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**Kao Thailand** was officially established on September 24, 1964 as the producer of a range of shampoo and detergent products at its factory in Prapradaeng. Later in 1972, the chemicals plant was established to produce shampoo intermediate materials for local user and for export. Later in February 2005, the new factory has started the production. With a size of 157,000 square meters.

The Kao factory is located at 700/313 Moo 6 Amata City Chonburi Industrial Estate, Tambol Donhuaroh, Amphur Muang, Chonburi province. The location is away from the city of Bangkok 57 kilometres and only 46 kilometres from the Laem Chabang deep seaport.



**Kao Thailand** are fully integrated with our research facilities to develop efficient, high quality production processes and produce many chemical products.

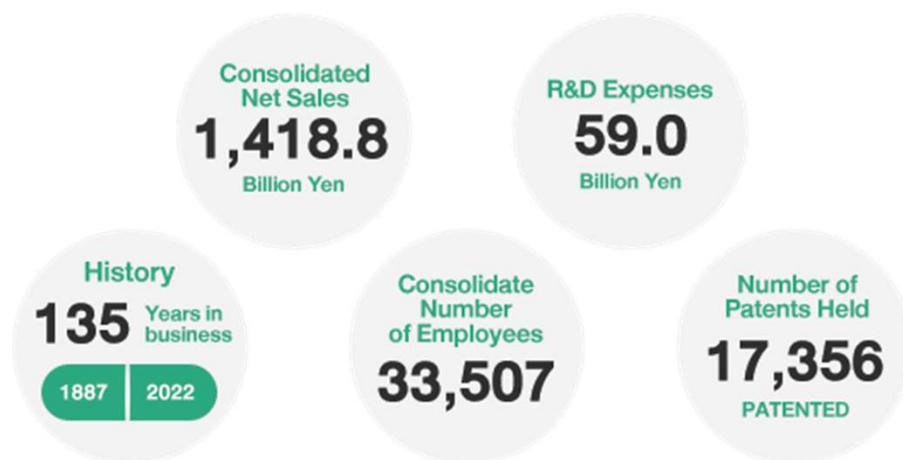
This efficiently organized supply chain allows Kao to speedily supply products from its various bases around the world.

Through research, production and supply, Kao's Chemical Division will use its global network to provide products geared to customer satisfaction.

The office is located on the Sukhumvit road, Soi 6, Nana Junction where in the center of business area of the capital city-Bangkok.

# KAO GROUP AT A GLANCE

(FY2021 ENDED DECEMBER 31)



## Financial Highlights

Consolidated Operating Income : 143.5 billion Yen

Consolidated Income before Income taxes : 150.0 billion Yen

Consolidated Net Income : 111.4 billion Yen ROE : 11.6

Consolidated Total Assets : 1,704.0 billion Yen Net Worth Ratio : 56.6 %

## Net Sales by Segment

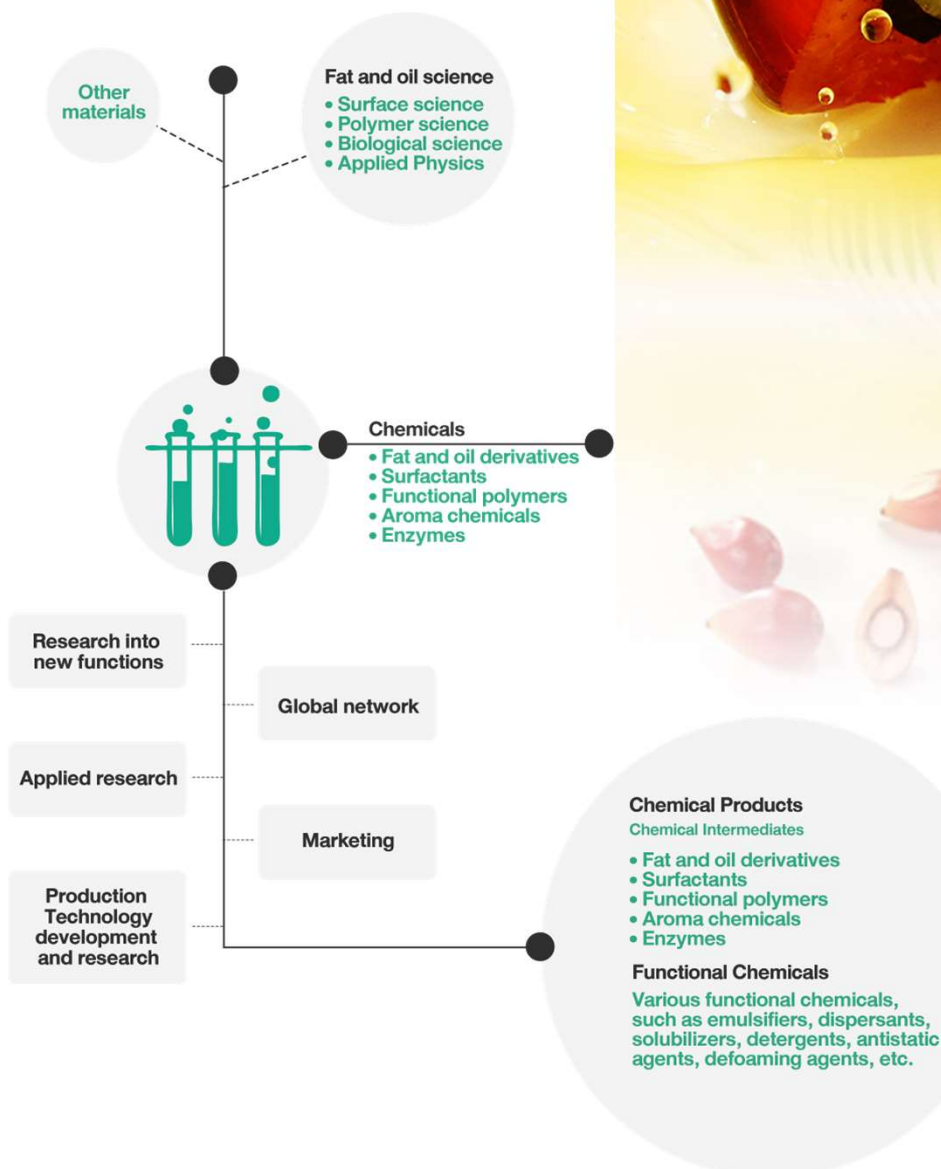


Notes: 1. Figures in the graph represent net sales to external customers only.

2. Eliminations for intersegment sales represent eliminations between regions and businesses.

# CHEMICAL BUSINESS

**Kao Thailand** is instrumental in undertaking research and development as the assigned Chemicals R&D Center for the ASEAN region. The company's R&D activities help create next-generation products, in conjunction with the worldwide network of Kao R&D Centers. Currently, Kao Thailand's R&D Center is focusing more on the development of eco-friendly products and technologies, not only to heighten environmental safety but also to achieve energy savings and reductions in greenhouse gas emissions, and ultimately to make the world a better place for all.



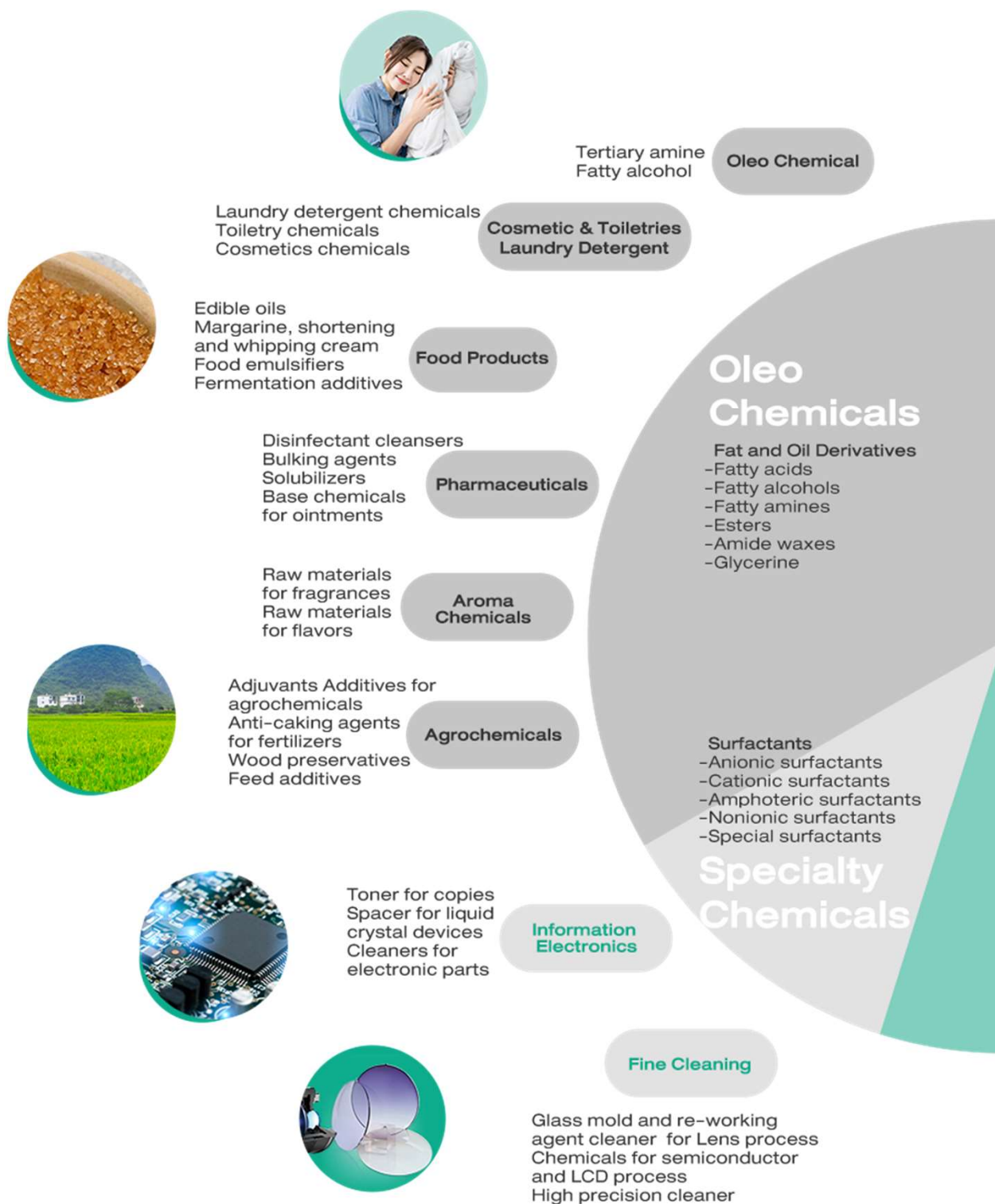
## Natural fats and oils





# Chemical Products

**KAO** chemical products for wide range of industries



# Performance Chemicals

**Aroma Chemicals/Enzymes**  
 -Natural essential oils  
 -Synthetic aroma chemicals  
 -Compounded flavors and fragrances  
 -Enzymes

**Functional Polymers**  
 -Natural polymer derivatives  
 -Function oligomers  
 -Polyacrylate polymers  
 -Polyamide resins  
 -Polyester resins  
 -Furan resins  
 -Phenol resins

## Infrastructures

Concrete additives  
 Gypsum board additives  
 Asphalt emulsifiers

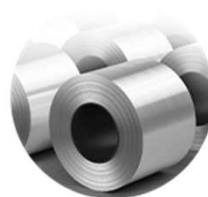


## Foundry

Binders for molds and cores  
 Coating agent for sand molding and pattern  
 Paper runner for casting

## Metal

High and low temperature metal cleaners



## Lubricants

Lubricants base oils  
 Lubricants additives  
 Oiliness improvers

## Pulp and paper

Deinking agents  
 Defoaming  
 Felt cleaners  
 Paper coating additives  
 Filler dispersants



## Polyurethane

Urethane prepolymer for shoe soles  
 Polyurethane catalysts  
 Mold releasing agents

## Plastics Rubbers

Additives for polymerizations  
 Plastic additives  
 Plasticizers  
 Antistatic agents  
 Rubber processing agents



## Environment Miscellaneous Industries

Water treatment chemicals  
 Algicides  
 Scale inhibitors  
 Chelating agents  
 Intermediate materials



## Fuels Energy Mining

Fuels additives  
 Coal/water mixture auxiliaries  
 Flotation agents



## Color Industry

Dye auxiliaries  
 Pigment auxiliaries  
 Paint chemicals  
 Printing ink chemicals

# Agrochemical



Based on the kinds of the hydrophilic groups of surfactants, they are classified into anionic, cationic, amphoteric and nonionic types. The functions of surfactants for agrochemical are studies not only physically and chemically but also biologically. In addition to many kinds of additives for insecticides, fungicides, herbicides and plant growth regulators, some functional chemicals such as adjuvant have been developed.

## 1. Surfactants for Pesticides

Product Name	Chemical Composition	Main Application	Packing
EMAL 10G	Sodium Lauryl Sulfate	Wetting agent for wettable powder	BG20
NEOPELEX NO.1T	Anionic Surfactant		BG20
PELEX OT-P	Sodium Di-Octyl Sulfosuccinate		DM220,CT1000
AGRISOL A-3401	Anionic and Special Surfactant	Adjuvant for Glufosinate	DM120,DM200
AGRISOL A-3482			DM115
AGRISOL A-470	Anionic Surfactant		DM130
AGRISOL A-480G	Special Nonionic Mixture	Adjuvant for Glyphosate	DM200
AGRISOL A-488G	Special Surfactant Mixture		DM200
AGRISOL A-425N			DM200
AGRISOL A-495			DM210
AGRISOL A-3020			DM185
AGRISOL A-3030			DM185,CT1000
AGRISOL A-451	Nonionic and Special Surfactant	Tank Mix Adjuvant for pesticide	DM200
AGRISOL A-453	Anionic Surfactant Mixture		DM200
AGRISOL S-3100	Anionic and Nonionic Surfactant Mixture		DM200
AGRISOL S-3200	Nonionic Surfactant Mixture	Tank Mix Adjuvant for All purpose	DM200
KAO ADJUVANT A-200	Special Adjuvant	Tank Mix Adjuvant for Aerial spraying	DM5,DM17



## 1. Surfactants for Pesticides

Product Name	Chemical Composition	Main Application	Packing
AGRISOL H-472	Nonionic and Calcium Dodecylbenzene Sulfonate	Emulsifier for pesticide	DM220
AGRISOL H-483			DM220
AGRISOL P-700			DM220
AGRISOL P-710			DM220

## 2. Surfactants For Fertilizer

Product Name	Chemical Composition	Main Application	Packing
SK FERT EXP	Sodium Salt of Naphthalene Sulfonate	Porous agent for Ammonium Nitrate	BG20
SK FERT FA-80 N	Mixture of Mineral Oil and Fatty Derivatives	Anti-caking agent for Ammonium Nitrate	DM165
SK FERT FA-286		Anti-caking agent for NPK fertilizer	DM165
SK FERT FA-356			DM175
SK FERT AC-32	Mixture of oils and fatty derivatives	Anti-caking and Anti-dusting agent for Ammonium Sulfate fertilizer	CT850
SK FERT AC-38	Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	Water Soluble Anti-caking agent for NPK fertilizer	ISO15,000
SK FERT AC-40	Mixture of surfactant and polymer.	Anti-caking agent based on complex mixture of surfactant and polymer.	DM200,CT1000

## 3. Bactericides

Product Name	Chemical Composition	Main Application	Packing
SANISOL C-80	Alkyl Dimethyl Benzyl Ammonium Chloride	Disinfectant and cleaning agent (Water treatment in prawn farm and livestock farm, cultivation sterilization of public places)	DM200
SANISOL M-80			DM200
SANISOL RC			DM30,DM210
QUARTAMIN D-10P	Didecyl Dimethyl Ammonium Chloride		DM160

## 4. Fermentation

Product Name	Chemical Composition	Main Application	Packing
FERMOL 1000	Glycerin Alkoxyate	Anti-foam	DM220

# Infrastructures



Application of surfactants in the field of infrastructures include concrete chemical admixtures, gypsum foaming agents, water reducers for gypsum slurry and asphalt emulsifiers. As for concrete additives, those which are effective at low dosage may be classified as air-entraining agents, water reducers, air-entraining water reducers and super plasticizers. Their using are increasing rapidly.

## 1. Concrete Admixture

Product Name	Chemical Composition	Main Application	Packing
MIGHTY 21 Series	Polycarboxylate Type	Superplasticizer for high performance concrete, Self Compacting Concrete(SCC)	DM240
MIGHTY 100	Naphthalene Sulfonate Formaldehyde Condensate (NSF)	Superplasticizer for concrete	BG25
MIGHTY 150			DM244
MIGHTY MX-G Series	NSF and Additive	High range water reducing agent for Concrete	DM244, ISO tank
MIGHTY 80RA	Glycan Derivative	Water reducing and retarding agent for concrete	DM244
MIGHTY 90RA			
MIGHTY 500 Series	NSF and Additive Polymer	Long slump retentive without retarding	DM244

## 2. Foaming Agent

Product Name	Chemical Composition	Main Application	Packing
SOFTCLEAN 27AE	Special Anionic Surfactant	Foaming agent for lightweight concrete product	DM210
SOFTCLEAN 40AE			DM200,CT1000



### 3. Concrete Releasing Agent

Product Name	Chemical Composition	Main Application	Packing
LINER SEVEN 50N	Special Combined Nonionic Surfactant	Concrete releasing agent	DM170
LINER SEVEN 60			DM220
LINER SEVEN 60C			DM220

### 4. Asphalt Emulsifiers

Product Name	Chemical Composition	Main Application	Packing
ASFIER T-105L	Special Compound Cationic Hydrogenated Fatty Alkyl Amine Modified Tallow Amine	Emulsifier for rapid setting asphalt emulsion	DM180,CT900
FARMIN ST-7			DM 165
ASFIER S-106LN		Emulsifier for slow setting asphalt emulsion	DM220,CT1000

### 5. Others

Product Name	Chemical Composition	Main Application	Packing
MIGHTY LF-10	Polyol Derivative	Grinding agent for cement	DM230
MIGHTY LF-20			
SK-T106	Special Organic Compound	Stabilize agent for tunnel drilling	DM250
MIGHTY VT	Anionic and Cationic Surfactant	Slurry rheology modifier	DM180



# Cosmetic and Toiletry

Utilizing natural fats and oils as main raw materials, Kao has long been manufacturing integrated fatty chemical products ranging from all kinds of fatty chemicals and surfactants to a wide variety of household products including shampoos and hair rinse products. Having been developed under such a situation, our materials for cosmetics and toiletry goods now occupy a prominent position for their superior quality and richest technological knowledge which, we believe, are of great service and help to the formulators



## 1. Amphoteric Surfactant

Product Name	Chemical Composition	Main Application	Packing
AMPHITOL 20H-SB	Lauryl Hydroxysultaine	Mild Surfactant and foam booster for shampoo, body cleanser and facial wash, provides fine and creamy foam with good scum dispersing effect	DM30,DM210
AMPHITOL 20Y-B	Sodium Cocoamphoacetate	Mild Surfactant and foam booster for baby shampoo and cleansing agent	DM210
AMPHITOL 24B	Lauryl Betaine	Surfactant and foam booster for shampoo, body cleanser, dish washing and detergent	
AMPHITOL 20AB	Lauramidopropyl Betaine	Surfactant and foam booster for shampoo, body cleanser, facial wash and detergent, economical booster also mild to skin also	
AMPHITOL 55AB-B	Cocamidopropyl Betaine		DM30,DM120,DM210, CT1000
AMPHITOL 20N	Lauramine Oxide	Foam booster for shampoo, body cleanser, facial wash and dishwashing agent	DM200
AMPHITOL 24N-2	Lauramine Oxide and Myristamine Oxide	Foam booster for shampoo, body cleanser, facial wash, dishwashing agent and hard surface cleaner	DM200

## 2. Nonionic Surfactant



Product Name	Chemical Composition	Main Application	Packing
AMINON C-01S	Coconut Fatty Acid Monoethanolamide	Free Nitrosamine foam booster and thickener and for shampoo, body wash, facial cleanser and detergent	BG20
AMINON C-02S	Coconut Fatty Acid Diethanolamide	Foam booster and thickener for shampoo, bodywash, facial cleanser and detergent	DM120
AMINON C-11S	Cocamide Methyl Monoethanolamide	Alternative Coconut Fatty Acid Diethanolamide (less Nitrosamine) foam booster and thickener for shampoo, body wash, facial cleanser and detergent	DM190, DM200
EMANON 3201M	Ethylene Glycol Distearate	Opacifying and pearling agent for shampoo, body wash, etc.	BG20
EMANON 3299RV	Polyethylene Glycol Distearate	Thickener for shampoo and skin cream/lotion	BG20
MYDOL 10	Decyl Glucoside	Mild surfactant for hair care, body wash, facial cleanser and dishwashing detergent	CN17
MYDOL 12	Lauryl Glucoside		CN17,DM180

## 3. Cationic Surfactant

Product Name	Chemical Composition	Main Application	Packing
QUARTAMIN 86P CONC	Alkyl Trimethyl Ammonium Chloride	Antistatic agent, hair conditioner base	CN15, DM160
QUARTAMIN E-80K	Stearoxy Propyl Trimonium Chloride	Hair conditioner and hair rinse base	BX20
SOFCARE KG-301W	Polyquaternium 52 and PEG-32	Cationic polymer for shampoo and body cleanser, improve smooth hair feel, reduce squeaky hair feel and prevent hair tangling during washing, improve the foam creaminess and foam volume	CN25



## 4. Anionic Surfactant

Product Name	Chemical Composition	Main Application	Packing
COS KCN	Mixture of Sodium Laureth Sulfate and Sodium Lauryl Sulfate	Foaming agent for shampoo, body wash and face cleanser	CT1000
EMAL 10G	Sodium Lauryl Sulfate	Foaming agent for toothpaste, base or foaming agent for detergent	BG20
EMAL 10PT			
EMAL 10P-HD			BG25
EMAL 30D(P)		Foaming agent for shampoo and body/face wash, base or foaming agent for detergent	DM120,CT1000
EMAL 30D(PL)			DM200,CT1000
EMAL AD-25	Ammonium Lauryl Sulfate	Foaming agent for shampoo and body/face wash	DM30,CT1000
EMAL 27C(P)	Sodium Polyoxyethylene Lauryl Ether Sulfate		DM200
EMAL 270TH			DM130,CT1000
EMAL 28CT(N)			DM120
NEOPELEX FS-2	Linear Dodecyl Benzene Sulfonic Acid	Base for dishwashing, floor cleaning, laundry and industrial heavy-duty detergent	DM220,CT1000
NEOPELEX F-24	Sodium Dodecyl Benzene Sulfonate		DM30,DM220
NEOPELEX F-61			DM110
PRIOLY B-750D	Neutralization of Mono Alkyl Phosphate	Surfactant for body wash and facial cleanser, milder than soap with good rinsing ability	DM180
PRIOLY B-850D			DM160

## 5. Eco Friendly

Product Name	Chemical Composition	Main Application	Packing
AKYPO FOAM LM 25	Potassium Laureth-4 Carboxylate	Mild surfactant for shampoo and body wash, able to apply in SLES-free formulation	DM130
AKYPO RLM 45CA	Laureth-6 Carboxylic Acid		DM210
AMIDET N	PEG-4 Rapeseedamide	Free Nitrosamine foam booster, thickening and emulsifying properties	



## 5. Eco Friendly

Product Name	Chemical Composition	Main Application	Packing
LEVENOL H&B	Glycereth-2 Cocoate	EXTRA-MILD co-surfactant with good thickener and foam property, excellent eco-toxicological properties. Recommended for good quality, low irritating and high concentrated and emollient products.	DM150
KAO SOFCARE GP-1	PPG-3 Caprylyl Ether	Rich foam conditioning agent in shampoo and hair conditioner	CN17,DM170
EMANON EV-E	Glycereth-7 Caprylate/Caprate	Surfactant for wet wipes and make-up removers. Foam booster for shampoo and body washes. Cold emulsifier for creams, lotions and bath oils. Co-emulsifier in hair conditioners.	DM210
DANOX HC-30	Pre-mixed cationic surfactant	Ready to use for hair conditioner products.	BG25
TETRANYL AL-TH	Dialkyl Ammonium Methosulfate	Cationic surfactant and anti-static for fabric softener.	DM190
TETRANYL AL-EX			
TETRANYL L12-90		Easy handle cationic surfactant and anti-static for cold process fabric softener.	

## 6. Others

Product Name	Chemical Composition	Main Application	Packing
AMAZY O-30	Amine oxide & alkaline mixture	Oil cleaning agent for hard surface such as stainless steel, floor or wall.	DM30
AMAZY O-40	Alkaline mixture		DM30
COS>NNL	Concentration Fatty Acid Soap mixture	Liquid soap base combine with moisturizing agent	DM100,DM200
COS>NNP			DM30,DM100
EMANON PCSA-M2(TH)	Pearl Concentration	Liquid concentration pearling agent, applicable for shampoo, conditioner, body-wash and etc.	DM120
KALCOL 6098	Cetyl Alcohol	Emulsion stabilizer for creams and lotions, additive for ointment base and cream conditioners, the smooth touch to skin for cosmetic uses, auxiliary for emulsifiers, thickening agent	BG20
KALCOL 8098	Stearyl Alcohol		
KALCOL 8655	Stearyl-Cetyl Alcohol		

# Foundry

In the foundry industry, the decision to use chemical binder systems in a foundry operation for molds and cores is based on the evaluation of many factors such as production rate, capital outlay, operating cost, quality level, environmental impact, skill of labor, sand available and so on. Kao is one of the world leader of foundry supplier.

## 1. Furan System

Product Name	Chemical Composition	Main Application	Packing
KAO LIGHTNER EF-57AT	Furan Resin (Higher Performance Type)	Resin for foundry molding process, suitable for FC, FCD, SC, SCS and Al Casting.	DM240, CT1200
KAO LIGHTNER EF-55AT			
KAO LIGHTNER EF-51AT			DM240, CT1200
KAO LIGHTNER EF-51BT	Furan Resin (Conventional Type)	Resin for foundry molding process, suitable for FC, FCD, and Al Casting.	DM240, CT1200
KAO LIGHTNER EF-53BT			DM240
KAO LIGHTNER EF-51BS			DM240, CT1200
SF-301B			DM30, DM240, CT1200
SF-32B			DM30, DM240, CT1200
SF-31T			DM240, CT1200
KAO LIGHTNER TK-3T	Acid Sulfonate Compound (Conventional Type)	Catalyst for Furan resin	DM30, DM240, CT1200
KAO LIGHTNER C-14T			DM30, DM240, CT1200
KAO LIGHTNER C-17T			DM30, DM240, CT1150
KAO LIGHTNER C-19T			CT1100
KAO LIGHTNER C-21T			DM230, CT1050
KAO LIGHTNER C-25T			DM210, CT1000
KAO LIGHTNER EC-3T	Acid Sulfonate Compound with Additive (Higher Performance Type)	Catalyst for Furan resin, suitable for high temperature sand	DM240
KAO LIGHTNER EC-10T			DM230
KAO LIGHTNER TK-3TL	Acid Sulfonate Compound with Additive (Lower Corrosion Type)	Catalyst for Furan resin	CT1200
KAO LIGHTNER C-14TL			CT1100
KAO LIGHTNER NC-03T	Acid Sulfonate Compound with Additive (Lower Sulfur Type)	Catalyst for Furan resin	DM240
KAO LIGHTNER NC-25T			DM230

## 2. Alkaline Phenol System

Product Name	Chemical Composition	Main Application	Packing
KAO STEP S-654T	Alkaline Phenol Resin	Resin for Ester cured molding process, suitable for FC, FCD, SC, SCS and AI Casting	DM30, DM240, CT1100
KAO STEP SH-8010TA			
KAO STEP QX-125R	Ester Compound with Additive (Lower smell Type)	Hardener for Alkaline Phenol Resin	DM220
KAO STEP QX-150R			
KAO STEP QX-125F	Ester Compound (Conventional Type)		DM30, DM240
KAO STEP QX-150			
KAO STEP C-810T	Alkaline Phenol Resin	Resin for CO2 cured molding process, suitable for FC, FCD, SC, SCS and AI Casting	DM30, DM230

## 3. Coating Agent & Casting Material

Product Name	Chemical Composition	Main Application	Packing
FURANCLEAN OSK-59TN	Alcohol Based Coating Agent	Coating agent for sand mold and core	CN20,DM250
FURANCLEAN OSK-593BS			
FURANCLEAN OSK-592GV			
FURANCLEAN OSK-593			
FURANCLEAN PC-200T	Water Based Coating Agent	Coating agent for full mold casting	BG20
KAO COAT SILVER	Toluene Based Releasing agent	Releasing Agent wood pattern	CN14
EG RUNNER SERIES	Pulp, inorganic filler, and organic binder.	Iron casting (runner channel for casting). Available in various size and shape.	P/C





# Metal

In the metal treating industry, many kinds of surfactants are used to enhance process performance and the quality of end products. To satisfy the needs for reducing the consumption of energy and raw materials and for labor saving, novel surface treating technology involving surface treating agents have been developed. Although, we are a late entrant in rolling oil and cleaning agent technology. We are confident that we do not lose to the initial and rolling oil cleaning agent maker in the areas of fundamental knowledge and technology concerning oil, cleaning agent and the application of emulsification and dispersion in the actual used of oil and cleaning agent.



## 1. FOMESALINE Series

Product Name	Chemical Composition	Main Application	Packing
FOMESALINE F-258LT	Silicate Sodium Hydroxide Alkaline Type	Alkaline Cleaning Agent (Low Temperature Type)	CT1300, ISO tank
FOMESALINE F-793S	Sodium Hydroxide Alkaline Type	Alkaline Cleaning Agent (High Temperature Type)	CT1300, ISO tank
FOMESALINE F-778S		Alkaline cleaning agent (High temperature and low foam type)	CT1300
FOMESALINE F-791S		Alkaline cleaning agent (low temperature type)	ISO tank
FOMESALINE F-792S			
FOMESALINE F-794S			
FOMESALINE F-732S		Alkaline cleaning agent (low temperature and low foam type)	CT1300, ISO tank
FOMESALINE F-774S		Alkaline cleaning agent (Room temperature type and low foam type)	ISO tank

## 2. KAOLUBE Series

Product Name	Chemical Composition	Main Application	Packing
ADDLUBE E-621L	Special Synthesis Ester	Raw material for Cold Rolling Oil	DM170
KAOLUBE 124P			CT899
KAOLUBE 190B			CT900
KALCOL 2455	C12: 50-60% C14:30-40% C16:10%>	Raw material for Aluminium Rolling oil	DM170

## 3. ANTIFOAM Series

Product Name	Chemical Composition	Main Application	Packing
ANTIFOAM E-20	Silicones Mixture Emulsion	Anti-foaming agent	CN16
ANTIFOAM SP-2020	Polyoxypropylene Stearyl Ether		DM30

The dispersion rolling oil recently developed by Kao is one improvement on this application of emulsification and dispersion. And it is our belief that it is globally unique and a possessor of characteristics different from others. It is our intent to continue placing greater efforts in the development of products by utilizing the technological expertise of Kao in surface science, fat and oil chemistry and polymer science.



# Plastic Additives & Polymerization

Many kinds of additives such as stabilizer, antioxidant, ultraviolet ray absorbent , blowing agent, coloring agent, plasticizer, lubricant, antistatic agent, antifogging agent, and mold release agent are used in processing plastics. Appropriate additives for actual use should be chosen in consideration of types of plastics to be processed, processing method and the desired qualities of the end products.

## 1. Lubricant

Product Name	Chemical Composition	Main Application	Packing
KAO WAX EB-FF	Ethylene Bis-Stearamide	Service lubricant for ABS resin, Polystyrene, PVC, Polyolefin, Phenol resin	BG15
KAO WAX EB-P			BG20
KAO WAX EB-G			BG20,BG500
FATTY AMIDE E	Erucamide	Lubricant for thermoplastic resins, anti-blocking agent and slipping agent	BG20
FATTY AMIDE P	Hexadecanamide		BG20
FATTY AMIDE O-N	Oleamide		PC20
EXCEPARL BS	Butyl Stearate	Rubber processing agent, plastic, lubricant, paint additive, ink additive	CN15

## 2. Antistatic

Product Name	Chemical Composition	Main Application	Packing
ELEC TS-2B	Complex Blend of Organic and Inorganic Salt Compound	For HDPE, LDPE, PP	BX20
ELEC TS-3B		For LDPE, PP	BX20
ELEC TS-15B		For BOPP film	BX15
ELEC EA		For HDPE, PP, PS, ABS	DM170
ELEC PC		For PS, ABS, Rigid PVC	PC20
ELEC TS-5A	Distilled Monoglyceride	For LDPE, PP, Rigid PVC	BX25
ELEC AC	External Type, Surface Coating Typed Antistatic Agent	For all kind of plastics	CN15
ELEC QN			DM160
ELESTMASTER PP-7440	Master Batch Type	BOPP film	BG25



### 3. Antifogging

Product Name	Chemical Composition	Main Application	Packing
RHEODOL SP-L10	Sorbitan Monolaurate	Apply on the surface of plastic or blend in plastic PVC or Polyolefin film	CN17
RHEODOL SP-O10	Sorbitan Monooleate		DM200
RHEODOL SP-S10V	Sorbitan Monostearate		PC20
RHEODOL TW-L120	POE Sorbitan Monolaurate		CN18, DM200
RHEODOL TW-O120V	POE Sorbitan Monooleate		CN18
RHEODOL TW-S120V	POE Sorbitan Monostearate		CN18
SUNTHROUZER W-4120A	Special Ester	Mostly use in PVC wrap	CN17, DM180

### 4. Plasticizer

Product Name	Chemical Composition	Main Application	Packing
VINYCIZER 50	Di-Isodecyl Adipate (DIDA)	Secondary plasticizer for plastics, films, sheets, leathers, hose, tile and plastisol	DM180
VINYCIZER 124	Di-Alkyl Phthalate (Non Fogging Type)	High quality PVC leather and other PVC products	DM200, IBC1200
TRIMEX T-08	Tri-2-Ethylhexyl Trimellitate (TOTM)	Plasticizer for synthetic resins, heat-resistant electric wires and cables, heat-resistant leathers, heat-resistant compounds, agrochemicals	DM200, IBC1200
TRIMEX T-08NB	Tri-2-Ethylhexyl Trimellitate (*Bisphenol A free)		
TRIMEX N-08	Tri-n-alkyl Trimellitate (n-TOTM)		

### 5. Surfactant for Emulsion Polymerization

Product Name	Chemical Composition	Main Application	Packing
EMAL 30D	Sodium Lauryl Sulfate	Emulsifier use in emulsion polymerization process	DM200
EMAL AL	Ammonium Laurate		ISO
EMAL 27C(P)	Sodium Lauryl Ether Sulfate		DM200
NEOPELEX F-24	Sodium Dodecyl Benzene Sulfonate		DM210
LATEMUL E-118B	Sodium Polyoxyethylene Alkyl Ether Sulfate		CN18
PELEX SS-L	Sodium Alkyl Diphenyl Ether Disulfonate		CN18
EMULGEN 120	Polyoxyethylene(12) Alkyl Ether		DM200
EMULGEN 147	Polyoxyethylene(19) Alkyl Ether		DM200
EMULGEN 1108	Polyoxyethylene(8) Alkyl Ether		DM190
EMULGEN 1135S-70	Polyoxyethylene(35) Alkyl Ether		DM190

## 6. Former Cleaner Material

Product Name	Chemical Composition	Main Application	Packing
CT-501	Alkaline Cleaner	Former cleaner for Nitrile Rubber Glove Manufacturing	IBC 1000
CT-503			
CT-551	Alkaline Cleaner	Former cleaner for Natural Rubber and Nitrile	IBC 1000



# Fine Cleaning

At Kao, We have developed a “CLEANTHROUGH” series, the effective cleaner for cleaning printed circuit boards and glass molds. This development has been achieved by our cleaning technologies accumulated through our long experiences in wide household and industrial applications.



## CLEANTHROUGH Series Material

Product Name	Chemical Composition	Main Application	Packing
CLEANTHROUGH 750HS	Mixture of Surfactant	Cleaning Printed Circuit Board (PCB), BGA, PGA	CN16
CLEANTHROUGH 750J			
CLEANTHROUGH LC-841		Cleaning of organic & inorganic dirt, Lead-frame, silicone oil	CN14
CLEANTHROUGH TW-100		Neutral pH, cleaning of oil & inorganic dirt	CN16
CLEANTHROUGH PA-914		Cleaner for multipurpose in metal & glass parts	DM30
CT-703B		Remover of particles & minor oil dirt	CN20
CLEANTHROUGH PA-900	Alkaline Cleaner	Cleaning glass mold without bad side effect	DM220, CN30
CLEANTHROUGH PG-970			DM220
CLEANTHROUGH PG-985			DM220
CLEANTHROUGH PX-300		Remove anti-refractive coating, Cleaner after polishing process	CN20
CLEANTHROUGH RA-301		Remove hard coat	DM30, DM220



# R&D activity

## Developing a variety of chemical products

In the century of activities since its founding, Kao has also forged a long history on the field of chemical products for industrial uses. Kao is currently developing many diverse chemical products that revolve around fat and oil derivatives, surfactants, functional polymers and aroma chemicals which are used in many fields such as Cosmetic & Toiletry, Agrochemicals, Steel & Metal, Fine Cleaning, Construction, Foundry, Plastic & Polymer.



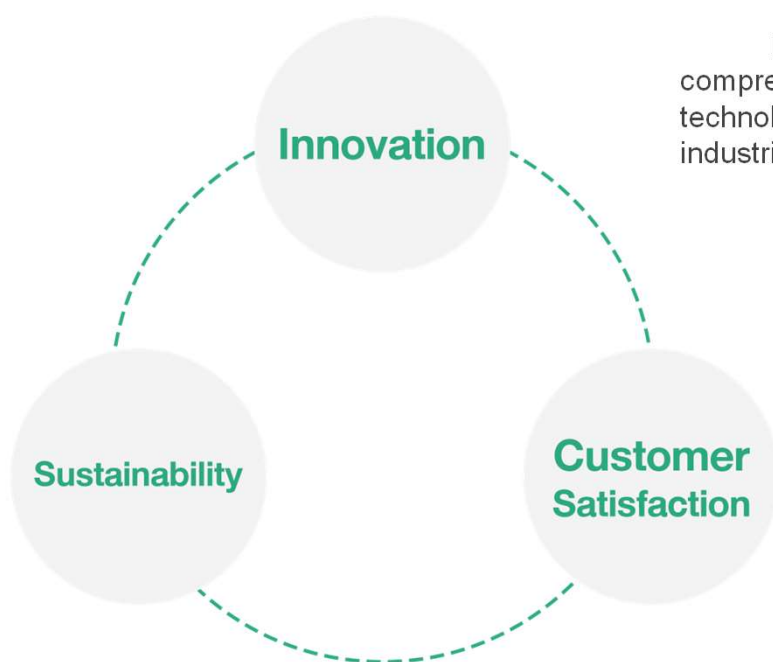
## Creative new products for industries globally

Kao believes that research and development is vital, driving force for corporate progress. The company is constantly upgrading its research and development activities by introducing the latest instruments and human resources.

One of our most important powers is close and strong collaboration with Kao Japan's R&D for fundamental research and advanced development. Kao continuously contributes and delivers eco-friendly products and technologies from a viewpoint of not only safety, but also energy saving and CO2 reduction, etc.

Kao Industrial (Thailand) R&D center encourages close communication and constant technological information exchanges with research and development centers in Japan and Kao's worldwide locations in 26 countries.

Kao will continue to concentrate its comprehensive strength in developing new technologies and products for a wide range of industries globally.





# Kao Eco Together

We work hard to reduce the environmental impact in all aspects of our business, including materials sourcing, product development, production, distribution, retail sales, and customer use at homes.

## For the satisfaction and enrichment of the lives of people

Kao engages in activities under the theme of “Nurturing the Next Generation” under the following guidelines in order to continuously contribute to realizing a rich society.

The Kao group believes that in order to pass on nature to the next generation, it is necessary to raise people’s awareness about environment through contact with nature. Because of this belief, the group actively participates in local greening activities and greening projects within the compound of each factory, and also supports environment conservation projects linked closely with regional communities.

## KAO Chemicals Thailand Sustainability Statement

Kao Corporation, which has been a member of the “Roundtable on Sustainable Palm Oil” (RSPO) since 2007, concluded in 2015 the certification of all of its chemical facilities to be compliant with the RSPO “Mass Balance” and “Segregated” Supply Chain Certification Systems

## Basic Policy on Sustainability

The Kao Group contributes to realizing a sustainable society by tracking the needs of the times and the community, and engaging in solutions to social issues through Yoki-Monozukuri, utilizing Kao’s technology and know-how.

## Basic Policy on Environmental Measures

The Kao Group is engaged in corporate activities to fulfill our basic policy, as described below, based on our philosophy: “We have committed to contribute to social sustainability by giving through consideration to environmental conservation and human safety in every aspect of our operations, including product development, manufacture, distribution, sales, usage and waste disposal”.

## CSR Procurement Basic Policy

The Kao Group considers suppliers as its business partners vital to Yoki-Monozukuri and undertakes procurement activities according to the Guidelines for Procurement of Raw Materials and Equipment.

## Policy for Quality Management Activities

The Kao Group remains committed to product quality management activities in line with fundamental group-wide policy to ensure product quality so that people around the world are able to use Kao products with peace of mind.



# ISO Certification



## Five Decades in Pursuit of Quality

Since 50 years of Kao Industrial (Thailand) Co., Ltd. in world business. Not only produce the good quality products, but also response to society as well. Moreover, in the severe competition together with the crisis of economy in Thailand, we have to upgrade the quality of our products and the efficiency of our operations, research and development. The management completely agreed to ISO 9001 international standard for quality management system.

We applied the quality system in all aspects of operation, from the placement of orders, selection of quality raw materials, control and expansion of production capacity maintenance and punctual delivery. With the concerted determination and dedication of all members of the management and staff, Kao Industrial (Thailand) Co., Ltd. has successfully implemented the ISO. After that, we expand the scope of ISO certificates to cover all chemical products, i.e., Cosmetics, Agrochemical, Polymer, Construction, etc. It can make the reliability to our customers because we continuously implement and monitor the weak points of all parts including customer complaints.

## Kao Quality Policy is Guaranteed by international standard ISO certificate.

1. Produce a quality product for customers satisfaction with continual development to enhance competitive advantage, locally and globally.
2. Commitment and maintaining a quality management system by following requirements and laws in order to satisfy all stakeholders.
3. Strive to improve and develop the quality management system to sustainability of the organization.

With the consistently development, we has achieved ISO certificates to cover all above chemical products. So, we are stronger, More flexible and better positioned to compete in the highly competitive domestic and global markets. We are able to deliver a fast and efficient service to all customers internationally. Currently Kao Thailand have been holding:

### ISO9001:2015

Recognized standard for the quality management of business.

### ISO14001:2015

An internationally accepted standard that sets out a framework of essential elements for putting an effective Environmental Management System (EMS) in place.

### ISO45001:2018

Occupational Safety and Health System and working environment Occupational health and work environment safety for employees and organizations is essential. For strengthen the credibility of the organization

### ISO22716:2007

There is a reputable product creation system in the cosmetic industry to ensure that every steps of production is of high quality and in accordance with the standards. Including having an advantages in competing with the international level.

# Kirei Lifestyle plan

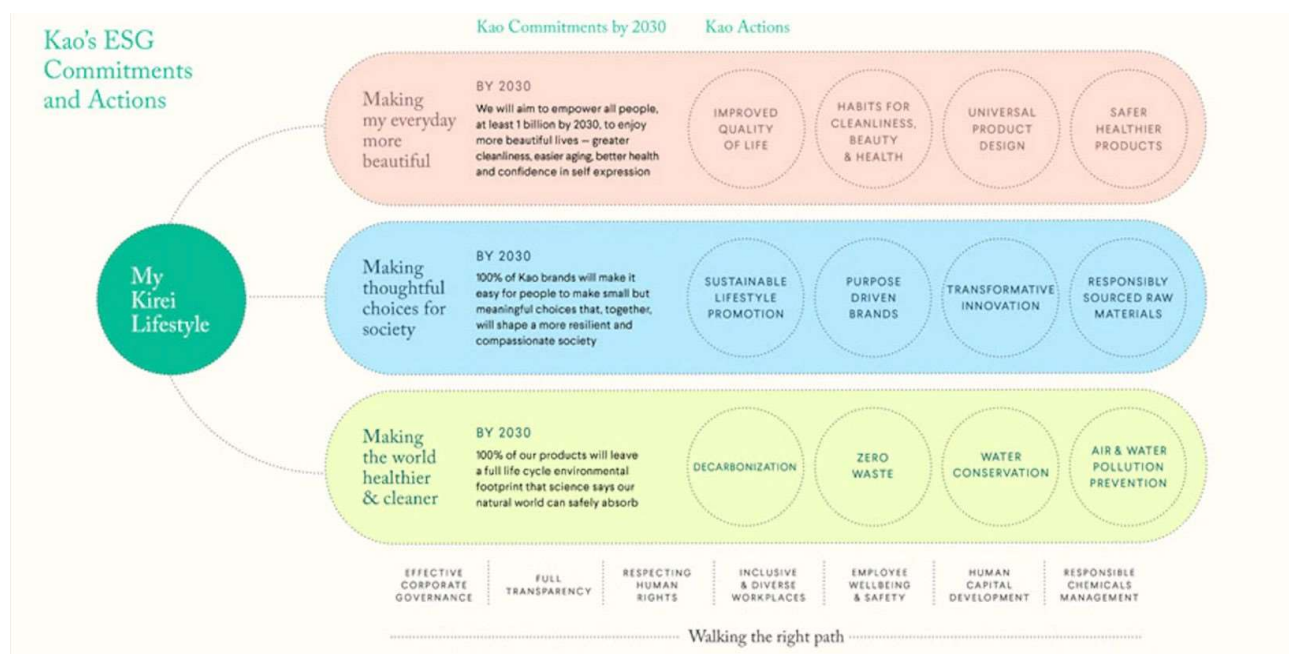
## Our ESG Vision

A Kirei lifestyle means living a beautiful life inside and out. A Kirei lifestyle is full of compassion. Where making your own life clean and beautiful never compromises the beauty and cleanliness of the world around you.

A Kirei lifestyle is enjoying today, with the peace of mind that those joys will be there tomorrow. It's the chance to express who you truly are, with the confidence that you are walking the right path. Even in the smallest, everyday moments.

That's why at Kao, everything we do is in service of this lifestyle. It's why we do what is right, not what is easy. We put our innovation and imagination to the task of enriching lives by finding ways for people the world over to live the Kirei lifestyle.

## Kao's ESG Commitments and Actions



# KAO CHEMICALS

## Global network

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Statement concerning the use of products described herein are not to be construed as recommending the infringement of any patent and no liability for infringement arising out of any such use is assumed.

# Kao Industrial (Thailand) Co., Ltd.



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# Kao

Kirei – Making Life Beautiful