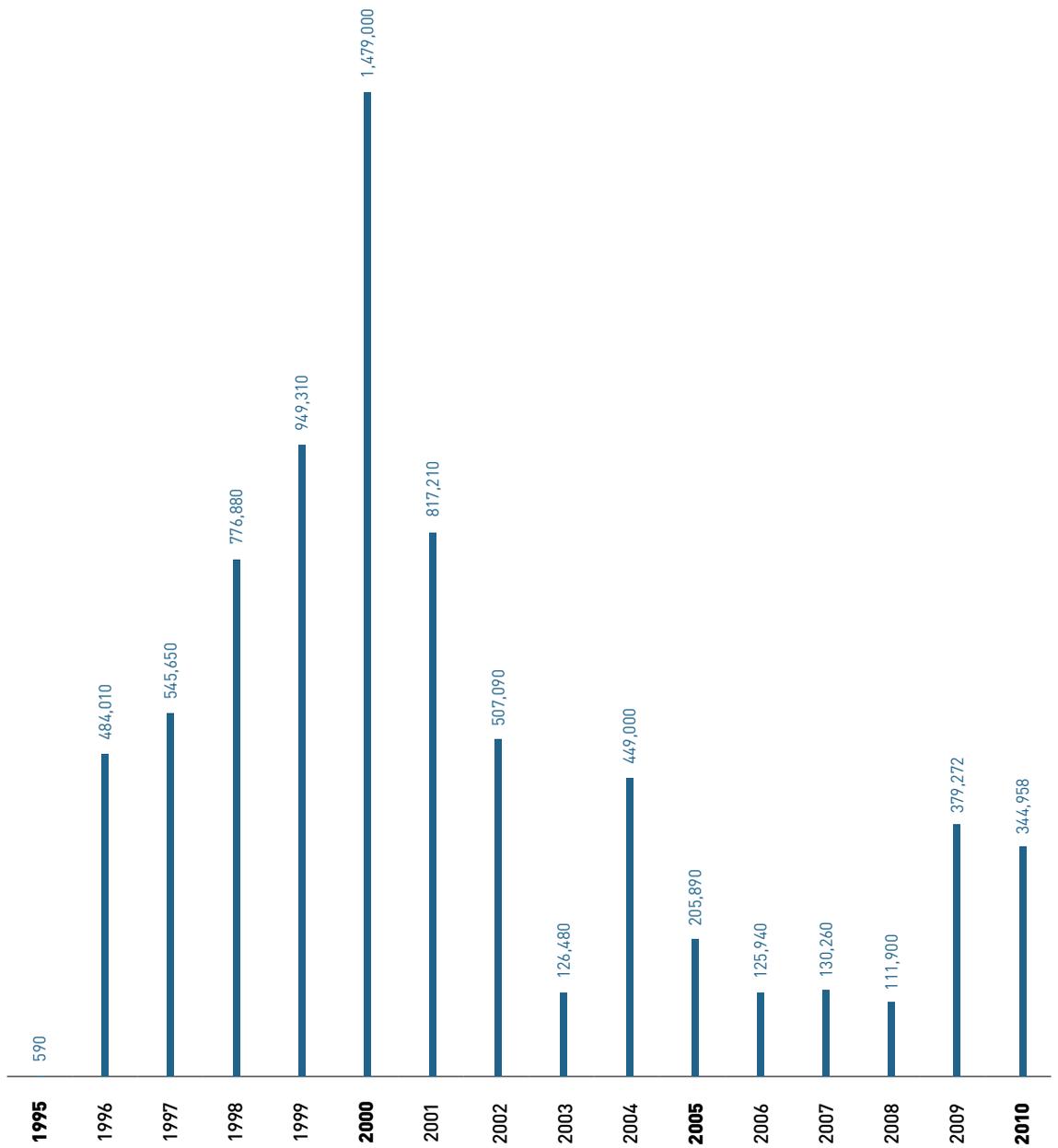
# Stock performance



## Average Trading Volume

(unit : share)

■ average trading volume



## Intellectual Property Rights

Application No.	Product Name	IPC Category	Registration No.
1019950008192	Bicycle metal complex formazan derivatives, the methods of its production, and methods for derivative-containing compounds and dyeing with them	C09B 62/018 C09B 50/00	1001356480000
1019910008082	Reactive monoazo dyes and processing method thereof	C09B 62/006	1000855550000
1019910006330	Reactive black dye composition	C09B 67/22	1000765290000
1019830004104	Methods of producing the Sulfatoethylsulfone compound	C07C 315/04	1000209390000
1020000028875	The reactivated yellow disazo-compound	C07C 245/12	1003461480000
1020020024352	Water-Soluble Fiber-Reactive Dyestuffs	C09B 62/04	1004555670000
1020020059650	Mixture dyes of metal complex formazan derivatives and methods for reactive dyeing with them	C09B 50/02	1005314090000
1020020032470	Blue Dye Mixture Of Metal Complex Formazan Derivatives	C09B 50/10	1005102360000
1020020030398	Multi-substituted Aniline Compounds And Method ForPreparing Them	C07C 309/51	1004996430000
1020020030331	Fiber-reactive Yellow Dyestuffs And Methods ForPreparing Them	C09B 62/453	1004854100000
1020020030333	Fiber-reactive Red Dyestuffs And Methods For PreparingThem	C09B 62/513	1004854110000
1020020073165	Novel reactive gray dyes and methods of preparing them	C09B 62/012	1005102420000
1020010072150	Methods of dyeing cellulose fibers or cellulose mixedspinning fibers	C09B 27/00	1004225890000
1020000038977	The reactivated black dye composites	C09B 33/10	1003574750000
1020040027812	Mixture Of Fiber Reactive Dye Compounds And Use Thereof	C09B 67/22	1004866480000
1020040074487	Alpha-hydroxy-benzeneacetic acid derivatives, and compounds having two 5-membered lactone rings fused tocentral cyclohexa 1, 4-diene nucleus based upon the same, and uses of the compounds	C07C 51/235	1005556240000

Application No.	Product Name	IPC Category	Registration No.
1020040001842	Process for preparation of alpha-hydroxy-benzeneacetic acid derivatives, and process for preparation of compound having two 5-membered lactone rings fused to central cyclohexa-1, 4-diene nucleus using the same	C07C 51/235	1005990310000
1020030038576	The Reactive black dyes composites	C09B 67/22	1005221640000
1020060042310	Composition of Reactive Dyestuffs and Methods for Dyeing Fiber Using the Same	C09B 62/00 D06P 3/66 C09B 62/01	1008431020000
1020060047949	Water-treatment System of Improved Recovery Rate	B01D 61/00 B01D 65/08	1007620080000
1020060036021	Composition of Reactive Dyestuffs and Methods for Dyeing Fiber Using the Same	C09B 62/00 C09B 62/01 C09B 62/513	1006869780000
1020070013458	Fiber-Reactive Dyestuff Composition and Methods for Dyeing Fiber Using the Same	C09B 26/06 C09B 62/01 D06P 1/38	1008316000000
1020060034465	Fiber-Reactive Dyestuffs and Methods for Dyeing Fiber Using the Same	C09B 62/04	1006869650000
1020060034010	Fiber-Reactive Dyestuffs and Methods for Preparing the Same	C09B 62/00 C09B 62/01 C09B 31/00	1006869770000
1020050115778	Fiber-Reactive Red Dyestuffs and Methods for Preparing There of	C09B 62/51	1007009420000
1020050115747	Fiber-Reactive Dyestuffs and Methods for Dyeing Fiber Using the Same	C09B 62/507	1006441050000
1020050115716	Fiber-Reactive Red Dyestuffs and Methods for Preparing the Same	C09B 62/507	1007009400000
1020050046542	Pre-treatment System for Treating Industrial Effluent	C02F 1/44	1006967020000
1020050006616	Mixture of fiber reactive dye compounds and dyeing method of the same	C09B 67/22	1005932060000
1020050006615	Reactive Dye Compound And Method of Dyeing Fiber Using the same	C09B 29/16	1006812290000
1020050006613	Novel Reactive Yellow Dye Compounds And Mixture of Reactive Dye Compounds	C09B 67/22	1005932050000

## Brief History of the Company

Year	Month	Details
1971	Oct.	Syno Chemical Engineering was founded
1976	Aug.	Samjeong Trading was established
	Oct.	Syno was renamed to Kyung-In Chemicals
1977	Oct.	Kyung-In Chemical was renamed to KISCO, and the company went public
1978	Jan.	1978 Samjeong was changed into KISC
	Jan.	Kim Dong Gil took the office as the chairman
1980	Jun.	KISCO Seoul headquarters were completed, and the dye research institute was established
1983	Mar.	Korea's first spray dryer was installed
1984	Aug.	KISCO was selected as the promising small-and-medium company (by Korea Institute for Industrial Economics and Trade)
	Sept.	KISC' Ansan factory was completed
1987	Nov.	KISCO received the Five Million Dollar Export Tower Award and award from the prime minister
	Dec.	KISCO received the First Korean Science Award, industrial category
1988	Apr.	KISCO signed technological tie-in with Sohwa Chemical Engineering Co. Ltd., Japan
	Oct.	1988 The company's dye research institute was designated as an industry to substitute military duty
	Nov.	KISCO received the 10 Million Dollar Export Tower award
1989	Aug.	The company took over Samwon Chemical Engineering
	Oct.	KISCO built apartments for employees in Incheon, KISC in Ansan
	Oct.	KISC completed the construction of apartments for employees
	Nov.	KISC received the Five Million Dollar Export Tower award
	Dec.	KISCO expanded the Seoul headquarters bldg.
1990	Aug.	The company took over shares of Rachada Chemicals Co. Ltd., Thailand
1993	Jan.	Siheung factory was constructed
1995	May.	The company acquired the ISO 9002 certification
	Jun.	The Company received the grand prix of textile promotion in dye and pigment category
	Oct.	The Company was listed in Korean stock exchange market
1996	Dec.	The Company agreed to build a dye manufacturing facility together with Eksoy
1997	May.	The company established Kimsoy Dyes Trade Company, Inc., a joint venture in Turkey
	Jun.	The company established KISCO USA, Inc., a joint venture in the US
	Jun.	The company signed a partnership with Sumitomo, Japan in dye production and technology
	Aug.	The ground was broken to build the Kimsoy factory /08/Kimsoy
	Aug.	Kimsoy (Kimsoy Boya Ticaret Anonim Sirketi) was founded

Year	Month	Details
1997	Dec.	The company received the Bronze Tower Order of Industrial Service Merit on the Trading Day
	Dec.	The company acquired the ISO 14001 certification
1998	Aug.	The company completed the construction of Kimsoy factory, a local joint venture in Turkey
	Dec.	KISC was merged with KISCO
1999	Jul.	The company became a member of ETAD
	Jul.	The company set up the Green System Business Team
	Nov.	The company adopted the bar code system for inventory management
2001	Nov.	The company was selected as the part material export leading company (by Ministry of Commerce, Industry and Energy)
	Dec.	The company acquired the OHSAS 18001 certification (by KSAQA)
	Dec.	The company established KISCO International Trading (Shanghai) Co., Ltd., a joint venture in China
2002	Dec.	The company received the grand prix of new labor-management culture
	Dec.	The company became the shareholder of G&Net / 12/G&net
2003	Apr.	The company took over Seil Chemical Engineering
	Nov.	The company received the 50 million Dollar Export Tower Award on the Trading Day
	Nov.	The company received the presidential Bronze Tower Order of Industrial Service Merit on the Trading Day
	Nov.	The company received the presidential award on the trading day (by the president)
2004	Oct.	KISCO's central research institute received award by the president for the contribution in the promotion of science technology
	Nov.	The company took over JMC
2005	Sept.	The company built the electronic materials center, and entered the electronic material business
	Oct.	Daito KISCO factory was completed
2006	Aug.	Lianyungang KISCO Chemical Co., Ltd was established as a joint venture in China
2007	Mar.	The employee training center was constructed
	Mar.	Busan Liaison Office was open
2008	Nov.	The company received the 70 Million Dollar Export Tower Award on the Trading Day
	Nov.	The company expanded the electronic materials center at the third factory
	Dec.	The company was selected as a company with outstanding labor-management culture
2009	Dec.	The company received an award by the director of Small Business Association of Korea at the Korea Fine Technology Contest
2010	Oct.	The company was designated as the Blue Sign System Partner / 2010/10/Blue Sign System Partner
	Nov.	The company invested and established Wisechem (J/V)
2011	Jun.	The central research institute was designated as the ATC

## Epilog

The 40 Year History of KISCO was published to commemorate KISCO's 40th anniversary.

It was not an easy job to put the 40 years of the company history into a single book. It was a difficult and delicate task to summarize the history of KISCO, at a time when the company was on a threshold that would move us beyond those 40 years, in preparation for the new challenge of the future.

The 40 Year History of KISCO is a record of the founder and chairman Kim Dong Gil, his passion for dyestuffs, relentless challenge and quest, and all his achievements. But we had to work on writing the book, without many documents and records to turn to for references.

This book was made possible because of the wholehearted support of all former and present executives and employees, who took the time to be interviewed, and helped us identify times and events that have been forgotten over the years. They also helped us organize and put down in writing, all the historical records and resources that existed in the memories of those who were part of the company's success.

As we are about to publish this book, we look back over the past year, and wonder if we indeed have done the best we could. We wonder if we could have tried harder. We hope that you will enjoy this remarkable story, even if the book falls short of your expectations in some manner. We believe that the next editing and compilation team will complement and fill out any details that are missing in this book, when they write the 50 or 60 Year History of KISCO.

We hope that The 40 Year History of KISCO will serve as a stepping stone that connects the past and the present, and guides us to a future that will be brilliant for all of us.

Before concluding, we extend our appreciation to all the employees and executives who helped us through the long process of writing the book, and the author, Park Hyun Sook.

Oct. 2011

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Yoon Yeo Hoon<sup>General Manager</sup>, Kim Hyung Woo<sup>Deputy General Manager</sup>, Bae Chan Ho<sup>Deputy General Manager</sup>



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