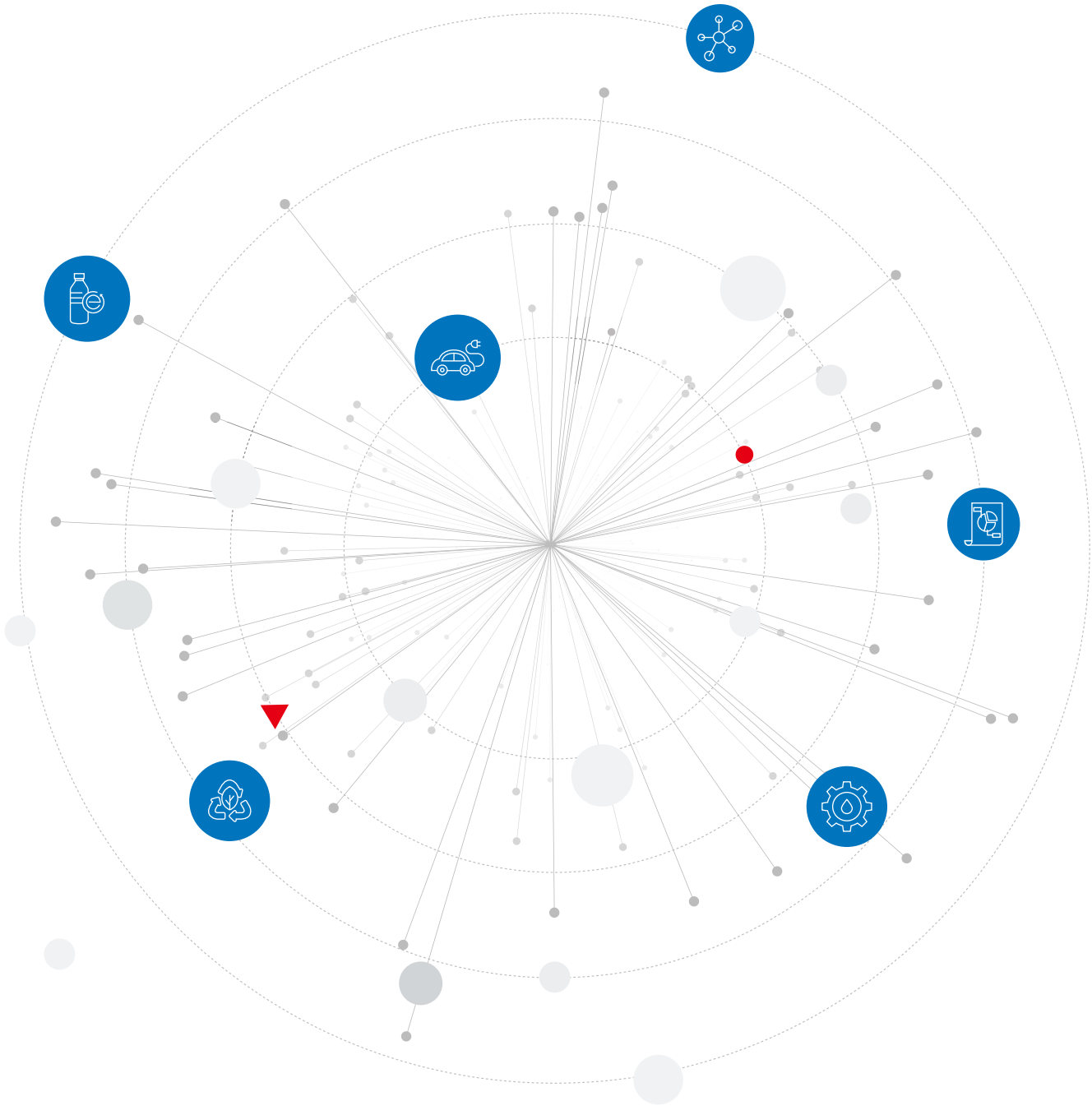
SUSTAINABILITY REPORT 2021

A GLOBAL LEADER IN CIRCULAR ECONOMY



DANSUK

ABOUT THIS REPORT

Report summary

Dansuk Industrial published its first sustainability report in 2021. With this report, we intend to share and communicate with our stakeholders by transparently disclosing our economic, social, and environmental efforts, as well as our performance in these areas. In May 2021, feedback related to the sustainable management of our company was collected via a stakeholder survey, and a report was composed and prepared with a focus on the issues at hand for our company.

Reporting period and scope

This report contains key performance indicators from January 1 to December 31, 2020. In the case of quantitative performance indicators, three-year data between 2018 and 2020 were presented together to help readers better understand recent trends. For some qualitative performance indicators, activities for 2021 were included in this report. In terms of the scope of this report, it covers six places of business in Korea.

Report writing standards

This report was prepared in accordance with the “Core Option” of the Global Reporting Initiative (GRI) Standards, which is an international reporting code on sustainability. The reporting standards and definitions of financial information follow the consolidated financial statements of general accounting standards.

Report verification

In order to ensure the credibility of this report, it was verified by a third-party organization, Korea Management Registrar, which is an independent verification body. Results can be found in the Appendix (“Third Party Verification Statement”).

Contact and inquiries

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DANSUK INDUSTRIAL
SUSTAINABILITY REPORT 2021

CEO Message

Way to the Sustainable Future
WE CREATE A SUSTAINABLE FUTURE.

Greetings to all of our Dansuk Industrial stakeholders!

Dansuk Industrial has contributed to the industrial development of Korea since its foundation in 1965. In the 2000s, it achieved remarkable feats in the eco-friendly new and renewable energy field, including biodiesel, and in the recycling field, such as renewable lead, and continues to develop as a good and prudent manufacturing company to this very day. Dansuk Industrial has also been constantly contemplating how it can contribute to local communities, driven by its founding philosophy that the permanence of the company is based on its contributions to human society, rather than the pursuit of profits.

Due to COVID-19, which has been ongoing since 2020, the world is going through an unprecedented crisis. Moreover, with the need for global responses to climate change and demands for corporate social responsibility increasing, the paradigm in the business environment at large is shifting, with greater emphasis on the environment, society, and governance (ESG) as key indicators of sustainable management. As such, companies that are unable or unwilling to respond to these changes will ultimately disappear into the history books.

Last year, Dansuk Industrial unveiled its new future vision for 2025 and a mid-to-long-term strategy called “DS 2025 Only One!” The company’s future vision is to “innovate and become the ‘Only One’ company in 2025 by creating sustainable values based on digital corporate culture and smart thinking.” In addition to innovation plans for its current major businesses, such as bio-energy, fine chemical materials, and metal materials, Dansuk also presented strategies that can help identify new businesses in connection with the company’s current business activities. Moreover, these strategies included the will and plan to actively implement eco-friendly management methods, social responsibility management methods, and strengthening of compliance management (ESG management). Therefore, it can be said that the foundation for achieving excellent ESG performance was laid down in advance. Dansuk Industrial will achieve new eco-friendly value innovations, including the development of next-generation eco-friendly energy sources such as HVO, the advancement of value-metal recycling technology, and reduction of greenhouse gas emissions, to preemptively respond to movements aimed at reaching a carbon-neutral state globally. Also, Dansuk Industrial will strive to be the best in the industry by upgrading its management system in parallel with strengthening its business competitiveness, while naturally satisfying stakeholders and becoming a Dansuk Industrial that coexists in harmony with the community.

This sustainability report was prepared to communicate more actively and transparently with stakeholders, and to practice a higher-level of sustainable management. Moving forward, Dansuk Industrial asks for your continued interest and support for its journey towards becoming a 100-year company and opening up a sustainable future. Thank you.

CEO and Chairman, Dansuk Industrial Co., Ltd

Han Seung-Uk

Dansuk Highlights

Dansuk Industrial is fighting against the threat of climate change by creating a circular economy and using bioenergy. Dansuk Industrial transforms waste, by-products, and various waste resources into energy and living materials that enrich people's lives by using a well-organized collection system and cutting-edge technologies. Despite the pandemic in 2020, Dansuk Industrial implemented its strategy faster and more boldly. As a result, it recorded its highest sales and profits since the company was created five decades ago.

Sales revenue

KRW 599.3 billion

Operating profit

KRW 24.8 billion

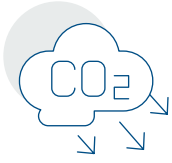
Awarded the Export Tower on the 57th Trade Day

USD 200 million

Biofuel sales volume

358,812 MT

Greenhouse gas reduction using biodiesel and bio-heavy oil products



1,107,000 tCO_2-eq

Waste battery collection and recycling volume

69,722 MT

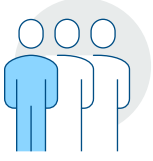
Proportion of circular economy product sales in total sales

80.6 %

No. of consecutive days with zero serious accidents

1,470 days

No. of employees



362 persons

Company Profile

Dansuk Industrial has continued to grow throughout the years, thanks to solid business management and a stable business foundation. The company has been driven by the management philosophy of contributing to human society beyond customer satisfaction since its foundation in 1965.

Company Information

Dansuk Industrial was established in 1965 as a fine chemicals and materials corporation. As a leading company in the field of fine chemical materials, including PVC stabilizers, Dansuk Industrial has been growing quickly in new and renewable energy sectors (e.g. biodiesel/heavy oil sectors), and is constantly taking on new challenges to create value from recycled lead and recycled metals. Dansuk Industrial is doing its best to become a trusted company through its practice of love for humanity, the environment, and customers.

Key Information

(As of the end of December 2020)

Company Name	Dansuk Industrial Co., Ltd.	**Total Assets**	KRW 367.9 billion
Business Areas	Manufacturing, Services, Transportation, Real Estate	**Sales Revenue**	KRW 599.3 billion
Main Products	• Precision materials: PVC stabilizers (single, composite stabilizers) • Metal materials: Recycled lead • Bioenergy: Biodiesel, bio-heavy oil	**Headquarters**	165, Hyeomnyeok-ro, Siheung-si, Gyeonggi-do, Korea
Established Date	July 1, 1965	**CEO**	Han Seung-Uk
Domestic and Overseas Places of Business	• 6 domestic facilities Headquarters and Sihwa Factory, Gunsan Recycling Factory, Gunsan Fine Chemicals Factory, Pyeongtaek Bio Factory #1, Pyeongtaek Bio Factory #2, Jecheon Bio Factory • 3 overseas facilities Dansuk Pakistan, Dansuk Malaysia, Dansuk Zhuzhou China		
No. of Employees	362 persons	**Subsidiaries**	DS Innocom Co., Ltd., Dongyoon Industrial Co., Ltd.

Economic Performance

Dansuk Industrial is growing its business by leveraging its operational know-how accrued over decades of successful business to pursue new challenges and innovations. In 2020, Dansuk Industrial's consolidated sales reached KRW 599.3 billion, a slight increase from the previous year, and operating profit reached KRW 24.8 billion, an increase of 81% compared to the previous year, thanks to some great success in its bioenergy division.

(Unit: KRW million)

Sort	2018	2019	2020
Sales Revenue	591,379	592,265	599,354
Operating Profit	9,926	13,737	24,808
Total Assets	341,097	378,596	367,946
Total Liabilities	223,425	254,190	235,909
Total Capital	117,672	124,406	132,037

Management Philosophy

"My only wish is that Dansuk Industrial can stay in business for a long time, and remain as a company that contributes to the country and society."

Han Joo-il,
Founder of Dansuk Industrial

Dansuk Industrial has created an organizational culture based on good communication practices, and has built a company-wide consensus using a unique value system based on its founding philosophy and core purpose. All employees are driven by a unique sense of duty to help promote human happiness and contribute to society.

Founding Philosophy (Spirit)

A company must continue to thrive and develop as it contributes to human society

A company

- A company must understand that it is an entity that exists as a social entity rather than a private piece of property
- A company is an entity that exists as a vessel to carry out the duties assigned to it by society
- A company must understand that it should have the determination and bear the responsibility to be an active member of society

Must continue to thrive and develop

- A company must recognize future-oriented goals and visions that are not bound by short-term goals
- A company must possess the willingness to grow in a progressive manner rather than by using one-off, speculative transactions
- Along with quantitative growth, a company must focus on qualitative development that satisfies all of its stakeholders
- A company must be aware that corporate development is a means for social contribution

As it contributes to human society

- A company must clearly disclose the reason and purpose of its business activities
- A company must fulfill its corporate objectives with activities inspired by its love for humanity
- A company must emphasize social responsibility with a strong commitment to its corporate objectives

Core Purpose (Mission)

Using eco-friendly technology and creative thinking, Dansuk Industrial generates unique values to contribute to the happiness and better quality of life of humanity.

Using eco-friendly technology and creative thinking,

- Recognizing the corporate responsibility for finite resources and the environment, Dansuk Industrial applies eco-friendly technologies and methods to the products it manufactures.
- Dansuk Industrial will constantly strive to integrate and combine all internal and external resources with new perspectives and new work processes.

Dansuk Industrial generates unique values

- Dansuk Industrial promises to provide its customers with unique and inimitable values that no other company can ever match.
- Dansuk Industrial believes that it cannot secure any sustainable form of competitive edge by simply supplying goods and services similar to rival companies at lower prices.

To contribute to the happiness and better quality of life of humanity.

- What Dansuk Industrial ultimately values is people. And the ultimate value that people pursue is happiness.
- Dansuk Industrial will help people lead happier lives, and contribute to a better quality of life via its current and future businesses.

History

Early Years

Foundation of Dansuk Industrial, laying the foundations for business activities in the fine chemistry sector

1965 Founded as Nobel Industry Company. Developed and manufactured manganese sulphate products.

1972 Developed and manufactured cuprous oxide and copper oxide products.

1979 Developed and manufactured red lead and litharge products.

1982 Designated as a prioritized small/medium-sized company for modernization.

1984 Developed and manufactured PVC stabilizers, establishment of Nobel Industry, and acquired the KS mark for the red lead product.

1989 Renamed the company as Dansuk Industrial Co., Ltd.

Transitional Years

Consolidating competitive advantages to secure a foothold for growth

1991 Established Dongyoon Industrial Co., Ltd., an affiliate of the same industry (Gumi Industrial Complex).

1995 Relocated to the Sihwa Industrial Complex → Secured a modern production infrastructure and research facilities Established the foundation to become a world-class corporation in the 21st century.

1996 Designated as a “Proud Small/Medium-sized Company” by the Ministry of Trade and Industry.

1999 Awarded the national Productivity Grand Prize (R&D) by the Minister of Commerce, Industry and Energy, designated as an “Excellent Company with Improved Productivity.”

2000 Received a Presidential Citation as a person of merit in improving productivity.

2001 Acquired patent on manufacturing technology using electricity, acquired certification as a venture company (new technology development company), completed a fine chemical factory, and selected as a Company with Superior Technologies (Company Report No. 1514, December 28, 2001~December 31, 2006).

Bird’s eye view of the Gunpo Factory

PVC stabilizer equipment construction

Dansuk Industrial in 1990

Bird’s eye view of Dongyoon Industrial

Developmental Years

Taking on challenges and new changes with diversification

2006 Completed a factory in Hunan Province, China.

2007 Completed a biodiesel production plant and facilities, established a glycerin production system.

2011 Completed a recycled lead factory (Soryong-dong, Gunsan-si, Jeollabuk-do)

2012 Completed a refined oil system

2013 Completed an LDH factory (Osikdo-dong, Gunsan-si, Jeollabuk-do)

2014 Completed a bio-heavy oil production plant.

Maturing Years

Secured future growth engines and launched globalization initiatives.

2016 Introduced biodiesel equipment at Pyeongtaek Factory #2.

2017 Acquired Samil Inocom (engineering plastics).

2018 Introduced biodiesel equipment at Pyeongtaek Factory #1.

2019 Opened a plant in Pakistan, acquired a plant in Malaysia.

2020 Reached USD 200 million in exports.

2021 Introduced biodiesel equipment at the Jecheon Factory

Sihwa Factory

Completion ceremony for Dansuk Zhuzhou China in 2006

Bird's eye view of DS Innocom

Declaration ceremony for the "2025 Vision Plan"

Business Information

A sustainable future that contributes to the happiness and quality of life of humankind is the goal Dansuk Industrial hopes to achieve. Dansuk Industrial strives for the prosperity of its clients and society at large by creating value using eco-friendly technologies and creative ideas. Dansuk Industrial largely focuses on bioenergy, fine chemical materials, and metal materials.

Bioenergy Business

1. Biodiesel

Unlike regular diesel produced by refining crude oil, biodiesel is an eco-friendly renewable fuel that is produced from waste cooking oil and vegetable oil as raw materials. Moreover, biodiesel has a similar fuel performance to regular diesel, making it a next-generation energy source that is perfectly compatible with existing diesel engine vehicles. In addition to great performance, biodiesel also offers excellent lubrication properties. In July 2015, Korea introduced the "Renewable Fuel Standard (RFS)," which mandates biodiesel to be mixed in with regular diesel. As of July 2021, the mandatory proportion of biodiesel added to regular diesel is 3.5%. Dansuk Industrial has been manufacturing and selling biodiesel that meets the quality standards of domestic refiners since 2007. By operating an independent certification team/quality control team, the company complies with export qualification standards for advanced countries such as the US and EU, and quality standards of global refiners, which allows it to export and sell biodiesel.

Key Product Features

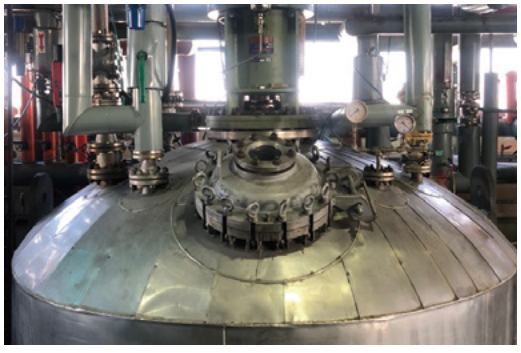
Replacing 1kℓ of regular diesel with biodiesel can reduce 2.59 tons of greenhouse gas emissions. It can also eliminate the emission of SO_2, the main culprit of acid rain produced during the combustion process. Moreover, the emission of exhaust gases such as fine dust, CO, and HC, which are carcinogens, is reduced. Biodiesel is biodegradable, making it an environmentally friendly fuel.

2. Bio Heavy Oil

Bio heavy oil is a renewable energy source that is produced from unused waste resources such as biodiesel process by-products (pitch), animal fats, food waste oil, and palm by-products. In accordance with the Renewables Portfolio Standard (RPS) introduced in 2012, bio heavy oil, which is an alternative fuel to heavy oil (BC oil), is being used for the purpose of fulfilling the mandatory supply of power generation companies. Currently, Dansuk Industrial supplies bio heavy oil to Korea Midland Power, Korea Southern Power, and Korea East-West Power.

Key Product Features

Bio heavy oil is compatible with existing BC oil power generation facilities. It is an eco-friendly energy source that has the effect of reducing approximately 28% of fine dust, 39% of nitrogen oxides, 85% of greenhouse gases, and 100% of sulfur oxides compared to BC oil. (Source: Korea Bioenergy Association website)



Fine Chemical Materials Business

1. PVC One Pack Stabilizer

PVC is used in a variety of applications thanks to its excellent malleability and economic efficiency. However, PVC thermal decomposition can cause the discoloration of molded products and the corrosion of machinery used to process the PVC material. Dansuk Industrial's PVC one pack stabilizer is a customized additive that chemically inhibits PVC thermal decomposition during PVC molding to improve the thermal stability of molded products.

Traditionally, most PVC one pack stabilizers have been lead-based stabilizers. Driven by its dominance in the PVC stabilizer market since it developed its own lead-based stabilizer in 1984, Dansuk Industrial has been leading the PVC stabilizer industry and market by launching non-toxic stabilizer products developed with proactive R&D efforts. Currently, the PVC one pack stabilizer market is growing at a steady pace thanks to the revitalization of the domestic construction industry. Dansuk Industrial supplies one pack stabilizer to PVC processing companies such as LG Hausys, KCC, Hyundai L&C, Younglim, and PNS.

Key Product Features

The one pack stabilizer is a customized additive that meets specific processing requirements stipulated by customers, prevents physical and chemical deformation during PVC thermal processing (extrusion, injection), and improves processability. It also improves weather resistance properties by preventing oxidation and deterioration of molded components.

2. Lead Base Single Stabilizer

A PVC one pack stabilizer consists of a stabilizer, internal/external lubricant, antioxidant, and a release agent. The stabilizer, which accounts for the bulk of a PVC one pack stabilizer, plays an important role in one pack stabilizers. Dansuk Industrial has strengthened the quality of its single stabilizer and the competitiveness of its production facilities since it jumped into the lead-based single stabilizer business. Currently, Dansuk Industrial boasts the largest production capacity in Korea, and offers competitive solutions in the one pack stabilizer business based on the vertical integration of its single/one pack stabilizer business. The domestic lead-based single stabilizer market is shrinking due to environmental and health concerns. However, sales are increasing thanks to one pack stabilizer companies in Southeast Asia, the Middle East, and Russia.

Key Product Features

- Tribasic Lead Sulfate (TLS): A strong acid scavenger with good thermal stability, weather resistance, and electrical properties. Used for opaque products.
- Dibasic Lead Phosphate (DLP): Has excellent thermal stability, has a pure white color, and exhibits excellent weather resistance thanks to its ability to absorb UV rays.
- Dibasic Lead Stearate (DBL): Mainly used for rigid extrusions and injection molding compounds, and offers good productivity thanks to its excellent activity level.
- Lead Stearate (PB-ST): Widely used as a stabilizer and lubricant for either flexible or rigid materials thanks to its excellent activity level and economic efficiency.

3. Metallic Soap Materials

Metal soap materials are additives that act as lubricants - they soften and release PVC - in one pack stabilizers, and are important raw materials for one pack stabilizers. They are widely used as mold release agents in plastic molding, and are also used as neutralizers for PE polymerization catalysts.

Dansuk Industrial's metallic soap materials are continuously being supplied to customers in the domestic and foreign plastic molding industries, polyolefin neutralizers, and PVC one pack stabilizers. In addition, Dansuk Industrial supplies high-quality and cost-competitive PVC one pack stabilizers by using them as auxiliary raw materials for one pack stabilizers.

Key Product Features

- Calcium Stearate (Ca-St): Non-toxic, excellent activity, widely used in stabilizers, releasing agents, lubricants, neutralizing agents, anti-coloring agents, etc.
- Zinc Stearate (Zn-St): Non-toxic and good economic efficiency, normally used in stabilizers, releasing agents, lubricants, pigment dispersants, etc.
- Barium Stearate (Ba-St): Excellent activity and gelation, widely used in extrusion, injection molding, calendaring process, etc.

4. Layered Double Hydrotalcite (LDH)

LDH is a nano-particle structure with nano-sized, plate-shaped particles stacked together. It is a functional non-toxic compound that can trap chloride ions between its plates. Because of its ability to trap chloride ions, LDH is used as a key raw material in PVC heat stabilizer, PE catalyst neutralizers, and spandex anti-chlorine agents. Furthermore, LDH's structural features and non-toxicity make it an attractive option in a growing variety of applications. Dansuk Industrial has developed its own hydrotalcite mass production process based on relentless R&D since LDH was first introduced in Korea, and it currently has the largest capacity in Korea.

Dansuk Industrial's LDH product, the DNT-09, is making a name for itself in the global non-toxic stabilizer market, and the product is being supplied to major overseas PVC one pack stabilizers such as Sunace, Baerlocher, Chemson, and Adeka.

Key Product Features

LDH is a compound composed of magnesium, aluminum hydroxide, and carbonic acid. It is non-toxic, eco-friendly, and has an excellent anion-exchange property that helps prevent PVC deterioration. LDH also has excellent anti-chlorine properties in spandex fiber. It is highly dispersible and transparent in PVC and polyolefin due to its small particle size and high particle size distribution.

5. Engineering Plastics (EP)

Engineering plastics are materials that can be used as structural materials because of their improved thermal properties and mechanical strength, which are the biggest weaknesses of plastics. They maintain excellent mechanical strength in a wide temperature range, and have excellent chemical resistance, weather resistance, long-term heat resistance, environmental resistance, and electrical properties.

Most engineering plastics are mixed with additives such as various reinforcing agents, and are processed using a compounding process. The processed compound is used as a raw material for the molding process of the final product.

Engineering composite compounds are highly heat-resistant and rigid. This makes them ideal for electric/electronic and automobile industries. The expansion of the engineering plastics market driven by greater-functionality and miniaturization is making engineering plastics more popular as well.

DS Innocom, an affiliate of Dansuk Industrial, is producing engineering plastics (OEM, ODM) for companies such as GS, LG, and SK using its technology accumulated in the field of engineering plastic compounds, and the company is striving to boost customer satisfaction levels. In addition, DS Innocom is doing its best to become an engineering plastic compound company by developing its own brand. Moving forward, Dansuk Industrial hopes to spearhead the development of PCR plastics technology in line with the emerging circular economy era.

Key Product Features

Engineering plastic compounds are custom-made products with excellent mechanical properties and heat resistance. Customer needs can be met by adjusting the amount of additives and processing conditions.

Metallic Materials Business

1. Recycled Lead

Lead-acid batteries for automobiles are secondary batteries composed of lead, lead compounds, and sulfuric acid. They contain valuable resources, so they are often collected and extracted for metal lead through a recycling process. In most cases, recycled lead is reused to manufacture lead-acid batteries for automobiles.

Although there is a social stigma associated with lead in terms of its use due to the perception that it is a major pollutant, lead-acid batteries have superior performance and thermal stability than lithium-ion batteries, which is why automakers are using lead-acid batteries in their electric vehicles.

Dansuk Industrial continues to collect used lead-acid batteries in Korea and abroad, extracts lead through a recycling process, and supplies recycled lead to automobile battery manufacturers such as Sebang, Delco, Atlas BX, and Hyundai Sungwoo Solite, which helps create a circular economy.

Key Product Features

Recycled lead exhibits the same characteristics of pure lead, with a lead purity of at least 99.97%. In particular, the fluidity of molten lead is excellent because there are very few metal and non-metal impurities, and little dross is produced during the melting process.

2. Lead Alloy

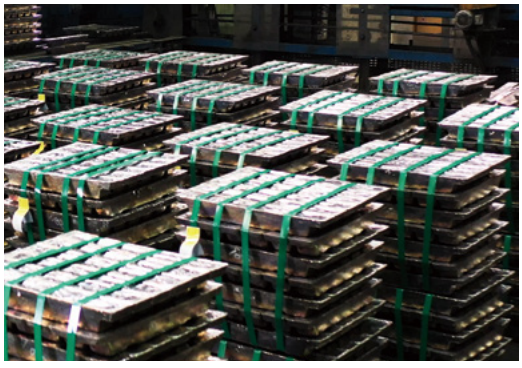
Metals can create new physical properties when alloyed with other metals. Although pure lead has excellent electrical conductivity and is highly machinable, it is soft. To compensate, antimony or tin can be used to create a hard alloy.

Antimony, tin, and lead alloys are essential materials for making bridges between the terminals of automobile batteries and the internal cells thanks to their hardness. Lead, antimony, and tin extracted and concentrated using discarded batteries are manufactured into an antimony-lead alloy with a high antimony content through precise mixing and alloying.

Beyond automobile batteries, lead alloys produced by Dansuk Industrial are used in various industrial applications such as ribbons for solar panels and solder alloys.

Key Product Features

The high antimony and tin content in lead alloy makes it possible to control various compositions, even with a small amount of lead alloy, and it makes it easier to use. Furthermore, the precise control content for antimony, tin, and lead alloys creates confidence in customized alloys.



Places of Business (Korea/Abroad)

Global manufacturing hub_Dansuk Zhuzhou China

- **Address** Yulwoo Industrial Park, High New Technology Industrial Development Zone, Zhuzhou City, Hunan Province, China
- **Factory Size** Land area: 34,327m^2, building area: 4,026m^2
- **Main Product/Business** Raw materials SCM, new material development

Testbed of creation and change _Headquarters/Sihwa Factory

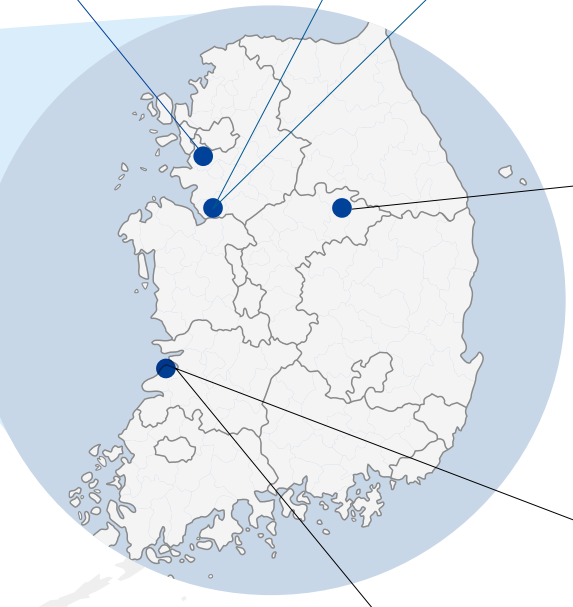
- **Address** 165, Hyeomnyeok-ro, Siheung-si, Gyeonggi-do, Korea
- **Factory Size** Land area: 26,193m^2, building area: 17,190m^2
- **No. of Employees** 182 persons (2020)
- **Main Product/Business** Biodiesel, bio-heavy oil, PVC stabilizers

Forward base for global exporting_Dansuk Pakistan

- **Address** 272-D, Sundar industrial, Estate Raiwind Road, Lahore, Pakistan
- **Factory Size** Land area: 3,630m^2, building area: 2,475m^2
- **Main Product/Business** PVC stabilizers

Production base for innovative growth_Dansuk Malaysia

- **Address** 81700 Pasir Gudang, Johor, Malaysia
- **Factory Size** Land area: 16,500m^2, building area: 7,152m^2
- **Main Product/Business** PVC stabilizers



Link for Dansuk Industrial's Yellow Sea Belt project
_Pyeongtaek Bio Factory #1

- **Address** 216, Pyeongtaekhangman-gil, Poseung-eup, Pyeongtaek-si, Gyeonggi-do, Korea
- **Factory Size** Land area: 20,810m^2, Building area: 4,003m^2
- **No. of Employees** 36 persons (2020)
- **Main Product/Business** Biodiesel

Sustainable eco-friendly energy production plant
_Pyeongtaek Bio Factory #2

- **Address** 11, Poseunggongdan sunhwan-ro, Poseung-eup, Pyeongtaek-si, Gyeonggi-do, Korea
- **Factory Size** Land area: 2,060m^2, Building area: 1,693m^2
- **No. of Employees** 19 persons (2020)
- **Main Product/Business** Biodiesel

New production base for biodiesel
_Jecheon Bio Factory

- **Address** 39, Cheongpungho-ro 24-gil, Geumseong-myeon, Jecheon-si, Chungcheongbuk-do, Korea
- **Factory Size** Land area: 6,785m^2, Building area: 1,921m^2
- **No. of Employees** 12 persons (2020)
- **Main Product/Business** Biodiesel

Engine for new challenges and passion
_Gunsan Recycling Factory

- **Address** 10, Seohae-ro, Gunsan-si, Jeollabuk-do, Korea
- **Factory Size** Land area: 37,083m^2, Building area: 7,429m^2
- **No. of Employees** 58 persons (2020)
- **Main Product/Business** Pure lead (Pb), lead alloy (Pb Alloy)

A site for concentration and trust in business
_Gunsan Fine Chemicals Factory

- **Address** 137, Gwanggyeong-ro, Gunsan-si, Jeollabuk-do, Korea
- **Factory Size** Land area: 19,853m^2, Building area: 5,379m^2
- **No. of Employees** 55 persons (2020)
- **Main Product/Business** Layered Double Hydroxide (LDH)

Vision 2050 Strategy

Dansuk Industrial is embarking on a new challenge towards sustainable growth for the future of humanity.

All employees of Dansuk Industrial are convinced that responsible management activities to solve various social and environmental issues are the direction in which sustainable growth should proceed as it seeks to meet the needs of society. Dansuk Industrial will start building a sustainable future with the ultimate goal of achieving “To Energy From Waste” based on a bold and unrelenting spirit that takes on new challenges, rather than simply compromising to avoid risk. Dansuk Industrial will discover new businesses through strategic responses to environmental issues, and use them as opportunities to generate new profits by solving environmental problems. In doing so, all members of Dansuk Industrial will lead efforts for sustainable shared growth by fulfilling corporate social responsibilities based on its know-how built up over the past 56 years.

Responding to Climate Change and Promoting a Circular Economy

Dansuk Industrial produces eco-friendly clean fuels that reduce greenhouse gases, and it provides sustainable values to human society with initiatives designed to usher in a circular economy, which will help create new added value by using waste as resources.

Based on its unrivaled success in the PVC stabilizer field, successful experience in the bio-energy business, and the know-how and competency acquired in the waste metal recycling business, Dansuk Industrial adopted two pillars of greenhouse gas reduction and the realization of a circular economy as core growth strategies. In addition, the company is strengthening its eco-friendly business portfolio such as White Bio, Green Hydrogen, and Energy Storage Systems (ESS). Dansuk Industrial's eco-friendly business initiatives take the lead in solving the following environmental issues and contribute to enhancing the sustainability of the environment people live in.

Reduction of greenhouse gases

Pursuant to the research results and standards of the United Nations Framework Convention on Climate Change (UNFCC), 26.2 tCO_2-eq of greenhouse gas emissions can be reduced if 10,000 liters of fossil fuel-based diesel is replaced with biodiesel. Since Dansuk Industrial launched its biodiesel business in 2007, the sales of biodiesel have continued to increase. Moreover, Dansuk Industrial's efforts to reduce greenhouse gas emissions have also improved every year. Converting 229,285 tons of biodiesel, which is how much biodiesel Dansuk Industrial sold in 2020, into greenhouse gas reductions means that approximately 681,862tCO_2-eq of greenhouse gases were reduced last year alone by Dansuk Industrial. Climate change is the most important risk factor threatening human society, and the international community is pushing for greenhouse gas reduction with the goal of reaching Net Zero (zero carbon emission) by 2050. Advanced economies, such as the US and Europe, are promoting the production and use of biodiesel through various support policies such as subsidies and tax benefits.

In the case of Used Cooking Oil Methyl Ester (UCOME), biodiesel recycled from waste cooking oil, which is the main export product sold by Dansuk Industrial's bioenergy unit, it is known that the greenhouse gas reduction effect is better than that of fatty acid methyl ester (FAME) biodiesel using palm and soybean as raw materials. Therefore, the demand in foreign markets is increasing. Dansuk Industrial is participating in worldwide initiatives to reduce greenhouse gas emissions through the production and sale of high-quality UCOME.

Reduction of air pollutant emissions

Biodiesel/heavy oil emits significantly fewer air pollutants (e.g. sulfur oxides and nitrogen oxides) compared to fossil fuels produced with refined crude oil. Biodiesel used in diesel vehicles can achieve perfect combustion thanks to the oxygen contained in the fuel. Therefore, when 20% of biodiesel is mixed with regular diesel, the amount of air pollutants, including fine dust, emitted from diesel vehicles can be reduced by 20~30% or more.

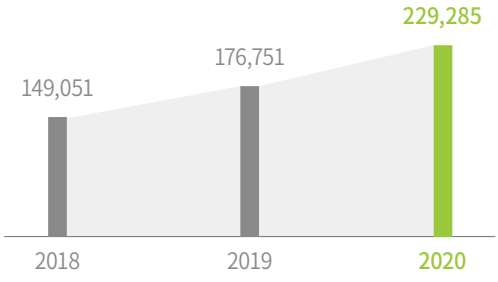
According to its "Study on the Quality and Performance Evaluation Characteristics of Bio Heavy Oil for Power Generation" published in 2015, the Korea Petroleum Quality and Distribution Authority confirmed that the emission of air pollutants was significantly reduced when using bio heavy oil compared to when using heavy oil produced using fossil fuels. Furthermore, using bio heavy oil eliminated the emission of sulfur oxides, reduced nitrogen oxide emissions by 39%, and reduced dust by 28%. Dansuk Industrial produced 131,619 tons of bio heavy oil in 2020, and supplied it as an energy source to power plants, contributing to the reduction of air pollutant emissions caused by the combustion of fuel for power generation purposes.

Reinforcing the circular economy system

All business activities at Dansuk Industrial are geared towards the circular economy system. Dansuk Industrial's metal materials business collects waste batteries and extracts lead to produce recycled lead ingots. The waste plastics generated in the process are turned into recyclable products. Dansuk Industrial's bioenergy division is building a circular economy system that generates recycled energy by using 150,156 tons of waste cooking oil and 119,937 tons of waste and by-products from the refining processes of various edible oils and fats as raw materials for biodiesel in 2020. Dansuk Industrial is looking to further strengthen the circular economy system, which can help create a sustainable future for human society, by expanding its business to green hydrogen, white bio, and PCR plastics using the technological capabilities it has accumulated to date.

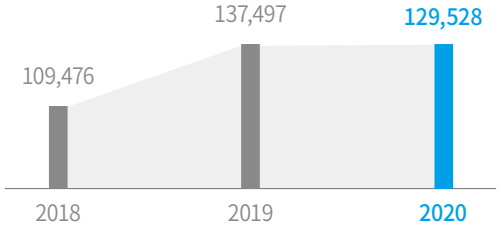
Biodiesel Sales Volume

(Unit: MT)



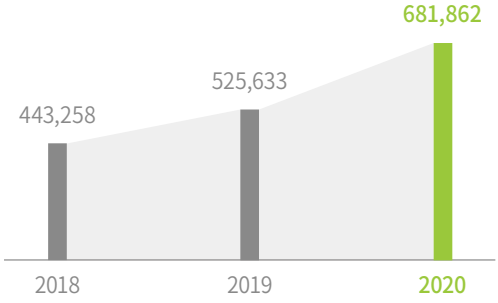
Bio Heavy Oil Sales Volume

(Unit: MT)



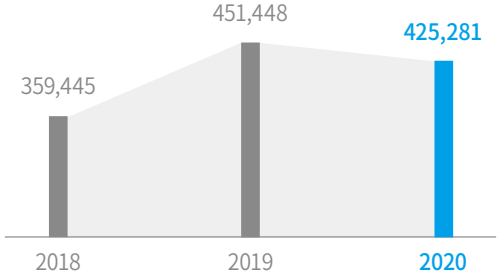
Greenhouse Gas Reduction Volume (based on diesel sales)

(Unit: tCO_2-eq)



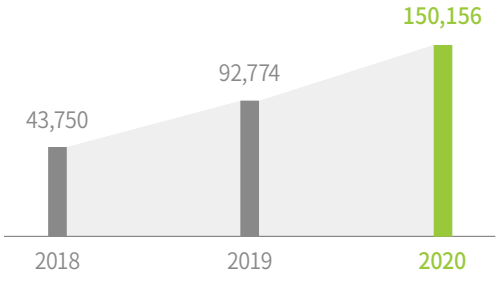
Greenhouse Gas Reduction Volume (based on heavy oil sales)

(Unit: tCO_2-eq)



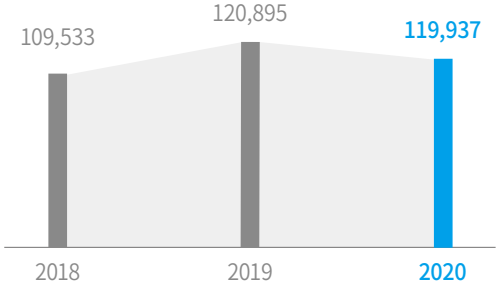
Recycled Waste Raw Materials Volume

(Unit: MT)



Recycled Waste and Residue Materials Volume

(Unit: MT)



Bio Energy

Making the dream of "Waste to Energy" a reality, Dansuk Industrial uses waste resources to produce clean energy that reduces greenhouse gas emissions.

Many scholars point to climate change as the biggest threat facing human society as of 2021. Greenhouse gases emitted by industrial activities over the past 100 years have steadily increased the earth's average temperature, and humans are powerless in the face of various side effects and natural disasters caused by such rise in temperature.

That is why developed countries and leading companies around the world are announcing their "Net Zero" emission goals by 2050 (virtually no carbon emissions by 2050). As one of Dansuk Industrial's main business areas, the bio energy business division produces biodiesel, which is mixed in with diesel for transportation. Dansuk Industrial also produces bio heavy oil, which replaces bunker C oil for power plants, and supplies them to refineries and power plants. The greatest benefit to society from using biodiesel lies in the reduction of carbon dioxide, a crucial type of greenhouse gas. In particular, research shows that the reduction of greenhouse gas emissions is maximized when bioenergy is produced by recycling waste resources, such as used cooking oil.

Thanks to the eco-friendly movement worldwide, the bio-energy business division of Dansuk Industrial is growing rapidly, expanding beyond biodiesel for vehicles and bio heavy oil for power plants and into the newly emerging bio marine heavy fuel oil and bio jet fuel.

Approach to Green Business 1.

Green & Clean

Expanding the Green Portfolio

Development and sales of eco-friendly biodiesel for transportation applications

Biodiesel can be produced by synthesizing a renewable resource, such as used cooking oil or animal/vegetable fats collected after being used, with alcohol. It is a biofuel that can be used in regular diesel engines because its properties are similar to those of regular diesel produced by refining crude oil. Biodiesel produces fewer air pollutants in the exhaust gas during the combustion process, and can be produced sustainably from waste oil and other plant/vegetable sources. Due to the eco-friendliness and renewable nature of biodiesel, advanced economies are increasingly using it as a means of protecting the environment.

Dansuk Industrial recognized the shift in the eco-friendly waste paradigm in 2005, and placed an order for equipment worth KRW 17 billion at Germany's GEA, which possesses advanced technology. In doing so, Dansuk Industrial entered the biodiesel market in earnest in 2007. Considering that Dansuk Industrial's sales revenue stood at less than KRW 100 billion, the investment of approximately KRW 20 billion, including equipment investment and opportunity costs for entering the biodiesel market, was enough to cause concerns in the market. However, Dansuk Industrial's bold decision delivered great results in 2009, with sales of approximately KRW 160 billion and net profit of KRW 10 billion. It allayed the concerns of the market, and showed stakeholders that Dansuk Industrial was built for success. Dansuk Industrial also made a daring decision in developing new technologies. It sought new ways to overcome the limitations of using edible oil only as a raw material, and produced biodiesel using waste edible oil for the first time in Korea. As a result, Dansuk Industrial secured great cost competitiveness, and produced great social and environmental results by converting organic waste resources into a new and renewable energy source.

Thereafter, buoyed by its enterprising spirit and internally developed technologies, the company expanded its business by acquiring Enertech and M-Energy in 2016 and 2018, respectively, and expanded its production capacity. As of 2021, Dansuk Industrial has opened production plants in Sihwa, Pyeongtaek (plant #1, plant #2), and Jecheon, and the company has grown into the largest biodiesel producer in Korea, capable of producing 260,000 tons of biodiesel per year.

Development and sales of bio heavy oil for power generation using biomass

What led the bio-energy business at a time when the growth of the biodiesel business in Dansuk Industrial was slowing was bio-heavy oil for power generation. In 2014, the Ministry of Trade, Industry and Energy promulgated the change of fuel oils for heavy oil power plants and announced the "Pilot Supply Project to Promote the Use of Bio Heavy Oil for Power Generation" to improve air quality. Naturally, Dansuk Industrial entered the bio heavy oil market to seize this new opportunity. In the early days of using bio heavy oil for power generation, companies produced and sold bio heavy oil using refined palm oil and oil by-products to meet quality standards. But various problems, such as excess competition in the market and other social issues due to the use of refined palm oil, soon emerged.

Accordingly, Dansuk Industrial developed a bio-heavy oil manufacturing technology for power generation using organic waste resources that meet the purpose of bio-heavy oil, rather than using refined palm oil, which could easily meet quality standards at a low price. This contributed to the recycling of environmental pollutants and the establishment of a circular economy, and at the same time, reduced greenhouse gas emissions by 85% compared to bunker C oil. As a result, Dansuk Industrial was able to establish itself as the largest producer and supplier (based on market share) in the bio-heavy oil market.

Development of bio marine heavy fuel oil that significantly reduces greenhouse gas emissions in response to IMO2020

Sulfur oxide is one of the three major air pollutants, accounting for approximately 13% of total global emissions from shipping operations. The International Maritime Organization (IMO) enforced the IMO2020, with drastically lower upper limits to sulfur content in marine fuel oil from 3.5% to 0.5%, on January 1, 2020. Accordingly, ships were forced to install scrubbers (exhaust gas purification devices) to lower sulfur oxide emissions, install liquefied natural gas (LNG) engines, or use low sulfur fuel (LSFO).

Irrespective of sulfur oxide emissions, global maritime shipping emits 1 billion tons of greenhouse gases annually, which is 3% of global emissions. And this figure is expected to increase to 17% by 2050. Accordingly, the IMO has proposed a 50% reduction in greenhouse gas emissions by 2050.

The international community is paying close attention to these developments and the utilization of bio marine heavy fuel oil. Global shipping companies such as Maersk and CMA CGL Group are responding to greenhouse gas reduction pressures with pilot projects using bio marine heavy fuel oil. Dansuk Industrial quickly identified these environmental changes in the international community thanks to its biodiesel exporting network, and developed a technology that can use low-grade fat and oil by-products as raw materials for bio marine heavy fuel oil thanks to a national-level technology development project supervised by the Korea Institute of Energy Technology Evaluation and Planning. Moreover, the company is looking to commercialize bio marine heavy fuel oil by participating in a bio marine heavy fuel oil pilot test consortium led by HMM, a major Korean shipping company.

Promotion of new eco-friendly businesses such as Hydrotreated Vegetable Oil (HVO)/Sustainable Aviation Fuel (SAF)/bio-naphtha/biogas

Growth of the bioenergy market, driven by plant/vegetable-based raw materials, is accelerating due to the use of waste resources, which helps reduce greenhouse gas emissions significantly. Beyond fuel oil for transportation, interest in moving away from an oil-based economy and in reducing greenhouse gas emissions is also growing in the chemical products market. Dansuk Industrial is pushing forward with its HVO Project, a second-generation biodiesel fuel, based on the successful commercialization of its first-generation biodiesel products. HVO, a second-generation biodiesel, has superior fuel properties compared to regular diesel. It can overcome the limitations of first-generation biodiesel products thanks to its low cloud point, which is the temperature where solids start to precipitate from oil when the temperature is low, and its high fluidity at low temperatures. In addition, research suggests that greenhouse gas emissions can be reduced by up to 90% when using HVO compared to fossil-based fuels. This second-generation biodiesel, which Dansuk Industrial is newly developing, is expected to deliver additional greenhouse gas reduction benefits thanks to the use of the company's organic waste resource procurement network. Dansuk Industrial's second-generation biodiesel will also contribute to fulfilling its social responsibility of responding to climate change. HVO is not only a fuel oil for automobiles, but also a sustainable aviation fuel. Handling the isomerization to HVO can help produce sustainable aviation fuel.

The aviation industry is exploring a number of different options to develop biofuels that can help its planes reduce greenhouse gas emissions, which emit 2% of the world's CO_2 emissions. The International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA) have expressed their intentions to promote the use of alternative fuels for aircrafts as part of measures aimed at reducing aviation greenhouse gas emissions after 2020. In the case of jet fuel, where it is difficult to find other alternatives to reduce greenhouse gas due to the aviation industry's proactive measures to reduce greenhouse gas, the second-generation biodiesel-based Sustainable Aviation Fuel (SAF) market is expected to expand at a rapid pace. With its HVO project, Dansuk Industrial is looking to internalize the synthesis technology of SAF and is pursuing a strategy to gradually increase the portion of its SAF production in the long term to keep pace with increasing supply and the expansion of electric vehicles/hydrogen vehicles in the automobiles market.

Bio-Naphtha, which is a by-product created during the production process for SAF, is also emerging as a new raw material for bioplastics. Several multinational chemical companies are responding to global greenhouse gas reduction needs by launching bio-plastic products using bio-naphtha as the raw material. In Korea, the need to reduce greenhouse gas emissions is expected to lead to increased interest in bio-naphtha produced during the production of HVO at Dansuk Industrial, giving the company a new opportunity to create significant added value.

Dansuk Industrial's HVO project has its horizon set to June 2024, starting with the signing of a contract with an equipment supplier in 2022. The annual scale is expected to be between 200,000 and 400,000 tons. Through this, Dansuk Industrial will not only solidify its position as a leader in the domestic bioenergy business, but also expand its business to marine heavy fuel oil and aviation fuel to complete an eco-friendly product portfolio for the future fuel and oil market, and play a key role in supplying carbon-neutral chemical products.

Approach to Green Business 2.

Technology Innovation

Acceleration of Technological Innovation

Securing waste oil refining technology

Dansuk Industrial became the first company in Korea to secure 100% waste cooking oil-based biodiesel production technology in 2007, just one year after entering the biodiesel business. It used a strategy that was vastly different from its competitors - it used existing refined vegetable oil as a raw material. In 2012, Dansuk Industrial secured the capacity to refine 60,000 tons of waste cooking oil. Then, in 2020, it improved its process and expanded its refining capacity to 100,000 tons. Waste cooking oil collects a large amount of foreign substances and moisture in the recovery process, which makes the purification process vital. Dansuk Industrial created a system that recovers the fats and oils lost during the refining process to recycle them as raw materials for bio-heavy oil.

Furthermore, the food wastewater generated during the food waste treatment process is separated into solids/food waste oil/food waste water using a three-phase separator. Dansuk Industrial developed a processing technology that purifies recovered waste food oil and uses it as a raw material for bio-heavy oil to establish a circular resource system and to expand/develop its waste oil refining technology.

Development of technologies to reduce emissions of hazardous substances and infusing renewable energy sources

Dansuk Industrial was able to reduce water consumption and improve yield by introducing a centrifugal separator for the first time in Korea in the process of removing glycerin and basic catalysts, which are by-products of the biodiesel production process. Furthermore, it developed an innovative process that reduces the amount of wastewater generated by more than 90% by recycling wastewater discharged during the production process. Using its know-how in wastewater reduction and circulation processes, Dansuk Industrial acquired one of its competitors, Enetec, in 2016, and improved its production capacity by 100% by amending its production processes. Dansuk Industrial also managed to reduce the amount of wastewater generated by 90%, and it established a production base with a capacity of 70,000 tons in 2017. In 2018, the company acquired M-Energy and achieved some remarkable results (e.g. 70% increase in production capacity and a 90% reduction in wastewater generation).

Moreover, in order to efficiently manage and operate the energy resources consumed in the biodiesel production process, Dansuk Industrial introduced a Factory Energy Management System (FEMS) that monitors energy resources such as electricity, gas, and steam in real-time. Currently, the Pyeongtaek production plant receives biomass steam from Poseung Green Power, while the Sihwa production plant receives waste-generated steam from KG ETS. The steam is used in the production process to minimize greenhouse gas emissions.

Synthesis of waste oils and development of metal powder control technology

Waste organic matter has a high acid content and contains a large amount of metal components, making it difficult to use as a bioenergy resource. Dansuk Industrial, however, has found a way to use low-cost raw materials as raw materials for bio-heavy oils with a metal content control technology applicable to these organic resources. In addition, by applying the technology to reduce the high acid content in raw materials to 25 or less, Dansuk Industrial was able to produce products that meet the quality standards of bio heavy oils used for power generation with various high acid content waste materials. This was particularly important in that it solved one of the more significant limitations to new bio renewable energy. In 2020, Dansuk Industrial successfully developed a process that uses high acid content raw materials as biodiesel raw materials thanks to a high acid content raw material processing technology. It plans to apply this process and technology to process raw materials moving forward.

Approach to Green Business 3.

Global Market

Global Market Expansion

Overseas certification and expansion of exporting capacity

What sets Dansuk Industrial apart from other domestic biodiesel manufacturers is its official certifications and exporting capacities in the eco-friendly value chain. Domestic biodiesel prices and demand do not distinguish between different levels of greenhouse gas emissions based on the characteristics of raw materials and differences in individual raw materials.

In Europe and the US, which are highly interested in eco-friendly energy and reduction of greenhouse gas emissions, the impact of reduced greenhouse gas emissions is evaluated differently depending on the type of raw material used to produce biodiesel. Furthermore, Europe and the US encourage the production and use of waste-based biofuels through sophisticated systems that offer different subsidies and other benefits according to the reduction of greenhouse gas emissions.

Dansuk Industrial produces most of its biodiesel by recycling waste, and it has a certification that its collection process for raw materials is carried out according to the exact standards and procedures stipulated in Europe and the United States. Dansuk Industrial manages and supervises domestic and foreign waste collection chains with a specialized organization in charge of certification and compliance, and operates an organization that pioneers the research on new raw material sources.

Diversification of production bases

To help push revenue generated by exported products over 50% of total sales by 2021, each production base for Dansuk Industrial's biodiesel business has been specialized in accordance with the global market requirements. The global market is largely divided into the US market and the European market. As the characteristics of the new and renewable energy market differ due to separate legal regulations, Dansuk Industrial has implemented a segmentation strategy in consideration of various requirements and production efficiency in each market. This strategy was established in consideration of the differentiated overseas certifications, and in a manner that minimizes the distance of transportation. It also serves as another differentiating factor for Dansuk Industrial on the global market.

Global network expansion: Procurement of raw materials

Dansuk Industrial secured a storage tank with a storage capacity of 20,000kℓ in the SP tank terminal located in Namyangman-ro, Poseung-eup, Pyeongtaek-si, in August 2007. By securing a cutting-edge biodiesel production plant and storage facility for raw materials and biodiesel products, the company laid the foundation for a stable bio-energy business.

Moreover, the SP tank terminal can be used as a sales base to trade plant/vegetable oil based, laying the foundation for diversified sales in the future.

Recycling Business

A leader in the circular economy that creates new value from waste products containing valuable resources, including waste batteries.

Metals are an essential material for the growth of any industry, which is why competition among countries to secure metals is intensifying. Moreover, due to the finite nature of resources, there is a growing interest in the establishment of a sustainable environment based on efforts to recycle waste resources and reduction of waste. For this purpose, projects to secure recycling technology and waste resources are accelerating their pace.

Dansuk Industrial's metallic material division supplies recycled lead and rare metal alloys to lead-acid battery manufacturers around the world. It extracts lead, antimony, and tin alloys by recycling used lead-acid batteries. Through these industrial activities, metal resources, including lead, are recycled. Most importantly, recycling is playing a role in preventing environmental pollution caused by the disposal of wastes containing toxic substances.

Furthermore, based on the operational and technological know-how accrued through the recycling of lead-acid batteries, Dansuk Industrial continues to pursue sustainable green growth and a circular economy system by developing the technology required to turn valuable resource-containing waste into usable resources.

Approach to Green Business 1.

Circular Economy

Circular Economy Project

Circular economy project for used lead-acid batteries

Dansuk Industrial's metallic materials division produces and sells recycled lead and alloy lead extracted with an eco-friendly recycling technology for used lead-acid batteries.

Since opening its plant in 2011, the company has built up the largest recycling capacity in Korea. Dansuk Industrial is capable of producing 96,000 t/y of recycled lead per year by processing up to 180,000 t/y of used lead-acid batteries made with lead and sulfuric acid. Dansuk is never content with its success, and is looking to upgrade its facilities and production capacities.

At the same time, Dansuk Industrial is strengthening its metal and plastic recycling business using its own eco-friendly method by enriching, extracting, and recycling rare metals and plastic waste contained in used lead-acid batteries. Furthermore, thanks to its commitment to preventing the scattering of contaminants that may occur during the recycling process, Dansuk Industrial has adopted and improved eco-friendly production methods.

Promotion of the circular economy project for plastics

During the recycling process, waste battery cases are sorted, extracted, and refined in order to produce regenerated polypropylene.. The recovered polypropylene (PP) plastic goes through refining and processing processes, and is recycled as a raw material to make new battery cases.

Dansuk Industrial's research institute and affiliate DS Inocom are conducting research on refining and processing recycled PP. They are also conducting research on engineering plastics with improved physical properties by mixing with recycled PP and inorganic composite reinforcing agents. In doing so, Dansuk Industrial is trying to build a circular economy system for Post Customer Recycled (PCR) PP plastics, and expand its business to engineering plastics beyond just recycling.

Circular economy project for used Li-ion batteries

Dansuk Industrial's metallic materials division is preparing for the challenge of recycling spent lithium-ion batteries using its waste handling and recycling know-how gleaned from the recycling of lead and rare metals. To develop used lithium-ion battery disassembling technology and rare metal extraction technology, the company is conducting research and developing various processes in cooperation with government-funded research institutes. Through these technological developments and preparations for commercialization, Dansuk Industrial will develop a circular economy model that can facilitate the disposal and recycling of waste lithium-ion batteries in the upcoming electric vehicle era, and build a circular economy system for electric vehicle batteries and rare metals.

Approach to Green Business 2.

Technology Innovation

Development of Eco-friendly Production Processes and Technologies

Waste from lead refining and reduction of CO_2

Dansuk Industrial is striving for the eco-friendly management of its used battery recycling business. Since 2013, the company has managed to reduce waste from lead melting processes produced during the lead refining process by 51% using a desulfurization pretreatment method, which minimizes the amount of environmental pollutants. Moreover, in 2020, Dansuk Industrial developed a technology to reduce LNG fuel consumption by optimizing the operating conditions of the burner, which is key to the refining process. Moving forward, Dansuk Industrial expects to reduce LNG consumption by 362,385 Nm^3 per year and to reduce greenhouse gas emissions by 789.4 tCO_2e per year. This is equivalent to planting 100,000 30-year-old pine trees. (Source: Carbon tree calculator)

As such, Dansuk Industrial has committed to reducing waste from lead refining as well as air pollutants. It has also continued its research on extracting lead and rare metals through an eco-friendly used lead-acid battery recycling process.

Development of workplace dust reduction technology

The lead refining process involves mixing a lead compound paste, grid, reducing agent, and fluidizing agent, and melting the lead using a heating and reduction reaction with direct fire in a high-temperature furnace. Here, the process generates and scatters a large amount of dust containing lead compounds through the combustion gas outlet of the furnace, which can create extremely hazardous working conditions. To prevent this, reducing the power of the burner is an option. However, doing so will increase work time and decrease productivity. Therefore, the Dansuk Industrial has been improving its equipment and processes to prevent dust while maintaining good productivity. In 2020, the company managed to improve the working environment by mixing the collected dust that is sucked into the dust collector and recirculated into the Tilting Rotary Furnace (TRF) with water, and by efficiently molding it to prevent scattering of the dust when re-injected. It also managed to improve lead reduction yield and productivity.

Dansuk Industrial is making a conscious effort for the safety and better working environment through its own activities aimed at improving the work environment, and it is preventing pollution inside its production sites.

Development of a new extraction method for metal resources

In 2020, using its innovative and original technology, Dansuk Industrial's metal business division found a way to add value by concentrating, separating, and extracting low contents of antimony and tin contained in antimony dross produced during the lead refining process.

Based on this, the company developed a platform method capable of concentrating and separating various rare metals such as antimony, tin, and nickel from wastes containing lead refining by-products and valuable metals. The company is also making efforts to expand the scope of the overall recycling business for waste resources containing rare metals.

Approach to Green Business 3.

Turn Around

Changes in the Resource Circulation Business due to a Paradigm Shift

Changes in the automotive paradigm

In 2020, interest in and distribution of electric vehicles (EVs) are rapidly increasing, along with eco-friendly issues rising in the domestic cars market. Although lead-acid batteries are still used in EVs due to their advantage of keeping the electrical field stable under operation, their usage is expected to decrease gradually due to environmental issues and excess mass (weight) issues. Dansuk Industrial has refined up to 100,000 tons of lead through the largest lead recycling plant in the country, and has supplied it to automobile battery manufacturers. However, amid the unfavorable business conditions brought on by COVID-19, such as a surge in raw materials and a drop in international lead prices, the company downsized its business and started reorganizing itself to focus on recycling more valuable resources.

By doing so, Dansuk Industrial plans to build a new foundation for recycling oil resources in line with the paradigm shift it expects in the future, to establish a sustainable resource circulation system for the future, and to conduct business in accordance with the circular economy.

Valuable nickel recovery technology

Nickel is a rare metal with finite reserves on the planet, and it is a metal resource that plays an important role in the production of various materials such as steel, catalysts, and compounds. Nickel is also a metal resource that is of rising interest due to the recent increase in the use of high nickel-based secondary batteries for EVs. Secondary battery cathode materials and precursor makers are promoting the internalization of recycling technology for waste EV secondary batteries in order to respond and prepare for the increase in the use and disposal of high nickel-based secondary batteries for EVs moving forward. In addition, these companies are constantly preparing to reinforce and strengthen their downstream industries.

Dansuk Industrial has internalized the recycling technology for the waste LIB , and is preparing to verify its pilot technologies. In addition, the company is preparing to build a circular economy system for secondary battery resources for EVs using its partnerships with companies in possession of advanced technologies and precursor/positive material manufacturers. By doing so, Dansuk Industrial will restructure its business so that it can proactively respond to future paradigm shifts in the industry.

Recycling engineering plastic for EVs

In order to increase the mileage of eco-friendly electric vehicles, Dansuk is researching weight reduction technologies. In addition, Dansuk is researching flame retardants to solve topical issues. Lithium ion battery packs for EVs are expected to change from steel to engineering plastics such as polyimide and polyketone in the near future.

Dansuk Industrial's R&D Center is working with Sungkyunkwan University's Composite Materials Research Center to develop high-strength, flame-retardant inorganic/polymer composite materials that can be used as battery cases. In addition, the company plans to create a virtuous cycle of resources by developing the right recycling technology for engineering plastics.

Dansuk Industrial and its affiliate DS Inocom are looking to establish standards for the material performance of engineering plastics in line with the adoption of engineering plastic materials for waste EV batteries, and to develop new technology to recycle plastics with compounding technology. In doing so, Dansuk Industrial is expecting to become a recycling company specializing in engineering plastics.

New Business

Based on the capacities and know-how in bioenergy and recycling, Dansuk industrial is expanding the eco-friendly circular economy wider than ever.

Dansuk Industrial, a leader in the eco-friendly recycling field and circular economy system, is reviewing the white bio business using glycerin and bio-naphtha, which are biodiesel by-products, using its experience and technological capabilities accumulated via its existing lines of business.

Furthermore, Dansuk Industrial is expanding its operations in the eco-friendly bio field, such as eco-friendly hydrogen and biomethanol-related businesses with a focus on glycerin and biogas, PCR plastic using waste plastics generated in daily life, as well as biofuel production using food waste and coffee grounds.

Approach to Green Business 1.

White Bio

Promoting Eco-friendly Projects

Production of acrylic acid with bioglycerin

Glycerin, a by-product in the biodiesel manufacturing process, can be used not only as “green” hydrogen, but also as a 100% biodegradable plastic raw material. Its value is attracting more and more attention, given the fact that it can be converted into acrylic acid, a raw material for high value-added chemical products. Bioacrylic acid is mainly used to produce eco-friendly superabsorbent resin, a raw material for diapers and various hygiene products, produced with advanced grain fermentation technology and advanced catalyst manufacturing technology. Dansuk Industrial is promoting the development and application of technology for the high added value of glycerin, which is a by-product of biodiesel production. It is also developing a technology for synthesizing glycerin into bioacrylic acid, as well as a technology for extracting Poly Lactic Acid (PLA) from glycerin. With these new technologies, the future value of Dansuk Industrial is expected to rise to even greater heights.

Bioplastics and PLA

In the aftermath of the COVID-19 pandemic, the use of packaging materials has increased at a rapid pace. Thus, the treatment of packaging materials has emerged as a global environmental issue, and interest in the recycling of bioplastics and plastics is increasing. In particular, food container packaging materials are difficult to recycle due to contamination by food waste. So the need for biodegradable plastic packaging materials is rising quickly. In 2020, Dansuk Industrial signed an NDA on equipment supply with a leading overseas licensor with core PLA production technology. Upon introducing the equipment to its R&D network, Dansuk Industrial is using a strategy to break away from sugar-based raw materials, and expand its business areas to glycerin and biomass-based production.

Bio-naphtha and white bio

Bio-naphtha is a by-product of the second-generation biodiesel promoted by Dansuk Industrial, and its value is expected to rise as a raw material for bioplastics. Bio-naphtha can be used as a plastic material in NCC due to its properties that are superior to general petroleum-based naphtha. It can also be used as a fuel for green hydrogen, and a fuel for bio-gasoline. New attempts to use bio-naphtha are expected to increase in line with the current eco-friendly trends.

Reinforcement of eco-friendly chemistry using biomethane

Recently, a strategy for biochemically synthesizing high value-added chemical products from methane was proposed. Based on that strategy, a technology for producing food materials and bioplastics using methane was developed. Methane is a greenhouse gas, and it is 21 times more powerful as a global warming agent compared to carbon dioxide. Conversely, however, attempts are being made to reduce environmental pollution by converting methane into a carbon source, and developing methane into an eco-friendly product. Recently, the technology to produce food materials and bioplastics by biochemically synthesizing methane as a raw material is being developed.

The bio refinery method is a method that can biochemically synthesize fuels and chemicals in the white bio industry. In other words, it can synthesize energy sources and eco-friendly materials using methane as a raw material. In particular, methanotroph, which are bacteria that oxidize methane and use it as a carbon source and energy, reduce greenhouse gases and decompose waste. Interest is growing in the use of methanotroph as a platform technology to create a circular structure. Recently, there has been significant interest in the production of high value-added products through the biological conversion of methane, mainly in the US, Europe and Korea. The development of methanotroph platform technology, and the development of source technology for product manufacturing are progressing at a healthy rate.

Approach to Green Business 2.

Green H_2 and Methanol

Promoting Eco-friendly Projects

Production of green hydrogen with bioglycerin

With the production of biodiesel, which is attracting attention as an eco-friendly fuel, increasing worldwide, the production of glycerin, a by-product, is also on the rise. Unfortunately, there has been no application technology that can properly utilize glycerin with high added value. Recently, however, electrochemically oxidizing glycerin is being researched as a potential solution worldwide. This technology involves injecting electricity from one reactor to cause a chemical oxidation-reduction reaction to produce hydrogen and organic acids at the same time. From a carbon-neutrality point of view, the hydrogen production method that electrolyzes glycerin is superior to the method of obtaining hydrogen by electrolyzing water using renewable energy. Moreover, biomass-based hydrogen production is also gaining a lot of attention recently. For instance, hydrogen can be produced from biomethane generated in the process of extracting food waste oil from the food waste treatment process and using it as a raw material for biodiesel.

This hydrogen can be used as a core raw material, and to maintain the HVO project in the future to build a standalone circulation structure. In addition, when commercializing the water electrolysis technology, it is possible to expand the scope of hydrogen production with electricity generated using renewable energy such as solar power, wind power, and biomethane.

Production of biomethane and green energy

Food waste oil used as a raw material for bio-heavy oil with the refining technology available at Dansuk Industrial is extracted in the waste treatment process for the food. The biogas of the food waste oil is purified to produce biomethane, and the produced methane, in turn, is used to produce green hydrogen. Biomethane produced from biogas has the same properties as methane, which accounts for most of LNG. As such, it can be used as a fuel for heating at home or to light up a gas stove for cooking. In addition to household use, methane and methanol can also be used as fuel for transportation (e.g. automobiles and ships).

In the UK, eco-friendly buses use biogas and methane generated from manure and food waste. Their technology has advanced to the stage where a single fill-up can go up to 300km. These bio-buses are playing a major role in improving air quality in the UK, reducing emissions by 92% and reducing carbon dioxide by 30% compared to conventional diesel buses.

Approach to Green Business 3.

Bio Circular

Building a Circular Economy Using Waste Plastics, Coffee Waste, and Insect Resources

PCR plastic

With interest in environmental pollution of waste plastics increasing along with interest in laws and regulations on the disposal and treatment of plastic waste, the industrial ecosystem for Post Consumer Recycled (PCR) Plastic and related industries are growing at a rapid pace.

Dansuk Industrial is planning to build trust with its clients in the market by acquiring the International Sustainability and Carbon Certification Plus (ISCC-Plus Certification) for its subsidiary DS Inocom, starting with recycled PP products produced at its recycled lead plants. The ISCC-Plus verifies the sustainability of eco-friendly bio products. Also, by acquiring the ISCC-Plus certification, Dansuk Industrial will look to lead the PCR plastic market, which includes PCR-PP, PE, and ABS.

Recycling of food waste and insect oils

As animal fat can be used as a raw material for biodiesel, Dansuk Industrial is producing biodiesel by extracting insect oil from the Black Soldier Fly, and insect often used as animal feed, based on the fact that insects can also be used as raw materials. Dansuk Industrial is also promoting the use of solid food waste as insect feed to boost the use of insect oil and build a circular economy system.

Waste food oil, which refers to oil separated from waste food water during the existing food waste treatment process, is used as a bioenergy material. However, existing food waste treatment plants have issues with the disposal of solid waste remaining after the recovery of food waste. Although some of this solid waste is recycled, most of it is disposed of at public and private landfills. Due to the industry's inherent structure, the profitability of food waste treatment plants has deteriorated due to the increase in treatment costs stemming from the depletion of landfills. To this end, Dansuk Industrial is exploring the use of solid food waste remaining after the extraction of waste food oil as insect feed, which may help create a circular economy with its stakeholders.

Using this resource circulation model, oil and solid waste can be recovered from food waste and used as biofuel or as insect feed. Also, oil can be obtained from harvested insects, and biodiesel raw materials may be fully recycled.

Coffee waste

Bio-bean, a British company, uses biodiesel made of oil extracted from coffee waste to power city buses in London. In fact, Dansuk Industrial is conducting research to use oil extracted from coffee waste as a raw material for biodiesel as well. It is estimated that the domestic coffee industry produces roughly 140,000 tons of coffee waste. Only an estimated 10% of the natural oil in the coffee waste is being extracted.
Dansuk Industrial plans to use a human platform that collects waste cooking oil, existing raw materials for biodiesel, and coffee waste from cafes across the country along a route/path designated for collecting waste cooking oil. In addition, research is on its way to see if the solid by-products after extracting oil from coffee waste can be used as insect feed, similar to solid food waste. If viable, it will be utilized as part of the circular economy created by Dansuk Industrial.

Sustainability Management

Dansuk Industrial wants to be a company trusted and respected by its stakeholders by solving social problems according to UN-SDG, and by creating sustainable economic value.

Sustainability Management

Sustainability Management System

Dansuk Industrial regards communication with its stakeholders on business activities as important, and emphasizes not only economic performance, but also social and environmental performance. To achieve the UN's Sustainable Development Goals (SDGs), the company implements corporate social responsibility management measures. Thus, since 2005, Dansuk Industrial has set its vision and management goals under the framework of value management every five years, sharing and implementing them with all of its employees. Value management, which entered a new phase in 2020, has taken root in the psyche of Dansuk Industrial's employees thanks to consistent training and efforts to build a company-wide consensus. In 2025, the company hopes to continue its growth as an "Only One" company, which is Dansuk Industrial's unique goal and value across its corporate value, corporate growth, corporate environment, and corporate culture systems.

Sustainability Management Vision

D.S. 2025 Only One ! (Digital Driven 2025 Smart Sustainability Only One !)
We will become an "Only One" company by 2025 by creating sustainable values based upon a digital corporate culture and smart thinking.

DS Value Only 1	DS Global Only 1	DS Eco Only 1	DS Culture Only 1
Corporate Value Only 1	**Corporate Growth Only 1**	**Corporate Environment Only 1**	**Corporate Culture Only 1**
Progressive execution of IPO, listing on KOSPI, reach corporate value of KRW 1 trillion	Operate a global production network, preoccupy the export market for new products, reach exports worth USD 500 million	Bring innovation to sustainable recycling practices, create environmental value, and become an eco-friendly company	Establish a culture of communication and empathy, digitize processes, create a GWP organizational culture

Stakeholder Engagement

Dansuk Industrial classifies stakeholders as follows. It operates and communicates via online and offline communication channels to identify key interests and needs of each stakeholder.

Stakeholder	Communication channel	Key interests
Customer	Online customer center, in-person customer center	Quality, price, delivery
Executives and staff	Groupware, labor-management council, safety and health council	Welfare, education/training, work-life balance
Partner companies	Partner meetings, safety training	Fair trade, work safety
Local community	Social contribution activities, visits to related organizations	Social responsibility, community investment
Central and municipal governments	System briefing sessions, public-private cooperation programs	Legal and regulatory compliance, partnerships

Materiality Assessment

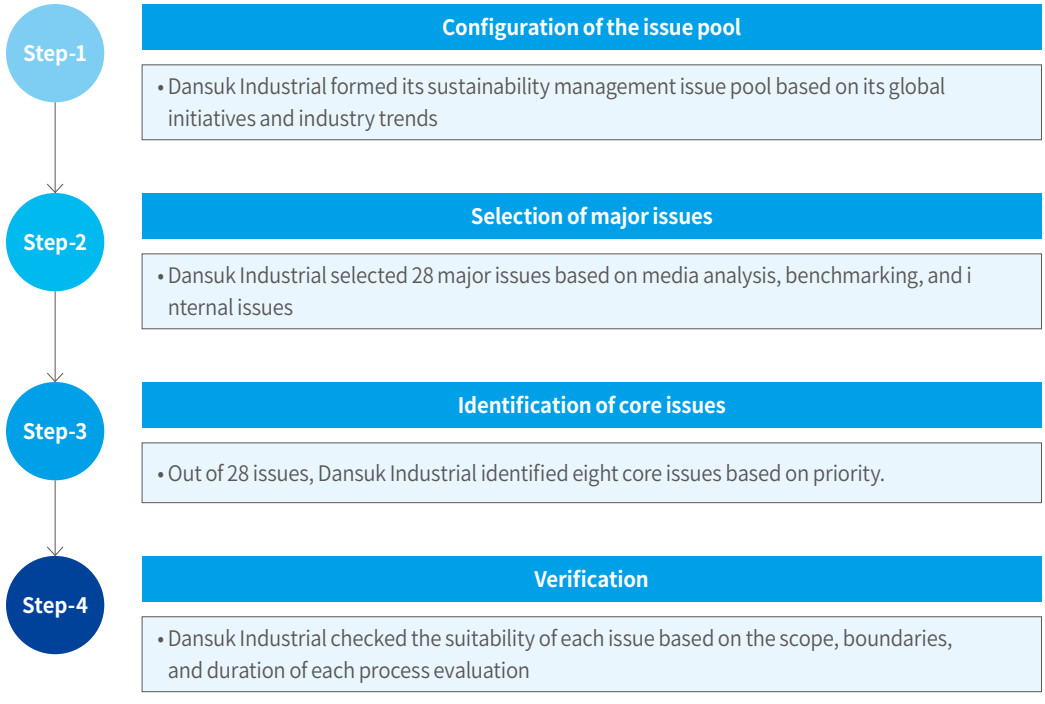
A materiality assessment was conducted to identify and manage important issues for the sustainable management of Dansuk Industrial. In 2020 alone, a pool of sustainability management issues that had been highlighted by sustainability management-related organizations, the media, and benchmarking activities was created, and 28 issues related to the impact of sustainability management and relevant trends were identified.

Materiality assessment process

From May 25 to 31, 2021, an online survey was conducted for internal and external stakeholders to select the importance of each sustainability management issue, and to gather feedback from Dansuk Industrial's stakeholders. A total of 75 people responded to the survey.

The materiality assessment was conducted through internal policies, stakeholder survey, media analysis, and industry analysis. Results were derived according to the importance to Dansuk Industrial's business activities and its stakeholders. Ultimately, eight core issues (out of 30 issues) were selected based on priority.

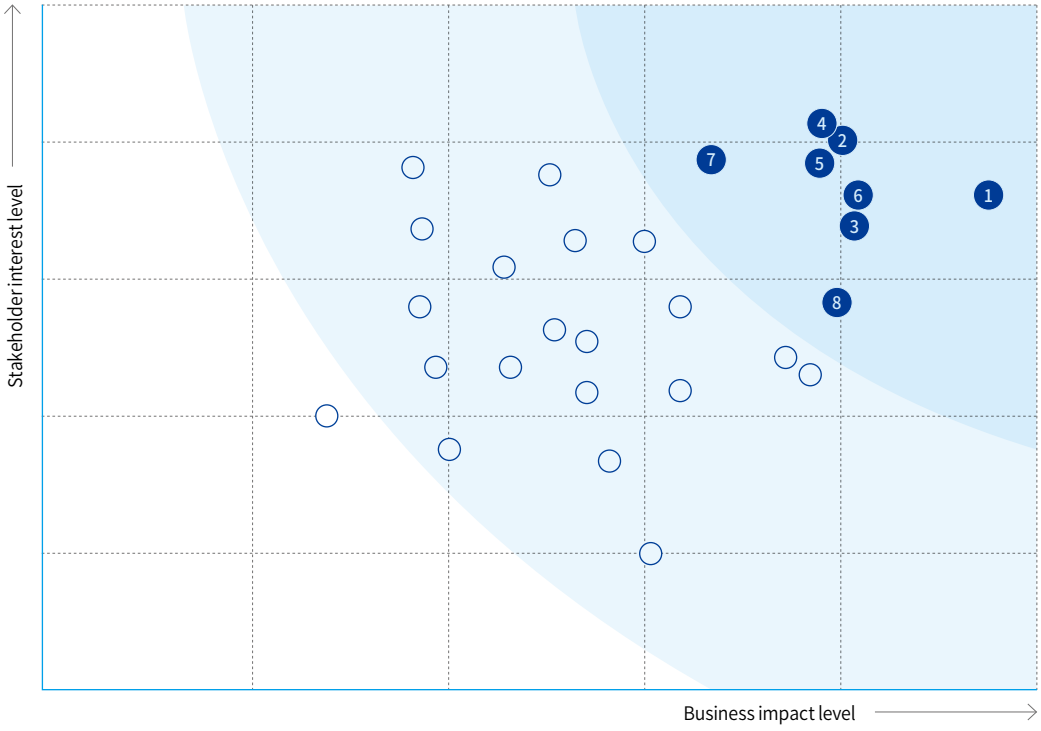
4-steps of the materiality assessment process



Core issue results

A materiality matrix was created for all 28 sustainability management issues. The report was compiled based on the eight major issues selected as material issues, and efforts were made to include all relevant content. Material issues were identified in the order of workplace safety and health, R&D, and product safety and quality.

Materiality Assessment Matrix



Identification of core issues

Core issue	Reported subject	Page
1. Workplace Safety and Health	SHE Management	52~55
2. Research & Development (R&D)	Vision 2050 Strategy	24~37
3. Product Safety and Quality	Customer Satisfaction Management	48~51
4. Economic Performance	Company Information	5, 8
5. Resource Reuse and Recycling	SHE Management	56
6. Energy Efficiency and Greenhouse Gas Reduction	SHE Management	56
7. Financial Risk Management	Risk Management	44
8. Human Resource Development	Human Resource Management	59

Corporate Governance

Dansuk Industrial has established and operates a stable corporate governance structure to ensure sustainable growth, and recognizes that the value of sound corporate governance is the foundation upon which trusting relationships with stakeholders can be built.

Board of Directors

Dansuk Industrial's Board of Directors features five executive directors (appointed in accordance with the lawful protocols stipulated in Article 382 of the Commercial Act and Article 5.2 of the Company's articles of incorporation). Regular board meetings are held at the beginning of every month. Temporary board meetings may be held whenever a meeting is deemed necessary. Regular board meetings shall be attended by all inside directors to discuss and collect diverse professional opinions, reduce dependence on the CEO, and secure transparency in the management process with independent and objective decision-making. In 2020, Dansuk Industrial's board of directors convened for a total of 13 board meetings to deliberate and deliberated on 28 agenda items.

Board Member

(As of the end of 2020)

Sort	Name	Career Highlights	Expertise	Expiry Date
Executive Director	Han Seung-Uk	CEO, Dongyoon Industrial Co., Ltd. (1998~2012) CEO, Dansuk Industrial Co., Ltd. (2012~present)	Business management	November 30, 2021
	Yoon Gap-Geun	Executive Director, Dansuk Industrial Co., Ltd. (2018-2021) Vice President, Dansuk Industrial Co., Ltd. (2021~Present)	Business management	March 30, 2024
	Kim Jong-Wan	Executive Director, R&D Center/Production Technology Division, Dansuk Industrial Co., Ltd. (2021~Present)	R&D	March 30, 2024
	Lee Cheol-Seung	Director, Dansuk Industrial Co., Ltd. (2018~2020) Managing Director, Bio Energy Business Division, Dansuk Industrial Co., Ltd. (2020~present)	Sales	March 30, 2024
	Yoo Jae-Dong	Financial Manager, Dansuk Industrial Co., Ltd. (2018~2020) Director, Financial Division, Dansuk Industrial Co., Ltd. (2020~Present)	Financial accounting	March 30, 2024

ESG Sustainability Committee

Recently, the areas of ESG (environmental, social, and governance), which were considered non-financial areas, have become indicators of investment used to determine a company's value and sustainability. Dansuk Industrial plans to establish an ESG Sustainability Committee in 2021 to strengthen its management of ESG affairs, and to ensure the continuous implementation of ESG-related decisions made by the company.

Auditing System

Dansuk Industrial appoints at least one auditor at its general shareholders' meetings pursuant to its articles of incorporation. Auditor candidates to be appointed at the general meeting of shareholders are recommended by the board of directors. Alternatively, if the shareholders propose a candidate in accordance with relevant laws, the board of directors shall forward said proposal as an agenda item to be discussed at the general shareholders' meeting, provided that the proposal is within the appropriate legal scope of the company. Currently, one environmental expert has been appointed as an auditor.

Board Performance Evaluation and Remuneration

The board of directors shall regularly review whether the roles and responsibilities, as required by laws and regulations and bylaws, have been properly performed by each director. Regular reviews of directors support the board of directors as an important decision-making body of the company. Remuneration for directors shall be paid upon approval by the board of directors within the remuneration limit authorized at the general shareholders' meeting based on comprehensive evaluations of the nature of work and performance of each director in compliance with the Company's regulations.

Risk Management

The ultimate liability of the oversight against risk at Dansuk Industrial shall fall on the board of directors. The board of directors shall establish a risk management system to manage risks systematically, and maintain the company's business operations in a stable manner. Moreover, the board of directors shall be responsible for setting the risk propensity for Dansuk Industrial, and for approving risk management policies.

Risk Management Process

The risk management process is divided into steps 1 to 3, and the step-by-step process is divided as follows.

Step 1 — Autonomous Compliance

The first stage risk process is autonomous and exemplary self-risk management by members of the business (sales, business) departments. This is the stage in which risk management is carried out as an organizational culture through self-compliance, the spread of self-compliance culture, and value sharing based on the high ownership of Dansuk Industrial members. Individuals set goals, manage day-to-day performance, and reinforce risk response to achieve set goals, and enable timely reporting of risks that have a significant impact on business activities.

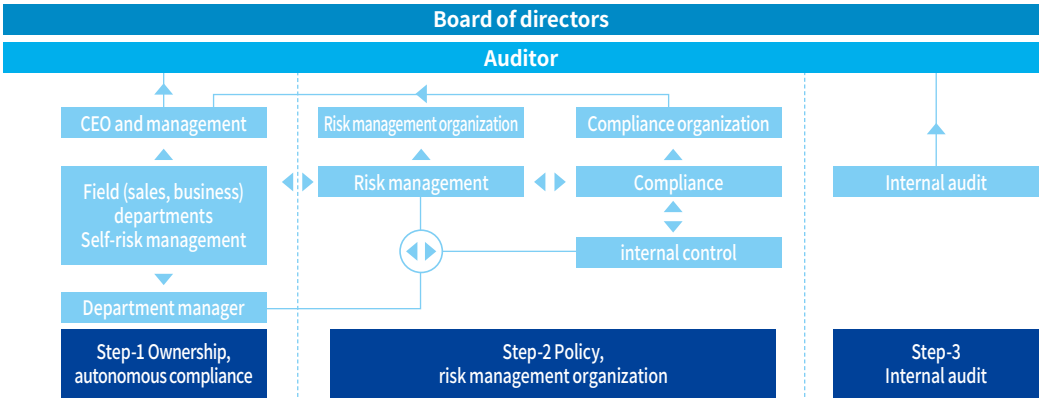
Step 2 — Risk Management Organization

The two-step risk process is to provide guidance, support, facilitation, and advice for risk management. Step 2 has a different professional role than Step 1 when it comes to performance management and risk-informed decisions. The company has a professional team responsible for corporate risk management and compliance and internal control, and it has a separate compliance monitoring organization to strengthen management's oversight of compliance and ethics-related issues within the company. The risk management and compliance monitoring organization has the overall responsibility for ensuring that performance is consistently performed across all risk classes at Dansuk Industrial.

Step 3 — Internal Audit

The three-step risk process is an internal audit by an independent team. Each audit scope evaluates the effectiveness and efficenct of the enterprise-level risk governance model and associated risk management processes, including the effectiveness of internal controls and other risk handling measures. An internal audit also provides recommendations for areas for improvement.

Risk Management System



Tax Governance and Risk

Dansuk Industrial is proactively identifying and managing tax-related risks by continuously monitoring changes in tax-related regulations and tax policies. Risk management identifies, evaluates, and offsets financial risks in accordance with policies approved by the board of directors. The board of directors provides policies for overall risk management as well as policies such as foreign exchange risk, interest rate risk, and credit risk. In principle, offshore tax evasion using tax havens and tax evasion using international transactions are prohibited.

Ethical Management

Ethical Management System

Dansuk Industrial plans to promote 2021 as the first year of the declaration of ethical management. By distributing guidelines and checklists for anti-corruption and ethical management, and providing education and explanations for compliance with domestic and international laws for compliance management, the company plans to make self-inspection a daily routine. In addition, Dansuk Industrial hopes to establish an internal control system to conduct regular online and offline monitoring. Accordingly, an organization dedicated to ethical management will be formed and operated as an organization directly under the CEO to ensure independence and strengthen execution capabilities. Furthermore, in order to empathize with the importance and necessity of ethical management, executives and employees, and business partners will voluntarily participate in the pledge of ethical practice.

Ethical Management Education

To establish ethical management to foster a healthy corporate culture, Dansuk Industrial provides education on the prevention of sexual harassment, improvement of awareness of the disabled, and prevention of harassment in the workplace every year. In the future, the company plans to conduct training by selecting necessary areas within the company, such as the necessity to practice ethical management, points to be taken into account when working with business partners, and reporting procedures.

Ethical Management Violations and Actions

In 2020, there were no violations of ethical management e.g. giving or receiving money or entertainment, undue pressure, or leaking of information. All executives and employees of Dansuk Industrial must abide by the Code of Ethics, regardless of their rank, and in case of violation, disciplinary action is taken accordingly. Dansuk Industrial aims to become a trusted company by realizing its social mission. In this regard, problems in areas vulnerable to corruption, such as electronic payment systems and contract management, have been diagnosed, and improvement measures have been taken. Furthermore, this year, the company plans to create a new Cyber Reporting Center to receive and process related reports at all times throughout the year.

Fair Trade

In October 2019, Dansuk Industrial was investigated by the Korea Fair Trade Commission for a report filed by Daeyeong Bio Co., Ltd., a client of Dansuk Industrial, on unfair trade practices. However, the two companies reached an amicable agreement. Education on the Fair Trade Act and Subcontracting Act is provided to key members of transaction-related departments. The subject of future training will be expanded not only to purchasing departments but also to all employees, thereby systematically establishing a culture of fair-trade compliance.

People and Society

In order to fulfill corporate social responsibility, forming relationships and coexistence with stakeholders is of utmost importance. Dansuk Industrial will bring change and innovation for co-prosperity with various stakeholders and secure differentiated competitiveness.

Customer Satisfaction Management

Dansuk Industrial always puts customer satisfaction first and strives to secure competitiveness in product and service quality. The company obtained ISO 9001 (Quality Management System) certification, and it aspires to become a company that achieves customer satisfaction by strengthening communication with customers. Dansuk Industrial creates infinite value together with its customers by realizing zero-defect products for continuous growth.

Our View

Providing unrivaled value to customers based on its own technology and experience is one of Dansuk's top priorities. By operating a continuous improvement process and actively adopting international standards, the company strives to win the trust and respect of its customers.

Key Performance

- Regular monitoring of customer satisfaction
- 2020 Customer Satisfaction Survey Results
  - Bio Energy business: 95.0 points
  - Fine Chemical business: 94.4 points
- Customized product development and improvement process

Plan

- Zero customer complaints
- Continuous quality improvement

Quality Management Policy

Dansuk Industrial always puts customer satisfaction first and strives to secure competitiveness in product and service quality. Dansuk Industrial creates infinite value together with its customers by realizing zero-defect products for continuous growth.

Quality Management System

All workplaces of Dansuk Industrial have acquired ISO 9001 (quality management system), ISO 45001 (safety and health management system), and ISO 14001 (environmental management system). As Korea's largest biodiesel exporter, Dansuk Industrial maintains the highest quality that meets the latest standards of EN14214 (European quality standard for biodiesel) in Europe and ASTM D6751 (US quality standard for biodiesel) in the United States. The company promises to provide customers with the highest quality products through accumulated technology and continuous product quality improvement activities.

Quality Management Mission

Growing together with customers.
Dansuk Industrial is engaged in strong partnerships to maintain the motto of infinite growth not only for the company itself but also for its customers.

Vision

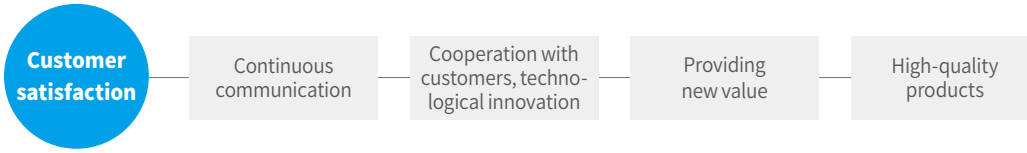
DS Quality Only One!
Driven by its brand value system, Dansuk Industrial always delivers the best products and services.

Strategy

ISO International Certification	International Standardization	Technological Advantage

Communication with Customers

Dansuk Industrial is carrying out various activities to ensure customer satisfaction. First, through regular customer satisfaction surveys, the company tries to identify complaints and inconveniences and resolve them. In addition, through regular communication with customers, the company understands customer needs, proposes and provides new values according to the current state of the industry, and supports the development of customers in related industries. In addition, in order to provide better value to its customers' products, Dansuk Industrial strives to improve and develop products through technological innovation. It is also striving to increase the value of its customers' products by providing better products, services, and solutions.



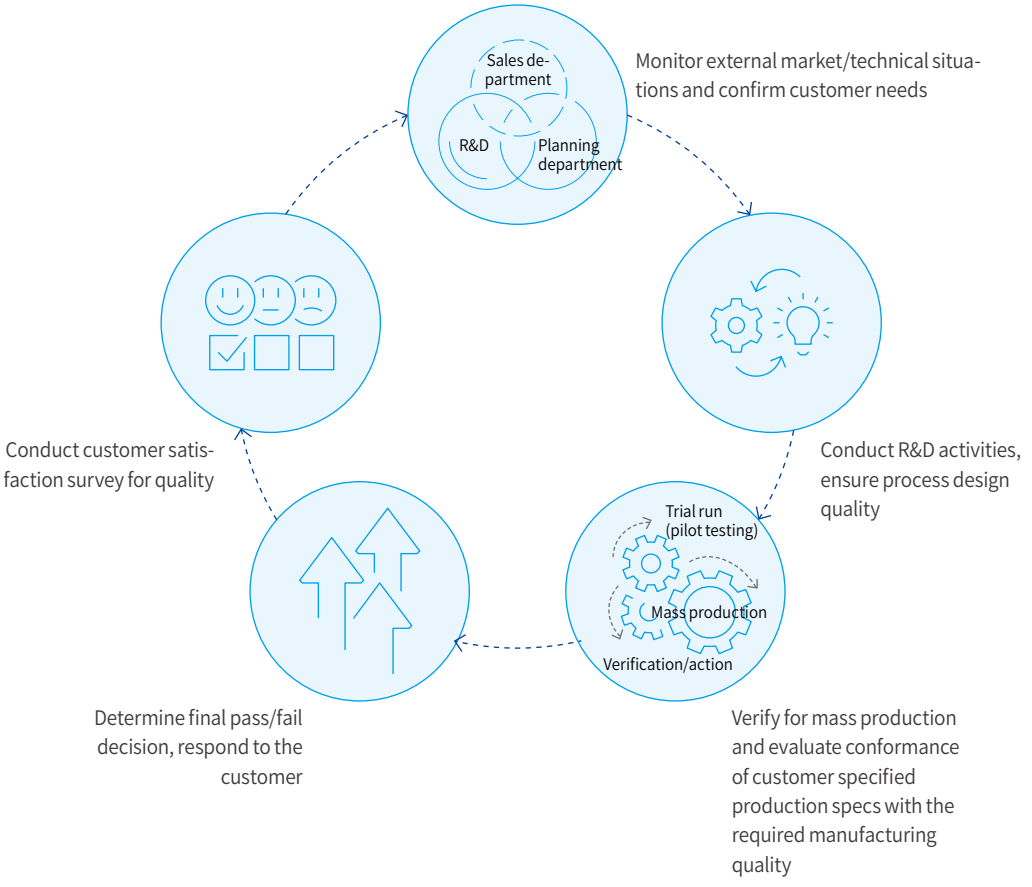
Customized Product Development and Improvement Process

If a customer files a complaint, the sales department, quality assurance team, and R&D department of the product shall work together to quickly check the details of the complaint, and provide a solution. Upon identifying the cause of the complaint, detailed targets shall be established to make sure the problem is fixed or improved.

Customer handling process

Receive complaint	Receive complaint/ feedback	Response measure	Customer information and feedback
• Review complaint at the customer response team • Immediate response	• Review complaint at the quality assurance team • Identify the cause	• Apply solution • Prevent recurrence	• Notify the customer and apply response measure • Initiate the compensation process

Furthermore, the company increases customer satisfaction by producing and selling customized products. Dansuk Industrial identifies and analyzes customer needs, and manages the quality of products throughout the entire process, from R&D to customer feedback and after-sales support.



Customer Satisfaction Survey

Dansuk Industrial actively collects feedback to listen to customers' voices in response to rapidly changing market conditions and changes in raw materials. The company also conducts annual customer satisfaction surveys to identify customer opinions and needs. The survey evaluates four areas: delivery date (25 points), quality level (25 points), emergency response (25 points), and customer complaint response (25 points). Dansuk Industrial strives to improve customer satisfaction by constantly managing customer satisfaction levels.

Customer Satisfaction Survey

(Unit: Score, Criteria: out of 100)

Sort	2018	2019	2020
Bio energy business	94.3	94.3	95.0
Fine chemicals business	95.3	95.6	94.4

* Selection criteria for the survey – 7 companies in the bioenergy industry, 15 companies in the fine chemical industry

For delivery matters, which is most important to customers, Dansuk Industrial is making every effort to ensure on-time delivery at the right place requested by its customers by confirmation via phone calls one to two times a week and face-to-face meetings once a month. In particular, in the case of the bioenergy industry, Dansuk Industrial promptly responds to urgent requests regarding special circumstances or emergencies at refineries and power plants. In 2020, the company improved its emergency response score from 22.8 points to 24.4 points thanks to proactive responses to urgent delivery requests from customers.

Information Protection Activities

Dansuk Industrial complies with personal information protection regulations when processing personal information of third parties, such as customers, partners, and employees, in accordance with its internal information security regulations. To raise security awareness, the company distributes key security rules and information on relevant issues in various ways, including security education and public awareness campaigns. Furthermore, Dansuk Industrial reduces the risk of information leakage by identifying vulnerabilities with annual security audits.

In 2021, the company plans to further improve its protection of personal information by diagnosing the management of personal information and by revising activities conducted at departments and systems handling company-wide personal information.

SHE Management (Safety, Health, Environment)

Our focus SDGs

Our View

Safety is an essential element of the values Dansuk Industrial pursues. The company strives to establish a safe and healthy culture to help manage various risk factors and prevent accidents. Moreover, it looks to minimize the environmental impact of its products throughout their entire life cycle, from production to disposal.

Key Performance

- ZERO serious industrial accidents over the past four years
- Containment of environmental impacts on local communities

Plan

- Promote ZERO major industrial accidents at all plants
- Strengthen the handling and management of hazardous chemicals by establishing a program to share chemical information
- Reduce the emission of pollutants with continuous facility investment and operational upgrades of prevention facilities

SHE Management System

Dansuk Industrial is investing its time and resources in the SHE (Safety, Health and Environment) field to comply with safety and environment related laws, and to create a safe and pleasant working environment for its employees. The company carries out monitoring and improvement activities using its safety and health management system (ISO 45001) and the environmental management system (ISO 14001), and it will continue to minimize the risk of serious accidents by strengthening its process safety management (PSM). At the organizational level, Dansuk Industrial operates a separate team in charge of environment safety under its Sustainability department, led by the chief safety and health officer. The chief safety and health officer oversees work related to safety and health in Dansuk Industrial's plants and processes, and encourages more organized and quicker responses in case an accident occurs.

Safety

Safety management

As raw materials and products are vulnerable to fire and explosion accidents due to the nature of the industry, Dansuk Industrial focuses on eliminating risks and securing stability through risk assessment from the process design stage. In addition, once the operation of the process begins, multiple risk assessments are conducted every year to create a working environment to ensure the highest level of safety. But the most important thing is creating an organizational culture of safety. From the CEO to the on-site staff, Dansuk Industrial has a unified goal and has put the highest priority on implementing the set procedures. The company conducts daily safety and health on-site patrols and carries out monthly on-site autonomous safety meetings. It also convenes quarterly occupational safety and health meetings. In addition, the most practical and standardized process was established as the on-site operator directly conducted the work standard and risk assessment.

The safety and health team focuses on managing process safety and worker safety and health as a unified process, and carries out various educational activities, individual health services for workers, and safety and health reward activities. As of the end of 2020, there have been no major industrial accidents for four consecutive years.

Safety environment education

Dansuk Industrial offers training for supervisors and workers to foster safety awareness and establish a safety culture, and it conducts safety accident prevention campaigns.

As repeated training every time cannot be approached in depth from the perspective of workers, it is possible to diversify training programs such as external training, dissemination of on-site safety inspection results, emergency evacuation drills for emergency situations, and fire/explosion preparedness training to increase worker engagement in safety education. Dansuk Industrial minimizes management risks and risk factors in the field of safety and health by exchanging work between safety and health managers at each site.

Safety training statistics (unit: persons)

Sort	2018	2019	2020
Regular education	410	405	397
Supervisor training	24	31	41
Special safety and health education	188	164	121


Pyeongtaek plant safety training

Main contents included in annual safety training programs

Sort	Regular education	Process Safety Management (PSM) training
1Q	Forklift driver safety training	• Introduction to process safety • Process safety data
	Natural disaster action guidelines	
	Types of protective equipment and how to use them	
2Q	Prevention of musculoskeletal disorders	• Process risk assessment • Accident prevention and minimization
	Material Safety Data Sheet (MSDS)	
	Summer disasters and first aid training	
3Q	Prevention of suffocation, health management in summer	• Safe driving plans • Self-audit and improvement measures
	Risk assessment, autumn health management	
	Fire safety, emergency response measures	
4Q	Risk factors and harmful factors	• Emergency action plans • Accident scenarios • Emergency operation stop and emergency evacuation training
	Occupational Safety and Health Act	
	Winter health management	

Safety Improvement Activities

Dansuk Industrial holds Tool Box Meetings (TBMs) at its production sites every day at the start of work and during shifts. TBM is a safety improvement activity in which on-site workers directly participate and conduct inspections. In addition to preventing safety accidents, TBM is conducting continuous improvement activities to check health aspects after the outbreak of COVID-19. Overall, Dansuk Industrial is doing its best to prevent safety accidents.

List of major activities of TBM

Sort	Management and inspection items
Workspace safety improvement activities	Process stability evaluation, environmental facility operation management evaluation, work environment safety evaluation, 5S evaluation, utility (steam, air, industrial water, electricity) evaluation, construction status risk prediction
Worker safety improvement activities	Wearing work clothes/safety helmet/safety shoes
Health activities after COVID-19	Wearing masks/checking body temperature

Dansuk Industrial stores, handles, and manufactures a large amount of hazardous materials due to the nature of its business. It conducts regular facility inspections to prepare for leaks, fires, and explosions. The company analyzes various accident scenarios and establishes emergency response plans. It also prepares countermeasures to prevent the spread of accidents by providing information on business sites at least once a year. For processes with a high risk of serious industrial accidents, an audit team is formed to conduct annual self-audits. In doing so, Dansuk Industrial improves the identification of risk factors, document management, site management, and employee awareness. In 2020, the Sihwa plant added a gas detector and installed an automatic cardiac defibrillator (AED), and the Pyeongtaek plant expanded safety infrastructure by installing LNG and methanol detectors.

Health

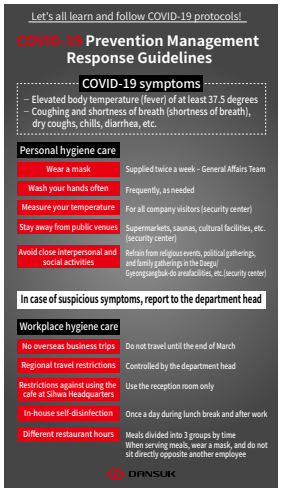
Promoting Employee Health

Dansuk Industrial operates various health and welfare programs to ensure a healthy work environment for its employees. The company supports not only occupational health, but also first aid, health education, and health counseling for various diseases and symptoms. Dansuk Industrial is improving the quality of occupational health management by referring to the risk assessment of cerebral and cardiovascular disease, job stress assessment, work environment measurement, and the results of investigations on harmful factors of musculoskeletal burden work. In addition, the company checks the health status of its employees by conducting general health check-ups, special health check-ups, pre-deployment health check-ups, frequent health check-ups, and follow-up tests. Moreover, in 2019, industrial nurses from emergency rooms and inpatient wards were hired as health managers to operate programs to improve employee health in more depth. Dansuk Industrial takes special care of each employee in consideration of the different working conditions at each site.

COVID-19 Countermeasures

The COVID-19 pandemic is threatening the health of Dansuk Industrial's employees, and it is also posing a great risk to business activities. In order to minimize the impact on business activities due to the occurrence of confirmed cases of COVID-19, Dansuk Industrial is regularly distributing company-wide guidelines to ensure that all business sites comply with the COVID-19 quarantine rules. It is also establishing and operating preventive measures at a company-wide level.

In addition, Dansuk Industrial is creating an environment where hand hygiene is possible and by making it compulsory for all visitors to wear a mask and measuring their body temperature. The company provides hand sanitizers in all spaces where face-to-face activities are conducted. Moreover, in restaurants and public places, Dansuk Industrial minimizes the scope of epidemiological investigations by dispersing usage time as much as possible, and video conferencing and non-face-to-face activities are encouraged via the new video conferencing room. Also, Dansuk Industrial is doing its best to ensure that its workplaces are safe from COVID-19 with daily quarantine activities by department as well as regular disinfection of the entire workplace every week.



Basic countermeasures

1) Company-wide sharing (notice on bulletin board) and guidelines when every government measure is announced: Notices on weekend outdoor activities, refraining from traveling to densely populated areas, etc.
2) Daily (including weekends) quarantine activities at each business site

Untact business/digitization

1) Implementation of a staggered commute system for all employees (morning/afternoon), restrictions on the use of common facilities such as restaurants/cafes/gyms, and social distancing between employees
2) Mandatory and automated body temperature measurement for employees and outsiders: Installation of robots, thermal imaging cameras, etc.
3) Aiming for a non-face-to-face meeting culture by establishing a video conferencing system for all business sites (on-tact opening ceremony, etc.)

Health and welfare support

1) Distribution of masks to all employees (3 to 5 per week)
2) Periodic supply of propolis to improve immune function of all employees

Emergency Response

Dansuk Industrial regularly conducts emergency response drills. Every year, the company trains its employees using its own scenario, and periodically cooperates with relevant organizations such as fire stations and city halls having jurisdiction over each business site to conduct disaster response training for fires and explosions, and response training for the leakage of dangerous substances and hazardous chemicals. After each training drill, improvements are made through the results report. By doing so, the company is doing its best to prevent secondary and tertiary additional damage by responding relatively quickly in case of emergency without panicking.

Environment

Greenhouse Gas and Energy Management

Dansuk Industrial complies with the Framework Act on Low Carbon Green Growth, and is implementing a greenhouse gas emission trading system that monitors greenhouse gas emissions in the entire production process of the Sihwa and Gunsan 1 plants by 2020. From 2021 onwards, the scope of greenhouse gas management will be expanded to all business sites. Each business site will register and manage its monthly energy use and greenhouse gas emissions in the energy management system. Dansuk Industrial is striving to reduce greenhouse gas emissions and manage environmental pollution at work sites along with eco-friendly projects to respond to climate change and promote a circular economy. The main energy-saving projects at Dansuk Industrial include reducing electricity and gas consumption by replacing and installing high-efficiency inverter-controlled air compressors and boilers, and recycling and saving steam energy through the establishment of a TVR (Thermal Vapor Recompressor) process and improvement of steam traps. Moreover, the company has strengthened utility monitoring through the establishment of a Factory Energy Management System (FEMS) to minimize unreasonable energy use. In order to use eco-friendly energy, the Sihwa plant installed its own solar power generation facility to generate and use electricity in the office building. Also, all factory buildings now have LED lights to reduce power consumption.

Environmental Pollutant Emission Management

Dansuk Industrial reduces the amount of air pollutants, water pollutants, and wastes, and complies with legal standards. It inspects air and odor prevention facilities with daily patrols. These facilities are checked and managed within legal standards. The company is upgrading its air and odor prevention facilities by applying the latest technology, and installing automatic odor sampling devices to monitor and manage them in real-time.

In the case of Gunsan Factory #1, to reduce air pollutants, the company carries out self-measurements frequently. Each site is managed within 70% of the legal limit. In the wastewater part of the biodiesel process, all wastewater recycling processes that recycle wastewater in the process are applied at each business site. The volume of wastewater generated is reduced to less than 50% of the wastewater generated by the process design. Moreover, as the amount of biodiesel wastewater generated has decreased, the company is further maximizing the efficiency and effectiveness of wastewater treatment by treating wastewater in a joint treatment method from the existing in-house wastewater treatment plant. In the case of Gunsan Factory #1 and #2, both of which are operating wastewater treatment plants, wastewater treatment plant facilities were upgraded from 2019 to 2020. The standard concentration of treated water is operated as low as 50% of the legal standard. Also, in order to lower the concentration of pollutants in wastewater, various process improvement activities are carried out at each business site for the wastewater generation process.

Waste Management

Dansuk Industrial manages all waste treatment processes of its business sites through an online system. It also sets an annual waste emission target to continuously carry out investment and TF activities to reduce the amount of waste generated. For instance, the company strives to continuously recycle waste generated at its business sites, and at the same time, raise the ‘recycling utilization rate’ of resource circulation performance management by 5% from the designated target every year.

In doing so, the company is expanding not only its scope of waste reduction, but also waste treatment processes as a management target. Furthermore, the company is working hard to reduce the amount of waste by operating a waste resource recovery system to recycle the generated waste. Dansuk Industrial is taking the lead in turning waste into resources and creating a virtuous cycle by recycling resources to make products using waste (waste cooking oil, waste batteries) as raw materials at its Sihwa, Pyeongtaek, and Gunsan plants.

Chemical Management

Dansuk Industrial identifies and manages all chemical substances in products from the purchase of raw materials. In particular, the company has re-established the relevant system to manage the entire process of hazardous chemicals. It is also actively responding to chemical-related laws and regulations by continuously improving facilities handling hazardous chemicals. Safety doors were installed around hazardous chemical injection facilities to ensure the safety of handlers in case of emergency. Chemical leak detectors were additionally installed above the legal standard to establish an emergency response system for chemical accidents. Dansuk Industrial is doing its best to ensure safe chemical handling by training experts in management and handling. Moreover, the company has established a system that can respond immediately in case of emergency by providing training on hazardous chemicals to all employees of the business site, including business partners. Moving forward, in order to increase work efficiency through systematic management of chemical information, Dansuk Industrial plans to operate a chemical management system to conduct overall management of chemical substance safety data sheets, human hazards, and licenses.

Environmental Improvement Initiatives

In order to achieve the “Corporate Environment Only 1” vision from Dansuk Industrial’s 2025 future vision, various internal and external activities are being carried out to make Dansuk Industrial an eco-friendly company. The company invests over KRW 100 million each year in facilities for environmental improvement. Also, recognizing the importance of the environment, it is developing a business site management system by increasing the number of environmental safety management personnel by 20% in 2020 compared to 2018. Dansuk Industrial is actively participating in environmental improvement activities of local governments as well as its places of business. It regularly participates in public green facility purification activities together with related organizations. Moreover, by joining various cooperatives and consultative bodies, Dansuk Industrial is able to preemptively respond to rapidly changing environmental issues. The company is also planning to establish a SHE management system for shared growth of SHE with subsidiaries. Thus, Dansuk Industrial is pursuing sustainable development through efforts to secure trust from society.

Human Resource Management

Talent Management

Our focus SDGs

Our View

Dansuk Industrial recognizes its employees as a valuable asset of the company. It strives to foster human resources and create a horizontal and flexible organizational culture. In the future, Dansuk Industrial will further develop a reward system for performance, and strengthen the capacity building of each employee to secure a competitive edge.

Key Performance

- Re-building of the 3 school education system
- Meeting the mandatory employment rate for persons with disabilities

Plan

- Operation of training programs by job and position
- Establishment of online personnel evaluation system
- Digitalization & AI

Recruitment of Talent

Dansuk Industrial is selecting personnel through a transparent and fair recruitment process to fulfill its social responsibilities through continuous employment and to secure suitable talents. In 2020, a total of 125 new and experienced employees were hired, of which 82 were in production positions, and 43 were in office positions.

Talent

Dansuk Industrial's human resources are those who use the core values of innovation, challenge, passion, and empathy as the principles and standards of all business activities.

Innovation	Challenge	Passion	Sympathy
Value innovation for the future	**Challenge to become a global company**	**Responsible Passion**	**Empathy that grows together**
Seeking new things, being proactive in change and inspiring others	Pursuing the best performance with an active challenging spirit that is not afraid of failure	To create better value by taking responsibility for work and executing it with enthusiasm	Aiming for a common goal by caring and listening based on mutual trust

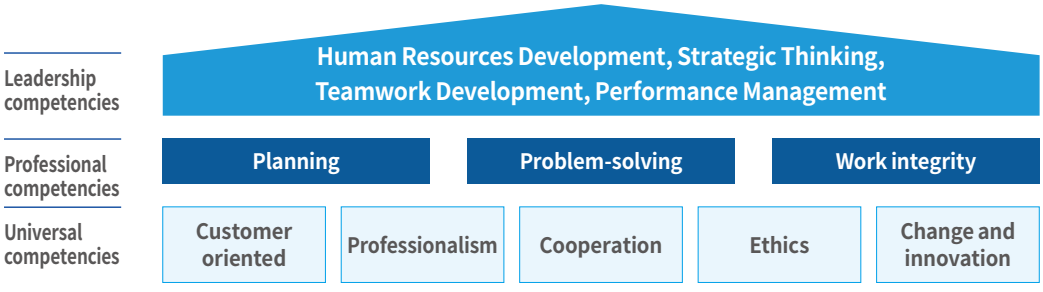
Talent Training

New employee and job training

OJT and product training are conducted every year for new and experienced employees to improve the job adaptability of new employees and to share the talents of Dansuk Industrial. Although there were cases where it was not conducted last year due to the pandemic, the company is working hard to nurture experts by job group by using job-related online training programs and by supporting offline training if necessary. In addition, compulsory education such as occupational safety and health education, sexual harassment prevention education, disability awareness improvement education, and personal information protection education is implemented in accordance with relevant laws and regulations.

Dansuk Industrial supports the graduate school training system in accordance with internal standards and procedures when employees with certain qualifications wish to enter graduate school. This motivates employees for self-development, and the company flexibly responds to the demand for high-quality manpower, centered on strategic occupations. From 2018 to 2020, the company supported graduate school training for four employees. In the future, for more systematic training programs and operation, the company established a three schools (improvement of organizational culture, leadership training, and job competency improvement) training system, and it plans to build and implement its own training system through professional consulting.

3 Schools Training System



Protection of Human Rights and Respect for Diversity

Dansuk Industrial is thoroughly complying with relevant domestic laws and related items ratified by the International Labor Organization to prevent any unreasonable discrimination based on gender, race, religion, or region of origin. So far, there have been no violations related to this, and efforts are being made to supplement and develop related systems to respect human rights. The company gives equal opportunities to all employees and provides an environment where they can show their potential. In addition, a labor-management council is held on a regular basis to improve the working conditions of its employees, and the company strives to create a better working environment. Dansuk Industrial recognizes the diversity of individual religious beliefs by providing an in-house prayer room exclusively for foreign workers, and in the case of foreign dormitory students, it provides full support for housing-related expenses.

Performance Evaluation and Compensation

Dansuk Industrial believes that fair evaluation and compensation is the foundation of the company's continuous development, and is striving to improve the overall system of personnel evaluation and compensation system. Accordingly, the company operates a fair evaluation and compensation system centered on ability and performance without discrimination against foreigners. Personnel evaluation is divided into performance evaluation and competency evaluation, and an online evaluation method will be introduced in the future. Performance evaluation introduces individual performance indicators (KPIs) to continuously communicate between the evaluator and the evaluatee for performance creation. In addition, by defining differentiated job competencies by job type through competency evaluation, Dansuk Industrial is inducing practical behavioral changes by linking organizational and individual performance. These evaluation results are used for performance pay, salary adjustment, promotion, and career development. In the case of production workers, monthly evaluation of the excellent group is conducted to select 1 group, and the company provides support for dinner expenses to boost morale. In addition, Dansuk Industrial has a voluntary management system for the factory environment by conducting environmental and safety performance evaluations, and pay incentives to employees with excellent evaluation results. In addition to the existing annual salary, the company is institutionalizing the system so that fair performance evaluation and compensation can be achieved through the payment of performance rewards, value innovation awards, and production site rewards every year according to performance.

Women-friendly Company

Dansuk Industrial was awarded the certificate of a "women-friendly company" thanks to its efforts to secure a good working environment for female workers. The company will continue to pursue a culture of gender equality and spread the right corporate culture by creating an environment for work-family balance.

Creating a Good Work Environment

Dansuk Industrial provides various in-house welfare programs for employees to enjoy their work life, secure leisure time, and manage their health, and communicates through the labor-management council.

In-house cafe

In order to eliminate prejudices against people with disabilities and to create a world where the disabled and non-disabled coexist, the company is hiring disabled people for all employees of its in-house cafes. In addition, a pleasant space is provided for employees and visitors by operating an in-house cafe, and a certain coupon is provided every month to provide free beverages.

Other welfare programs

For the health of its employees, Dansuk Industrial has the latest fitness equipment in-house, giving priority to the health of its employees. It also has a spacious shower room that can be used when commuting to and from work. In addition, Dansuk Industrial contributes to improving the quality of life by purchasing memberships at one of the country's leading resorts and providing them to its employees. Institutionally, a portion of the company's profits is donated to the in-house labor welfare fund, which is used for various welfare benefits such as loans for housing and living stability funds, scholarships for children, payments for congratulations and condolences, and accident support.

Work environment upgrades

Dansuk Industrial is making efforts to create a pleasant work environment through periodic improvement of the office environment.

Office environment improvement cost

year	2018	2019	2020	2021 (June)
Amount (KRW)	1,411,330,000	119,700,000	140,701,000	154,990,000

Digitalization & AI

Tableau

In order to strengthen employees' work competency and secure quick decision-making, Tableau has been introduced and operated by each department. Tableau is a data analysis platform that visualizes various types of data so that users can analyze it easily and conveniently. You do not need to learn complicated program usage or arithmetic words, but intuitively collect and integrate data through mouse clicks, drag and drop, etc. to increase work efficiency.

Robotic Process Automation (RPA)

RPA is a technology that automates repetitive, rule-based tasks performed by humans through software. This reduces the time for simple tasks, allowing you to focus on high-value and professional tasks, contributing to job satisfaction. Currently, the company is developing 12 introduction lists, and it plans to automate simple and repetitive tasks in all departments in the future.

Introduction of AI robots

Recognizing the importance of AI as a key tool for realizing a hyper-connected and super-intelligent society in the era of the 4th industrial revolution, Dansuk Industrial is making steady investments to understand and respond to social trends. First, it will purchase an AI robot and measure it in a quick and efficient way through a non-face-to-face temperature measurement management solution, and it will use it to promote safety and production efficiency in all directions in the future.

win-win management
Co-prosperity with Stakeholders

Our focus SDGs

Our View

Dansuk Industrial is laying the foundation for win-win cooperation with business partners in order to fulfill its corporate social responsibility. The company is improving quality and safety issues through regular meetings with suppliers. In addition, for the healthy development of the local community, the company donates money to local welfare-related organizations to practice sharing for the underprivileged every year.

Key Performance

- Supplier safety evaluation and support
- Donation of KRW 1.3 billion to the Dansuk Scholarship Association (2011-2020)

Plan

- Reinforcing the supplier risk management system
- Volunteer work (technical field) by department

Partner Companies

Win-win Cooperation System

Dansuk Industrial recognizes its partners as essential in growing together. As such, it strives to improve the ethical management and competitiveness of its suppliers.

Dansuk Industrial looks to strengthen the quality capabilities of its suppliers by raising awareness of suppliers' quality improvement for win-win cooperation and through quality improvement activities. Moreover, the company strategically evaluates its suppliers and provides monitoring and feedback for quality risk management.

In particular, this year, Dansuk Industrial plans to secure mutual competitiveness with its partners by signing subcontracting fair trade agreements with suppliers, comply with laws and improve payment conditions for mutual growth, etc.

Support to Improve Quality and Safety Environment

In case of problems such as dissatisfaction with product quality of suppliers who supply raw materials and other services to Dansuk Industrial, the company supports improvements through technical support and visit inspection. In doing so, Dansuk Industrial strives to build and strengthen a sustainable supply chain.

To prevent accidents on transport vehicles at partner companies and this business site, prevent pollution of the factory environment, and secure vehicle work safety, a vehicle safety management supervisor is assigned to each plant to supervise vehicle loading/unloading work procedures and vehicle safety management. Moreover, in order to prevent safety accidents and prevent additional damage through rapid response to accidents, Dansuk Industrial conducted semi-annual training on the importance of safety management for cargo handling, vehicle loading/unloading, and response procedures in case of accidents. Thanks to the safety management supervisors and vehicle safety training, the number of safety accidents has decreased to one in 2021 compared to six in 2019 and five in 2020.

Communication with Partner Companies

Dansuk Industrial hosts regular meetings every year to share problems and resolve them through communication with its partners. The company communicates and cooperates on COVID-19 issues, safety management, quality, and compliance with laws. It also plans to receive suggestions and complaints on a regular basis through an online reporting system on its website.

Supplier Selection and Evaluation

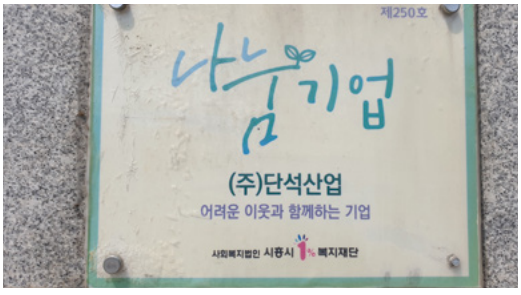
Suppliers establish a quality standard contract signing system to establish transparent and fair trade relationships. In addition, suppliers are selected through a fair and transparent process. This evaluation is based on the delivery date, quality, price, etc. Dansuk Industrial will build an evaluation system that considers sustainability aspects (ethics, environment) in the future to reduce risks through the supply chain and establish a sustainable management culture.

Local Community

Corporate Social Responsibility Activity System

Dansuk Industrial conducts various social contribution activities to fulfill its responsibilities of actively returning corporate profits to society and contributing to society through value creation under its founding philosophy of, “A company must continue to thrive and develop as it contributes to human society.” As a corporate citizen, Dansuk Industrial actively participates in solving social problems, fulfills its social responsibilities, and realizes the value of community development to create a harmonious environment. The company continues to provide scholarships to students in need, as well as donations to help those in need, and supports activities to develop talented individuals at universities.

Donation to Ewha Woman’s University Global Women’s Education Hub Fund



Selected as a “Sharing Company”

Dansuk Scholarship Foundation

The Dansuk Scholarship Foundation was established in September 2000. By providing scholarships to students who continue their studies in difficult circumstances, the Foundation contributes to the development of its society as well as the promotion of social welfare. In particular, in terms of nurturing talent, the Foundation is trying to contribute to improving the perception of Korea in the region by broadening the scope of support to not only domestic students, but also overseas Koreans and overseas students (Chinese students).

The Dansuk Scholarship Foundation offered scholarships to 13 students in 2001. Ever since, it has been offering scholarships twice a year. In 2020, due to COVID-19, “untact” scholarships were offered - 32 scholarship students were selected and awarded a total of KRW 57 million in scholarships.

Dansuk Scholarship Foundation Scholarships

Term	Beneficiary	Scholarship Amount
2001~2020	745 persons	KRW 1,308,438,585

Early Dansuk Scholarship Foundation

Recent photo of Scholarship Foundation activities

Community Donations

Dansuk Industrial contributes to the development of the local community, and it fulfills its corporate social responsibility to help the underprivileged, such as the financially needy and the disabled. It donates to UNICEF, the Crime Prevention Committee, and helps multicultural families, and welfare foundations to create a win-win environment.

Hope 2021 Sharing Campaign

Donations (2001 ~ 2020)

Sort	Donation and Beneficiaries	Amount (KRW)
Local Community	Siheung City 1% Welfare Foundation / Community Chest of Korea (Jeollabuk-do)	363,100,000
Schools	Donations to Ewha Woman's University, Hanyang University, etc.	121,000,000
Associations and Societies	UNICEF / Nature Conservation Federation / Korea Institute of Technology Innovation, etc.	94,140,000
Underprivileged Households	Ministry of Justice Legal Crime Prevention Committee / Support for the Disabled, etc.	56,517,800
Dansuk Scholarship Foundation, etc.	Donation to the Dansuk Scholarship Foundation / In-house labor welfare fund	970,000,000
Total		1,604,757,800

As part of community support activities in response to the spread of COVID-19 in 2020, Dansuk Industrial is conducting customized donation activities that are essential in the local community (e.g. donating 20,000 KF-94 masks (worth KRW 20 million) to the underprivileged in Gunsan-si through the Jeollabuk-do Community Chest of Korea).

Expansion of Social Contribution Activities

Dansuk Industrial is strengthening its corporate culture of sharing and coexistence through the operation of the existing scholarship society and expansion of donation activities. It is also reinforcing its bond and cooperation with local communities with volunteer activities and donations in which all executives and employees participate. Furthermore, the company will promote the creation of shared value by utilizing its technological resources.

Social Contribution Activities Expansion and Promotion Plan

Sort	Details
Expansion of scholarship associations and donations	Provision of academic opportunities and support for social advancement to youth in local communities(overseas children/employees 1:1 sisterhood program, etc.)
	Indirect support through local scholarships or direct support to beneficiaries
Regular volunteer activities	Support for volunteer activities organized by resident self-governing facilities and local groups
Special volunteer activities	Global initiatives at overseas hub nations and communities (establish and dispatch the "DS Global Volunteer Corps")
Technical volunteer activities	Volunteer activities in the technical field by department (facility maintenance, inspection, and repair, support for IT technology and useless goods, etc.)

Appendix

Financial Information

Summarized Consolidated Financial Statement

(Unit: KRW in million)

Sort	End of December 2018	End of December 2019	End of December 2020
Current assets	125,866	155,150	140,789
Non-current assets	215,231	223,447	227,157
Total assets	341,097	378,597	367,946
Current liabilities	176,511	219,393	205,496
Non-current liabilities	46,914	34,798	30,413
Total liabilities	223,425	254,191	235,909
Equity attributable to owners of the parent	113,890	120,469	127,991
Non-controlling interests	3,782	3,937	4,046
Total equity	117,672	124,406	132,037

Summarized Consolidated Comprehensive Income Statement

(Unit: KRW in million)

Sort	2018	2019	2020
Revenue	591,379	592,264	599,353
Cost of sales	553,027	548,528	540,300
Gross profit	38,352	43,736	59,053
Selling and administrative expenses	28,426	30,000	34,245
Operating income	9,926	13,736	24,808
Non-operating income	12,593	7,106	10,954
Non-operating expenses	14,913	17,368	26,108
Net income before income tax expenses	7,606	3,474	9,654
Income tax expense	2,531	866	2,023
Net income	5,075	2,608	7,631
Total comprehensive income	5,075	6,734	7,631

Summarized Consolidated Statement of Cash Flows

(Unit: KRW in million)

Sort	2018	2019	2020
Cash flow from operating activities	(1,510)	(6,058)	40,671
Cash flow from investing activities	(16,720)	(11,432)	(15,172)
Cash flow from financing activities	20,319	17,318	(24,851)
Net increase (decrease) in cash and cash equivalents	2,089	(172)	648
Cash and cash equivalents at beginning of period	750	2,839	2,667
Cash and cash equivalents at end of period	2,839	2,667	3,315

Summarized Consolidated Statement of Changes in Equity

(Unit: KRW in million)

Sort	Capital	Surplus capital	Accumulated other comprehensive income	Surplus profit	Capital adjustment	Controlling interest of the parent company	Noncontrolling interest	Total capital
January 1, 2018 (start of term capital)	4,200	1,026	34,612	69,338	-313	108,863	3,734	112,597
Net income	-	-	-	5,027	-	5,027	48	5,075
December 31, 2018 (end of term capital)	4,200	1,026	34,612	74,365	-313	113,890	3,782	117,672
January 1, 2019 (start of term capital)	4,200	1,026	34,612	74,365	-313	113,890	3,782	117,672
Net income	-	-	-	2,453	-	2,453	155	2,608
Net revaluation amount	-	-	4,126	-	-	4,126	-	4,126
December 31, 2019 (end of term capital)	4,200	1,026	38,738	76,818	-313	120,469	3,937	124,406
January 1, 2020 (start of term capital)	4,200	1,026	38,738	76,818	-313	120,469	3,937	124,406
Net income	-	-	-	7,522	-	7,522	109	7,631
December 31, 2020 (end of term capital)	4,200	1,026	38,738	84,340	-313	127,991	4,046	132,037

Creation and Distribution of Economic Value

(Unit: KRW in million)

Sort	Details	2020
Shareholder	Dividends, interest expenses	6,880
Executives & staff	Salaries, wages, employee benefits	24,986
Partners	Cost of purchasing goods and services	512,841
Local community	Social contribution activity expenses, donations	14
Government	Corporate tax, other taxes, and public charges	9,572
Other	Other expenses (depreciation, etc.)	37,429
In-house reserves	In-house reserve increase/decrease	7,631
Gross profit	Revenue	599,353

Consolidated Subsidiaries

Company name	Business areas	Ownership stake of the parent company
Dongyoon Industrial Co., Ltd.	Manufacturing of lead (II, IV) oxide, litharge, etc.	60%
DS Inocom Co., Ltd.	Manufacturing of plastic windows, etc.	100%

Parent Shareholder Status

Sort	Shares owned	Stake (%)
Han Seung-Uk and 7 others	4,200,000	100.00

Sustainability Management Data

Employee Status

Sort			Unit	2018	2019	2020
Executives & staff	By employment type	Executives	Persons	13	13	14
		Full-time (regular)		376	382	347
		Part-time		3	1	1
	Gender	Male		362	362	327
		Female		30	34	35
	By age	~30		58	69	80
		30~50		281	279	236
		50~		53	48	46
	Total employees			392	396	362
Management	Male		Persons	79	72	74
	Female			6	9	11
Disabled employees	No. of employees		Persons	2	12	12

Recruitment and employee turnover status

Sort		Unit	2018	2019	2020
New employees	Newly recruited employees	Persons	191	137	125
Employee turnover	No. of employee turnover (voluntary)	Persons	158	133	132
Average years of service		Year	3.9	4.1	4.5

Maternity and parental leave status

Sort	Unit	2018	2019	2020
Maternity leave	Persons	1	1	3
Parental leave		1	1	2
Return to work from parental leave (no. of employees with min. 1 year of service)		1	1	0

Training/education status

Sort		Unit	2018	2019	2020
Training hours	Total training hours	Hours	2,380	2,224	2,197
	Training hours per person	Hours/person	6	5.6	6
Training/educ ation cost	Total training/education cost	KRW 1 million	11	10	9
	Training/education cost per person	KRW 1,000/person	27.8	26.4	26.1

Environment

All places of business

Sort		Unit	2018	2019	2020
Greenhouse gas emissions	Total greenhouse gas emissions	tCO_2eq	87,142.754	89,682.019	78,931.721
	Scope 1 emissions		57,968.446	61,957.802	50,433.193
	Scope 2 emissions		29,174.308	27,724.217	28,498.528
	Per KRW emissions	tCO_2eq/KRW 100 million	14.780	15.104	13.419
Energy consumption	Total energy consumption	TJ	1,332.770	1,404.916	1,406.218
	Electricity consumption		480.714	487.547	477.489
	Fuel consumption		663.780	749.252	691.351
	Steam consumption		188.276	168.117	237.377
	Per KRW consumption	TJ/KRW 100 million	0.226	0.237	0.239
Water intake	Industrial water	m^3	1,037,491.000	1,065,280.000	1,064,220.100
	Service water		77,462.000	82,463.000	84,011.000
	Total		1,114,953.000	1,147,743.000	1,148,231.100
Effluent discharge	Domestic	m^3	644,170.000	655,049.000	686,471.000
Water consumption	Water consumption	m^3	373,749.000	368,717.000	396,393.100
Air pollutants	Dust	ton	8.560	6.384	4.478
	Nitrogen oxide		14.019	40.472	45.997
	Sulfur oxide		4.412	7.464	8.301
Water pollutants	BOD	ton	11.218	6.497	2.188
	COD		8.796	3.525	14.820
	SS		63.775	12.470	3.904
Waste discharge	Total waste generated	ton	35,831.710	30,248.115	21,976.620
	General waste		7,838.820	8,770.040	7,459.360
	Designated waste		27,992.890	21,478.075	14,517.260
	Waste recycled		7,292.190	8,709.110	10,803.860
Environmental investment	Facility management cost	KRW	619,856,110	878,024,205	741,353,915
	Facility investment cost		496,820,000	508,200,000	1,107,443,480
ISO14001 (Environmental Management System)		-	Certification	Certification	Certification

Environment

Headquarters/Sihwa Factory

Sort		Unit	2018	2019	2020
Greenhouse gas emissions	Total greenhouse gas emissions	tCO_2eq	15,981.220	17,812.905	18,699.733
	Scope 1 emissions		3,421.210	7,090.455	7,966.468
	Scope 2 emissions		12,560.010	10,722.450	10,733.265
	Per KRW emissions	tCO_2eq/KRW 100 million	5.874	7.716	7.404
Energy consumption	Total energy consumption	TJ	403.632	419.617	434.812
	Electricity consumption		151.050	155.186	162.517
	Fuel consumption		64.306	134.414	149.938
	Steam consumption		188.276	130.017	122.357
	Per KRW consumption	TJ/KRW 100 million	0.148	0.182	0.172
Water intake	Industrial water	m^3	199,980.000	252,105.000	260,705.000
	Service water		18,710.000	19,147.000	18,250.000
	Total		218,690.000	271,252.000	278,955.000
Effluent discharge	Domestic	m^3	97,034.000	123,977.000	65,367.000
Water consumption	Water consumption	m^3	121,656.000	147,275.000	213,588.000
Air pollutants	Dust	ton	1.202	0.595	0.813
	Nitrogen oxide		2.489	7.847	9.009
Water pollutants	BOD	ton	0.064	0.060	0.020
	COD		0.253	0.193	0.033
	SS		0.120	0.219	0.150
Waste discharge	Total waste generated	ton	5,166.310	5,551.950	6,795.470
	General waste		1,132.090	2,723.940	4,118.350
	Designated waste		4,034.220	2,828.010	2,677.120
	Waste recycled		1,962.050	2,496.110	5,063.460
Environmental investment	Facility management cost	KRW	281,578,590	324,216,860	376,466,420
	Facility investment cost		84,810,000	235,650,000	67,925,000
ISO14001 (Environmental Management System)		-	Certification	Certification	Certification

Pyeongtaek Factory #1

Sort		Unit	2018	2019	2020
Greenhouse gas emissions	Total greenhouse gas emissions	tCO_2eq	6,690.707	10,735.386	13,327.564
	Scope 1 emissions		4,710.736	6,771.853	6,777.391
	Scope 2 emissions		1,979.971	3,963.533	6,550.173
	Per KRW emissions	tCO_2eq/KRW 100 million	44.157	20.841	11.934
Energy consumption	Total energy consumption	TJ	133.529	233.790	328.239
	Electricity consumption		40.767	62.402	79.895
	Fuel consumption		92.762	133.288	133.324
	Steam consumption		-	38.100	115.020
	Per KRW consumption	TJ/KRW 100 million	0.881	0.380	0.191
Water intake	Industrial water	m^3	35,894.000	79,696.000	75,078.000
	Service water		813.000	7,407.000	6,193.000
	Total		36,707.000	87,103.000	81,271.000
Effluent discharge	Domestic	m^3	2,055.000	5,950.000	5,282.000
Water consumption	Water consumption	m^3	34,652.000	81,153.000	75,989.000
Air pollutants	Dust	ton	0.119	0.748	0.392
	Nitrogen oxide		1.774	16.414	9.025
	Sulfur oxide		0.103	1.432	0.381
Waste discharge	Total waste generated	ton	3,831.500	688.865	161.790
	General waste		8.830	527.800	130.650
	Designated waste		3,822.670	161.065	31.140
	Waste recycled		2,633.040	301.290	59.610
Environmental investment	Facility management cost	KRW	10,560,000	50,945,400	62,451,400
	Facility investment cost		31,680,000	103,400,000	16,060,000
ISO14001 (Environmental Management System)		-	Certification	Certification	Certification

Pyeongtaek Factory #2

Sort		Unit	2018	2019	2020
Greenhouse gas emissions	Total greenhouse gas emissions	tCO_2eq	9,348.322	9,742.589	11,065.275
	Scope 1 emissions		7,375.412	7,774.781	9,073.078
	Scope 2 emissions		1,972.910	1,967.808	1,992.197
	Per KRW emissions	tCO_2eq/KRW 100 million	23.818	15.550	12.885
Energy consumption	Total energy consumption	TJ	185.966	193.694	219.779
	Electricity consumption		40.622	40.517	41.019
	Fuel consumption		145.344	153.177	178.760
	Per KRW consumption	TJ/KRW 100 million	0.474	0.309	0.256
Water intake	Industrial water	m^3	-	-	-
	Service water		50,844.000	48,560.000	53,291.000
	Total		50,844.000	48,560.000	53,291.000
Effluent discharge	Domestic	m^3	3,274.000	3,382.000	2,243.000
Water consumption	Water consumption	m^3	47,570.000	45,178.000	51,048.000
Air pollutants	Dust	ton	0.208	0.578	0.163
	Nitrogen oxide		3.445	3.795	2.828
	Sulfur oxide		1.597	0.017	0.148
Waste discharge	Total waste generated	ton	11.590	12.290	13.910
	General waste		11.590	12.290	13.910
	Designated waste		-	-	-
Environmental investment	Facility management cost	KRW	5,600,000	8,305,000	3,008,500
	Facility investment cost		2,430,000	3,150,000	4,110,000
ISO14001 (Environmental Management System)		-	Certification	Certification	Certification

Gunsan Factory #1

Sort		Unit	2018	2019	2020
Greenhouse gas emissions	Total greenhouse gas emissions	tCO_2eq	37,004.000	33,365.000	20,074.000
	Scope 1 emissions		30,292.000	27,165.879	15,491.000
	Scope 2 emissions		6,712.000	6,199.131	4,583.000
	Per KRW emissions	tCO_2eq/KRW 100 million	14.878	14.452	16.929
Energy consumption	Total energy consumption	TJ	388.163	352.614	219.347
	Electricity consumption		138.195	127.642	94.368
	Fuel consumption		249.968	224.973	124.979
	Per KRW consumption	TJ/KRW 100 million	0.156	0.153	0.185
Water intake	Industrial water	m^3	147,939.000	133,980.000	87,450.000
	Service water		6,171.000	5,280.000	4,620.000
	Total		154,110.000	139,260.000	92,070.000
Effluent discharge	Domestic	m^3	132,297.000	125,400.000	73,920.000
Water consumption	Water consumption	m^3	21,813.000	13,860.000	18,150.000
Air pollutants	Dust	ton	5.819	3.338	2.207
	Nitrogen oxide		4.739	11.223	23.262
	Sulfur oxide		1.744	5.976	7.709
Water pollutants	BOD	ton	10.597	3.835	0.111
	COD		6.972	0.939	0.872
	SS		10.822	2.052	1.515
Waste discharge	Total waste generated	ton	26,052.000	23,256.000	14,352.000
	General waste		5,917.000	4,767.000	2,543.000
	Designated waste		20,136.000	18,489.000	11,809.000
	Waste recycled		2,697.100	5,911.710	5,680.790
Environmental investment	Facility management cost	KRW	275,173,700	451,140,000	236,643,280
	Facility investment cost		336,900,000	114,000,000	1,019,348,480
ISO14001 (Environmental Management System)		-	Certification	Certification	Certification

Gunsan Factory #2

Sort		Unit	2018	2019	2020
Greenhouse gas emissions	Total greenhouse gas emissions	tCO_2eq	18,118.505	18,026.129	15,765.149
	Scope 1 emissions		12,169.088	13,154.834	11,125.256
	Scope 2 emissions		5,949.417	4,871.295	4,639.893
	Per KRW emissions	tCO_2eq/KRW 100 million	125.799	100.774	80.675
Energy consumption	Total energy consumption	TJ	221.480	205.200	204.040
	Electricity consumption		110.080	101.800	99.690
	Fuel consumption		111.400	103.400	104.350
	Per KRW consumption	TJ/KRW 100 million	1.538	1.147	1.044
Water intake	Industrial water	m^3	653,678.000	599,499.000	640,987.100
	Service water		924.000	2,069.000	1,657.000
	Total		654,602.000	601,568.000	642,644.100
Effluent discharge	Domestic	m^3	506,544.000	520,317.000	605,026.000
Water consumption	Water consumption	m^3	148,058.000	81,251.000	37,618.100
Air pollutants	Dust	ton	1.212	1.125	0.903
	Nitrogen oxide		1.572	1.193	1.872
	Sulfur oxide		0.968	0.039	0.063
Water pollutants	BOD	ton	0.557	2.602	2.057
	COD		1.570	2.393	13.916
	SS		52.833	10.198	2.239
Waste discharge	Total waste generated	ton	769.310	739.010	653.450
	General waste		769.310	739.010	653.450
	Designated waste		-	-	-
Environmental investment	Facility management cost	KRW	46,943,820	43,416,945	62,784,315
	Facility investment cost		41,000,000	52,000,000	-
ISO14001 (Environmental Management System)		-	Certification	Certification	Certification

Safety

Workplace safety management

Sort			Unit	2018	2019	2020
Industrial accident rate	All places of business	Industrial accident rate	%	0.00	0.51	0.86
		Full-time workers	Persons	392	396	350
		Number of casualties		0	2	3
	Headquarters/ Sihwa Factory	Industrial accident rate	%	0.00	0.52	0.00
		Full-time workers	Persons	189	192	182
		Number of casualties		0	1	0
	Pyeongtaek Factory #1	Industrial accident rate	%	0.00	0.00	0.00
		Full-time workers	Persons	30	33	36
		Number of casualties		0	0	0
	Pyeongtaek Factory #2	Industrial accident rate	%	0.00	0.00	5.56
		Full-time workers	Persons	15	15	19
		Number of casualties		0	0	1
	Gunsan Factory #1	Industrial accident rate	%	0.00	0.95	1.72
		Full-time workers	Persons	106	105	58
		Number of casualties		0	1	1
	Gunsan Factory #2	Industrial accident rate	%	0.00	0.00	1.82
		Full-time workers	Persons	52	51	55
		Number of casualties		0	0	1

Safety education/training

Sort			Unit	2018	2019	2020
Safety education	All places of business	Training hours	Hours	10,282	11,842	10,749
		No. of trained personnel	Persons	410	405	397
		Training hours per person	Hours/person	25	29	27
	Headquarters/ Sihwa Factory	Training hours	Hours	4,750	4,619	4,793
		No. of trained personnel	Persons	194	189	186
		Training hours per person	Hours/person	24	24	26
	Pyeongtaek Factory #1	Training hours	Hours	622	1,512	1,563
		No. of trained personnel	Persons	34	35	38
		Training hours per person	Hours/person	18	43	41
	Pyeongtaek Factory #2	Training hours	Hours	368	1,033	792
		No. of trained personnel	Persons	19	16	17
		Training hours per person	Hours/person	19	65	47
	Gunsan Factory #1	Training hours	Hours	2,604	2,965	1,685
		No. of trained personnel	Persons	115	113	106
		Training hours per person	Hours/person	23	26	16
	Gunsan Factory #2	Training hours	Hours	1,938	1,713	1,916
		No. of trained personnel	Persons	48	52	50
		Training hours per person	Hours/person	40	33	38

Partner company transaction status

Sort	Unit	2018	2019	2020
No. of partner companies	ea	282	310	303
No. of major partner companies	ea	9	14	8
Total purchase amount	KRW 100 million	5,039	5,059	4,477

* Major partners are classified as having a transaction value of KRW 10 billion or more.

GRI Content Index

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Subject	Disclosed indicator	Indicator details	Page	Remarks
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Subject	Disclosed indicator	Indicator details	Page	Remarks
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Marketing and labeling	417-2	Violations of product and service information and labeling	-	No violations reported
	417-3	Violations of marketing communications	-	No violations reported
Customer privacy	418-1	No. of substantiated complaints regarding breaches of customer privacy and loss of customer data	-	No complaints reported

UN-SDGs

Dansuk Industrial supports the UN's Sustainable Development Goals (SDGs). The SDGs are 17 goals shared by humanity to ensure sustainable development, an agenda that was resolved at the 70th UN General Assembly in 2015 to be achieved by 2030. 17 goals and 169 detailed goals are presented as the direction for humankind to advance in five areas: human, earth, prosperity, peace, and partnership. SDGs are separately addressed in the relevant part of this report.

Third Party Verification Statement

To readers of Dansuk Industrial Sustainability Report 2021

Introduction

Korea Management Registrar (KMR) was commissioned by Dansuk Industrial to conduct an independent assurance of its Sustainability Report 2021 (the "Report"). The preparation of the Report is the sole responsibility of the management of Dansuk Industrial. KMR's responsibility is to issue an assurance statement over the limited scope of data and information specified below.

Scope and Standards

Dansuk Industrial described its sustainability performance and activities in the Report. Our Assurance Team carried out an assurance engagement in accordance with the assurance standard SRV100 of KMR's Global Management Committee to provide a limited assurance. We evaluated the adherence to the principles of materiality and understandability and the reliability of the information and data provided using the Global Reporting Initiative (GRI) Index specified below.

Confirmation that the Report was prepared in accordance with the Core Options of the GRI standards was included in the scope of the assurance. We have reviewed the disclosures below for the confirmation.

- GRI Standards Reporting Principles
- Universal Standards
- Topic Specific Standards
  - Management approach of Topic Specific Standards
  - GRI 201: Economic Performance
  - GRI 302: Energy
  - GRI 305: Emissions
  - GRI 306: Effluents and Waste)
  - GRI 403: Occupational Health and Safety)
  - GRI 404: Training and Education)
  - GRI 416: Customer Health and Safety)

As for the reporting boundary, the engagement excludes the data and information of Dansuk Industrial's partners, suppliers and any third parties.

KMR's approach

To perform an assurance engagement within an agreed scope of assessment using the standards outlined above, our Assurance Team undertook the following activities as part of the assurance engagement:

- Reviewing the overall Report;
- Reviewing the procedure and methods of materiality assessment;
- Reviewing the strategies and objectives of sustainable management;
- Reviewing the activities engaging stakeholders; and
- Interviewing people in charge of preparing the Report.

Conclusion and Opinion

Based on the document reviews and interviews, we had several discussions with Dansuk Industrial on the revision of the Report. We reviewed the Report's final version in order to make sure that our recommendations for improvement and revision have been reflected. Based on the work performed, nothing has come to our attention to suggest that the Report was not prepared in accordance with the principles described below. We did not find any evidence that the data included in the scope defined above is not properly described.

▪ **Materiality**

- The reporting boundaries of the Dansuk Industrial' Report include all of its operating sites. The Report provides detailed long-term sustainability strategies and targets. Dansuk Industrial relies on its own materiality assessment process to decide the materiality of issues identified by stakeholder communication channels. We could not find any material issue or stakeholder group that was not covered in the process.

▪ **Understandability**

- The Report was prepared in the context of sustainability to provide targets for sustainability issues identified by the materiality assessment and the background of the selection and the management approach. It is our opinion that the metrics are specific and easy to compare.

▪ **Reliability**

- The Assurance Team identified errors in the data and information provided, which Dansuk Industrial subsequently corrected before issuing the final version of the Report. We believe the data and information included in the Report are accurate and reliable. Nothing has come to our attention to imply that the Report does not provide a fair representation of Dansuk Industrial's responses to material stakeholder issues.

We did not find any evidence to suggest that the Report was not prepared in accordance with the Core Options of the GRI standards.

Recommendations

We expect that the Dansuk Industrial' Report can be utilized as a means of communications with stakeholders. The following recommendations are provided for further improvements:

▪ Dansuk Industrial provided a simple and easy-to-understand summary of performance and characteristics by business and product. It also presented a detailed and logical description of green energy, waste oil refining technology, and white biotechnology, earnestly meeting the expectations and interests of stakeholders. We recommend that Dansuk Industrial develop a data collection system and KPIs and provide accurate, quantitative data to promote sustainability in a systematic way.

Independence

KMR has no other contract with Dansuk Industrial and did not provide any services to Dansuk Industrial that could compromise the independence of our work.

July 23, 2021

KMR SRV1000 Sustainability Committee Assurance

CEO E. J Hwang

Major Certifications and Awards

Certification History

Certification	Certification body	Place of business	Date
ISO14001	Korea Management Registrar	Sihwa, Pyeongtaek, Gunsan	2020.12
ISO9001	Korea Management Registrar	Sihwa, Pyeongtaek, Gunsan	2020.12
ISO45001	Korea Management Registrar	Sihwa, Pyeongtaek, Gunsan	2020.12
US EPA registration	US Environmental Protection Agency (EPA)	Sihwa, Pyeongtaek 1, Pyeongtaek 2	-
LCFS registration in California, USA	US California Air Resources Board (CARB)	Pyeongtaek 2	2030.12 (expiration date)
US Oregon CFP registration	Oregon Department of Environmental Quality (DEQ)	Pyeongtaek 2	2030.12 (expiration date)
European ISCC UCO BD producer status	EU	Sihwa	2012.04
		Pyeongtaek 1	2019.03
		Pyeongtaek 2	2017.03
European ISCC UCO collector status	EU	Sihwa	2020.03
ISCC Brown grease BD producer status	EU	Sihwa	2020.03
		Pyeongtaek 1	2020.03
		Pyeongtaek 2	2020.03
Addition of ISCC certified raw materials (POME, SBE, Waste/Residue from vegetable/animal oil, Crude glycerine, TER (Transesterification residue))	EU	Sihwa, Pyeongtaek 1, Pyeongtaek 2	2021.03

Awards History (since 2000)

Award	Awarding body	Date
Citation for contributing to national industrial development through productivity improvement	Ministry of Trade, Industry and Energy	2000.05
Designation as a “new technology development venture company”	Gyeonggi Regional SMEs and Startups office	2001.05
Selected as an “excellent technology company”	Korea Technology Finance Corporation	2001.12
Confirmed as a specialized company for parts and materials	Ministry of Commerce, Industry and Energy	2002.11
Citation for eradicating illegal petroleum products/establishing order in the supply chain for the oil market	Ministry of Commerce, Industry and Energy	2007.10
Gold Award in the environmental safety sector at the Korea Green Energy Awards	KPETRO Korea Green Energy Awards organizing committee	2009.10
Citation as a prestigious heritage company, and for improving the status of small and medium-sized companies	KBIZ Korea Federation of SMEs	2011.05
Citation for contributing to the conservation of the natural environment	Ministry of Environment	2011.10
Awarded the 50 Million Dollar Export Tower	Ministry of Trade, Industry and Energy	2011.11
Order of Industrial Service Merit (Silver Tower): Honest tax payment	-	2012.03
Awarded the 70 Million Dollar Export Tower	Ministry of Trade, Industry and Energy	2012.12
Awarded the Trader of the Year Award	Korea International Trade Association	2013.01
Awarded the 100 Million Dollar Export Tower	Ministry of Trade, Industry and Energy	2013.12
Awarded the Academic Technology Award at the Korea Environmental Energy Awards	Korean Energy Society	2018.11
Awarded the 200 Million Dollar Export Tower	Ministry of Trade, Industry and Energy	2020.12

Association Membership Status

Siheung Chamber of Commerce and Industry	Gyeonggi-do Environmental Conservation Association	3D Printing Research Association
Korea Regeneration Association	Banwol Sihwa Industrial Complex Environmental Engineers Council	Poseung Management Council
Gyeonggi-do Trucking Association	Sihwa Fashion Color Business Cooperative	Gunsan Business Environment Council
Korea Nonferrous Metal Association	Chemical Factory Safety Management Council	Korea Electric Engineers Association
Korea Resource Recycling Society	Korea Waste Recycling Mutual Aid Association	Jeonbuk Environmental Engineers Association
Korea International Trade Association	Korea Chemicals Management Association	Korea Fire Safety Institute
Korea Energy Engineers Association	Korean Energy Society	

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