

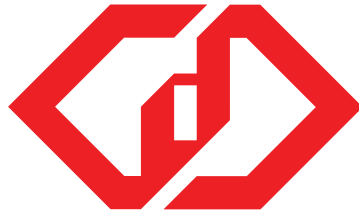
An environmentally-friendly company that has survived
the test of time, and has been continuously improved to be
an influential player in fine chemistry

www.dansuk.co.kr



DANSUK
DANSUK INDUSTRIAL Co., Ltd.



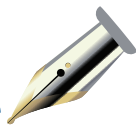


DANSUK
DANSUK INDUSTRIAL Co.,Ltd.

An enterprise should
contribute itself to human
community while
it is maintained and
developed eternally.



CEO Message



Dear Dansuk Industrial employees

As a fine chemical materials company, Dansuk Industrial has contributed to Korea's industrial development for 50 years.

In particular, we are ranked unique No. 1 in the field of PVC stabilizers and are in the lead in the field of non-toxic stabilizers and have expanded our market to Southeast Asia, Middle East, Africa, Russia and even China beyond the domestic market. Advancing to eco-friendly renewable energy business such as bio-diesel and bio heavy oil for recent 10 years, we range with giant oil refining subsidiaries and secured success also in diversification while growing into a maximum production company only four years after operation in the renewable lead sector and achieving annual output of 100,000 tons.

Along with external growth and internal stability, Dansuk Industrial is also working hard to foster the entrepreneurial spirit. We are further inheriting and developing the founding idea 'An enterprise should contribute itself to human community while it is maintained and developed eternally', the great entrepreneurship inherited by founder of Dansuk, Joo-il Han and strengthening the robust corporate culture in one line alignment by a sense of unity of management and employees through communication management. With quick decision making of executives, smooth communication was a force that can respond quickly to the market diversification like a chameleon.

In addition, in order for all employees to have a clear sense of purpose, Dansuk Industrial has set a vision under the framework of value management on a five-year basis and all employees have shared and practiced the goal of management since 2005. Value management celebrating its 3rd step in 2015 took root in the heart of Dansuk people through internalization education and we are dreaming the same dream to grow into a 1 trillion company in 2020. We are also promoting the strengthening of the value chain for increasing the profitability and management strategies for enhancing the value.

Dansuk Industrial will do its best to maximize customer value and to be a company where employees can work happily, a 100-year company that can also contribute to the development of the company and the country.

Thank you.



DANSUK
DANSUK INDUSTRIAL Co., Ltd.

A large graphic on the left side of the page shows a hand holding a blue and white globe. Overlaid on the globe is a red logo consisting of two interlocking diamond shapes. The background of the entire page is dark blue with a network of white lines and dots, resembling a molecular or digital structure. The top right corner features the text 'SINCE 1965' in a large, blue, sans-serif font.

SINCE 1965

Quickening Period

1965 Developed and manufactured manganese sulphate by establishing Novel Industry.

Growth Period

1972 Developed and manufactured Cu₂O and copper oxide

1979 Developed and manufactured red lead and litharge.

1982 Appointed as the featherbed company under the modernization plan of small and medium-sized companies.

1984 Developed and manufactured PVC stabilizers.
Established Novel Industry Co.,Ltd. Acquired the KS mark of red lead.

DANSUK INDUSTRIAL Co.,Ltd.

Company History

Development Period

- 1989 Changed the firm name to Dansuk Industrial Co., Ltd.
- 1991 Established the subsidiary, Dongyoon Industry Co.(Gumi)
- 1995 Move to shihwa Industrial Complex consisting of secured modernized production facilities and research facilities.
- 1996 Selected as the Proud Company from the Ministry of Trade-Industry.
- 1997 Acquired the ISO 9002 Certification.
- 1998 Selected as beneficiary of the venture capital. Developed and manufactured Lead MonoSilicate(LMS).
- 1999 Received the Best Productivity Prize in the R&D Area from the Minister of Industry-Energy. Appointed as the Excellent Company in the Higher Productivity from the Ministry of Commerce Industry and Energy. Acquired
- 2000 Received the Higher Productivity Prize from President of Korea.
- 2001 Patent for an electric furnace manufacture technology. Certified as a venture company(new high technology area). Established fine chemical plant. Appointed as the excellent company in the higher technology (previously registered No.1514 during 2001-12-28~2006-12-31)

The take-off stage

- 2002 Recognized as ISO 9001 company and acquired ISO 14001 authentication
- 2003 Completed the construction of fatty acid production factory and facility
- 2006 Completed the factory at a development district of Zuzhou New Technology Development in Hunan, China
- 2007 Completed the constructions of Bio-Diesel production factory and facility (Production capacity : 60,000kl/yr)
Established glycerin production system (7,500m Ton/yr)
Developed and produced Bismuth Oxide (patent applied)
Developed and produced LDH
- 2008 Developed and produced Zinc Oxide
- 2009 Expansion of Bio-Diesel Plant (80,000kl per year)
- 2010 Completion of Zinc-Ingot Plant (9,000mt per year)
Obtained ISO9001/14001/K-OHSMS18001
- 2011 Completion of Pure Lead-Ingot Plant (60,000mt per year
1582-13, Soryong-dong, Gunsan-si, Jeollabuk-do, Korea)
- 2012 Completion of Refine Oil Plant (80,000mt per year)
- 2013 Expansion of Bio-Diesel Plant (113,068kl per year)
- 2014 Completion of Bio-Heavy Oil Plant (258,750kl per year)
- 2015 Expansion of Pure Lead-Ingot Plant (100,000mt per year)
- 2016 Launched operation of Bio-Diesel Plant in Pyeongtaek (80,000kl per year)
- 2017 Takeover of Bio-Diesel Plant in Pyeongtaek (120,000kl per year)
Takeover of Samil Innocom (Engineering plastic, 30,000mt per year)
- 2018 Launched operation of Bio-Diesel plant in Pyeongtaek (260,230kl per year)

DANSUK

Corporation Identity Story

The word "DANSUK" in DANSUK Industrial is actually the pen name that was used by the company's first Chairman/President Joo-il Han, and also means "ruby." As is well known, ruby is another name for corundum, which is also called the beryl. Symbolizing a long and peaceful life, rubies have a high level of strength and hardness, which characterizes the jewels of the corundum, and have a Mohs Hardness level of 9, the highest level of hardness next to a diamond.



Symbol



The symbol mark consists of the English initials for DANSUK (DS) in the middle and the pattern symbolizing the arrow on each side looking toward the outside, which represents the future of DANSUK vigorously advancing across the world. The overall shape is meant to echo the molecular structure of benzene, representing the fact that the main business sector of DANSUK is chemistry.

Visionary Future Image

DANSUK Industrial values, systems and means

Spirit

An enterprise should contribute itself to human community while it is maintained and developed eternally.

With a creative spirit of pursuing green growth, we will earn the respect of our customers and continue to grow to achieve genuine prosperity.

1 trillion won in sales, 1st-class products, 1st-rate job
(The meaning of No.1 by 2020, the goal of DANSUK Industry)

Mission

We create unique value through eco-friendly technology and creative thinking, and contribute to the happiness of humanity and enhancements in quality of life.

Vision

GREAT 2020 No.1

Green
Respectable
Evolving
Authentic
Triumph

Core Values



Trust

To consistently maintain our core principles through authenticity and dignity.
To deliver on time, without fail.
To have confidence in our professionalism.
To live up to the name DANSUK.



Mutual

To mutually respect and care, actively discuss and cooperate.
To speak based on specific and clear facts.
To actively share information and experience.
To accept and actively discuss business requests.



Passion

To trigger new changes, work passionately and execute.
To make changes and work actively.
To avoid jumping to negative conclusions about a job in progress.
To make it a priority to work in a new way.

Overview

Company	 DANSUK INDUSTRIAL Co., Ltd.
Date of Establishment	July, 1965
CEO	Seung-uk Han
Major business	Non-ferrous Metal, Bio-Energy, PVC stabilizers
Capital Stock	US\$ 4 million
Total Assets	US\$ 290 million
Annual Sales	US\$ 550 million
Certification	ISO9001/14001/ K-OHMS18001, EPA, ISCC



Metal Materials

■ Pure Lead / Lead alloys

Product	Appearance	Specifications	Packing
Pure Lead	INGOT/JUMBO	Pb 99.97% min	Ingot – Bundle (42 Ingots) Net Weight 1,050Kg Bending : PE/Iron Jumbo – Net Weight 1,000Kg
Antimonial Lead alloy		Customizing	
Calcium Lead alloy		Customizing	



Applications

- Storage battery / Lead oxide / Solder / Type metal / Casting metal / Fishnet sinker / Lead brick / Lead plate

■ Lead oxide

Product	Appearance	Specifications	Packing
Litharge	POWDER GRANULE	PbO 99.5% min	25kg/ 1,000kg 1,000kg
Red lead	POWDER	Pb3O4, 97% min	25kg/ 500kg/ bulk

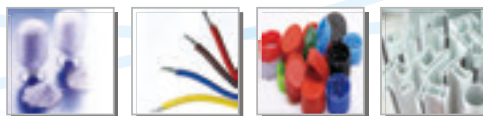


Applications

- Storage battery/ PVC stabilizer / pigment/ crystal and optical glass
- Paint/ ceramic glaze/ tile

HYDROTALCITE

DNT-09



■ Product information

Products	Characteristics	Application	Packing
DNT-09	It is synthetic material of hydrotalcite minerals. Structure is layered double of aluminum–magnesium hydroxide formation. It has outstanding property to capture chlorine ion. Remarkable property is harmless to humans having excellent thermal stability. Refractive ratio is similar with polymer and good for transparency.	Non-toxic PVC stabilizer	20kg/paper bag

■ Function of DNT-09



■ Application of DNT-09

Classification	Application and Features
Flame Retardant	It improves fire retardancy of plastic(PP,PE, etc.).
PVC Thermal Stabilizer	This nontoxic thermal stabilizer prevents deterioration of thermal resistance even when Zn content increases. It is effective for other interior materials such as fire-retardant cable, gasket of a refrigerator, automobile, etc.
Agricultural film	It can neutralize Zigler–Natta catalyst in PP, LLDPE, EPDM, etc.
Halogen Capture	Due to high infrared transparency, it can be used in non-toxic agricultural vinyl.

DNT-09N



■ Product information

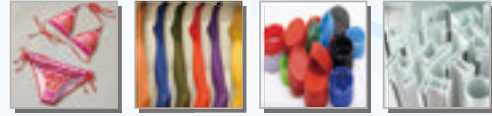
Products	Characteristics	Application	Packing
DNT-09N	It is synthetic material of hydromagnesite minerals. Particles consists of several groups of layered hydrated magnesium carbonate. It has low Na and excellent electric insulation. Anti-chlorine property helps to retain elasticity of synthetic fiber such as spandex. Remarkable property is harmless to humans having excellent thermal stability.	Wire clothing Spandex fiber PE/PP Flame retardant Non-toxic PVC stabilizer	20kg/paper bag

■ Application of DNT-09N

Classification	Application and Features
Flame Retardant	It improves fire retardancy of plastic(PP,PE, etc.).
PVC Thermal Stabilizer	This nontoxic thermal stabilizer prevents deterioration of thermal resistance even when Zn content increases. It is effective for other interior materials such as fire-retardant cable, gasket of a refrigerator, automobile, etc.
Agricultural film	It can neutralize Zigler–Natta catalyst in PP, LLDPE, EPDM, etc.
Halogen Capture	Due to high infrared transparency, it can be used in non-toxic agricultural vinyl.

HYDROTALCITE

DNT-09T



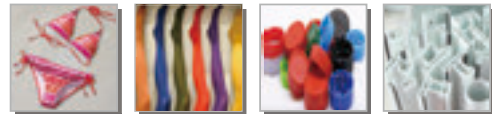
■ Product information

Products	Characteristics	Application	Packing
DNT-09T	It is synthetic material of hydromagnesite minerals. Particles consists of several groups of layered hydrated magnesium carbonate. It has outstanding property to neutralize chlorine ion. Anti-chlorine property helps to retain elasticity of synthetic fiber such as spandex. Remarkable property is harmless to humans having excellent thermal stability.	Spandex fiber PE/PP Flame retardant Non-toxic PVC stabilizer	20kg/paper bag

■ Application of DNT-09T

Classification	Application and Features
Anti-chlorine	When used in manufacturing synthetic fiber such as spandex, anti-chlorine property makes the fiber to elongate lifetime of elasticity.
Flame Retardant	It improves fire retardancy of plastic(PP,PE, etc.).
PVC Thermal Stabilizer	This nontoxic thermal stabilizer prevents deterioration of thermal resistance even when Zn content increases. It is effective for other interior materials such as fire-retardant cable, gasket of a refrigerator, automobile, etc.
Halogen Capture	Due to high infrared transparency, it can be used in non-toxic agricultural vinyl.

DNT-09S



■ Product information

Products	Characteristics	Application	Packing
DNT-09S	Anti-chlorine property helps to retain elasticity of synthetic fiber such as spandex. It is synthetic material of hydrotalcite minerals. Structure is layered double of aluminum-magnesium hydroxide formation. It has outstanding property to capture chlorine ion. Remarkable property is harmless to humans having excellent thermal stability.	Spandex fiber PE/PP Flame retardant Non-toxic PVC stabilizer	20kg/paper bag

■ Function of DNT-09S



■ Application of DNT-09S

Classification	Application and Features
Anti-chlorine	When used in manufacturing synthetic fiber such as spandex, anti-chlorine property makes the fiber to elongate lifetime of elasticity.
Flame Retardant	It improves fire retardancy of plastic(PP,PE, etc.).
PVC Thermal Stabilizer	This nontoxic thermal stabilizer prevents deterioration of thermal resistance even when Zn content increases. It is effective for other interior materials such as fire-retardant cable, gasket of a refrigerator, automobile, etc.
Halogen Capture	Due to high infrared transparency, it can be used in non-toxic agricultural vinyl.

Single Stabilizer

■ Single stabilizer

Category	Product	Packing	Description
Basic Lead Stabilizers	TLS	25kg 500kg	TLS is a most representative product among kinds of lead stabilizer for PVC. It is widely used for both flexible and rigid products, and mainly used for PVC compound for electric wires due to its outstanding function as an insulator.
	DLP	20kg 500kg	DLP is good for exterior construction materials such as PVC window frame and PVC plate due to its weatherability, insulation and thermal stability. It should be used in combination with Pb-St, DBL, and Ba-St.
Metal Soap Stabilizers	DBL	10kg	DBL shows a high quality in thermal stabilization, insulation, water resistance, blooming and bleeding and as a result, it can maintain activated state at high temperature. It is mainly used for PVC compound for electric wire and injecting and extruding products
	Pb-St	25kg	Holding excellent lubricity and thermal stability, Pb-St is mainly used for the soft extrusion but is suitable for both soft and rigid products
	Zn-St	20kg	Zn-St shows its excellence in non-toxicity, lubrication and prevention of early pigmented change and plate-out. It is used for food packing, film, sheet and non-toxic product
	Ca-St	20kg	Ca-St shows its excellence in general gelation and gel lubricity. Because of its non-toxic features, it is used for non-toxic compounding with Zn-St. It is widely used as a lubricant and for food packing, film, sheet leather, rigid panel, pipe lubricant for rigid, extruding process
	Ba-St	20kg	Ba-St results a high activating effect and shows its excellence in thermal endurance, transparency and process ability. More synergy effect could be expected when it is used in combination with Cd or Zn soap which could prevent an early pigmented change and extend the late thermal endurance. Ba-St is used for soft seat, leather, rigid pipe, and coating for electronic wires and cable



One Pack stabilizer

■ Pb based stabilizers

Usage	Series	Typical grade	Appearance	Characteristics
Cable	KN	KN900V	Powder Granule Bead	Excellent heat stability & electrical resistance
Pipe		KN-500		High lubricity / High productivity
Fitting	KN	KN-506F		Excellent heat stability / Good processing ability
	LF	LF-930P2		
Window profile	LW	LW-900P		Excellent weather ability / High glossy / High heat stability
General profile	KD	KD-300M		Excellent heat stability / Good processing ability
Tile	DS	DS-352A		Good initial color stability & processing ability
Hose	NP	NP-1		Good heat stability & processing ability

■ Ca-Zn based stabilizers

Usage	Series	Typical grade	Appearance	Characteristics
Cable	NC	NC300P	Powder	Excellent heat stability & electrical resistance
	CZ	CZ127		
Pipe	NP	NP200P		Excellent dynamic heat stability / High productivity / Good mechanical properties
Foam pipe		KD105E1		Good foaming & mechanical properties
Fitting	NF	NF100		Excellent heat stability / Good processing ability / Good metal release properties
Window profile	NW	NW600P		Excellent weathering resistance / High glossy / Optimum lubricity / Excellent static & dynamic heat stability
General profile	NH	NH350P		Excellent heat stability / Good processing ability
Hose	CZ	CZ201		Excellent Transparency / Good initial color stability
Tile	DS	DS356		Good initial color stability, Ba/Zn system



Bio Energy

PUR *e*n



Bio Diesel is not only the core for future Industry
but also Eco friendly energy reviving the Earth.

BIO DIESEL

■ Bio Diesel

1 Product features

- Our product Puren is clear and eco-friendly energy. Its main material is vegetable oil such as soybean oil, rape seed oil & palm oil.
- It does not emit SO₂ which cause acid rain and not only reduce the exhaust gas such as carbon monoxide & hydrocarbon but also reduce microscopic dust which cause cancer.
Bio diesel can substitute for generally used diesel without any device installation
It can be used for manufacturing biodegradable surfactants and solvent

2 Product usage

- Diesel car
- Construction heavy machinery



Bio-Heavy Oil is the growth engine
for the next generation industry.

■ Bio-Heavy Oil

1 Product features

Interchangeability

It can be used as the power generation fuel.

Economy

With low sulfur contents, it can reduce the process of degreasing and desulfurization process cost.

Eco-friendliness

It is the eco-friendly energy, reducing the greenhouse gases.

2 Product usage

- Power generation and Industrial equipment
- Industrial boiler



■ Quality

Category	Unit	BD100	Bio-fuel oil
FAME Contents	vol %	96,5 min	—
Pour point	°C	—	27,5 or below
Flash point	°C	120 min.	70 min.
Carbon residucs	wt %	0,1 max	10 max
Sulfur content	mg/kg	10 max	0,1 max
Ash content	wt %	0,01 max	0,1 max
Copper strip corrosion	100°C	1 max	1b
Cold filtering plugging point	°C	0 max	—
Specific density at 15°C	kg/m ³	860–900	991 max
Humidity	wt %	0,06	0,2 max
Total contamination	mg/kg	24 max	—
Acid value	mg/kg	0,05 max	25 max
Total glycerin	wt %	0,24 max	—
Monoglyceride content	wt %	0,80 max	—
Deglyceride content	wt %	0,20 max	—
Triglyceride content	wt %	0,20 max	—
Free glycerol content	wt %	0,20 max	—
Oxidation stability	110°C	6 hours	—
Methanol content	wt %	0,20 max	—
Alkaline metal(Na+K)	mg/kg	5 max	—
Alkaline metal(Ca+Mg)	mg/kg	5 max	—
Phosphorus content	mg/kg	10 max	—
IV		—	120 max
Water and sediment	vol %	—	0,5 max
Alkaline metal (Na)	mg/kg	—	70 max
Alkaline metal (Ca)	mg/kg	—	30 max
Alkaline metal (K)	mg/kg	—	70 max
Vanadium (V)	mg/kg	—	50 max
Heating value	mg/kg	—	9000 max
Silicon (Si)			
Aluminum (Al)	mg/kg	—	200 max
Iron (Fe)			
Nitrogen	wt %	—	0,3 max

- Pour point of -17,5°C is to be applied from 1st of November till 31st of March next year
- Cold filtering plugging point is applied from 15th of November till 28th of February

GLYCERINE



■ Product features

We are producing the highly purified glycerine by installing the facilities of thin film evaporator and refinery.

■ Types of product

Glycerine as food additive, glycerine for medicine, glycerine for industrial type 1 (99.0% or higher in concentration), and glycerine for industrial type 2

■ Product usage

Medical material, Cosmetics, food emulsify, Tobacco, Toothpaste, PPG etc.

■ Specification

Item	Unit	Type 1	Type 2
Color	APHA	10 max	20 max
Density@20°C	g/cc	1.257 min	1.2456 min
Glycerine content	wt %	99.5 min	94.0% min
Ignition residue	wt %	0.05 max	0.05% max
Saponification equivalent	meg/100g	3.0 max	3.0 max
Acidity or Alkalinity	—	0.3 max	0.3 max
Reductive materials	—	Passed	Passed
Water	wt %	1.0 max	5.0 max

■ Packing unit

250kg / Drum, Tank lorry

■ Engineering Plastics & Super Engineering Plastics

Base Polymer	Alloy	Functional Additives
PA6/66, PBT, POM, PPA, PPS PC, ABS, PMMA, etc.,	PC/ABS, PC/ASA, PA/PE or PP, etc.,	GF, MF, CF, Rubber, Mica, etc.,



■ ASA Compounding for PVC window profiles

- 1 It can be used for coating of co-extrusion PVC
- 2 It requires
 - superior UV resistance
 - low coefficient of linear expansion
- 3 We can provide a variety of customer's color needs



■ Molded-in color Compounding for non-painting

- 1 It can be used for non-painting mold parts
- 2 It requires
 - cost saving of painting
 - reduce the defect rate of painting



Office Information



Shiwha Factory(H.Q)

- Location 165, Hyeomnyeok-ro, Siheung-si, Gyeonggi-do, Korea
- Scale Ground - 26,238m², Building - 17,220m²
- Employee 200
- Tel No. +82-31-488-0700
- Fax No. +82-31-499-3909
- Main Products Bio-Diesel, Bio-Heavy Oil, PVC stabilizers



Gunsan Factory I

- Location 10, Seohae-ro, Gunsan-si, Jeollabuk-do, Korea
- Scale Ground - 33,505m², Building - 7,440m²
- Employee 105
- Tel No. +82-63-464-3541
- Fax No. +82-63-464-3542
- Main Products Pure Lead Ingot, Lead Alloy



Gunsan Factory II

- Location 137, Muyeok-ro, Gunsan-si, Jeollabuk-do, Korea
- Scale Ground - 19,890m², Building - 5,390m²
- Employee 55
- Tel No. +82-63-464-8730
- Fax No. +82-63-464-8731
- Main Products HYDROTALCITE(LDH)



Pyeongtaek Factory

- Location 216, Pyeongtaekhangman-gil, Poseung-eup, Pyeongtaek-si, Gyeonggi-do, Korea
- Scale Ground - 20,846m², Building - 4,010m²
- Employee 50
- Tel No. +82-31-681-6160
- Fax No. +82-31-684-6160
- Main Products Bio-Diesel



Yeongcheon Factory

- Location 43, Ogyegongdan-gil, Geumho-eup, Yeongcheon-si, Gyeongsangbuk-do, Korea
- Scale Ground - 18,040m², Building - 6,750m²
- Employee 46
- Tel No. +82-54-335-0044
- Fax No. +82-54-335-0292
- Main Products EP Compound



Pakistan Factory

- Location 272-D, Sundar Industrial, Estate Raiwind Road, Lahore, Pakistan
- Scale Ground - 3,647m², Building - 2,782m²
- Tel No. +92-42-37642919
- Main Products PVC one-pack stabilizers