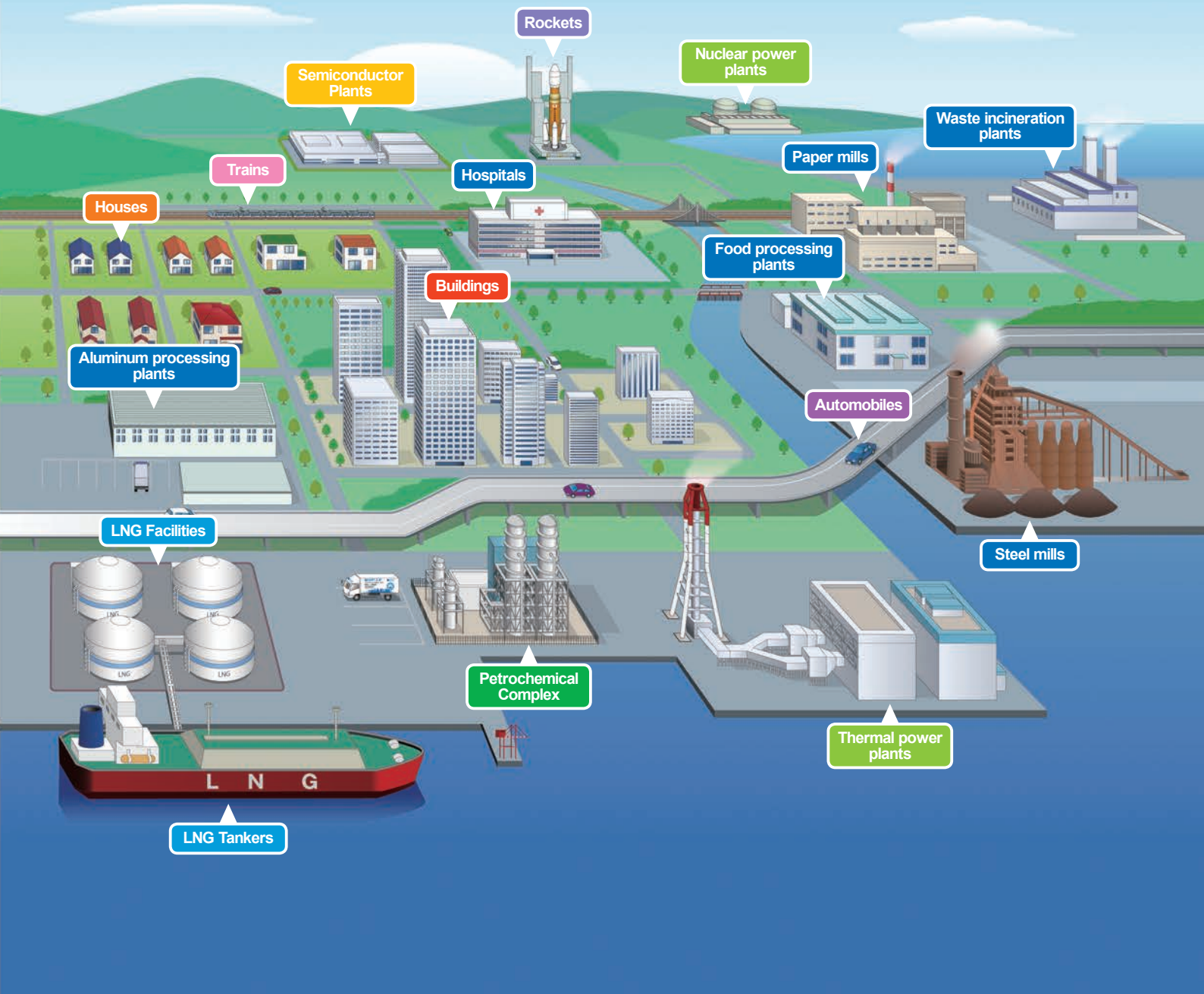


NICHIAS

TOMBO™ BRAND Products

You can find us anywhere!



TOMBO™ Brand products contribute greatly behind the scenes, and they will continue to do so!

Introducing NICHIAS Corporation with symbolic numbers.

Founded in 1896

The expertise and customer trust that we have acquired over the past 120 years are our most valuable assets.

6 technologies for Insulation and Protection

Since its foundation, NICHIAS has consistently offered products and services that are built upon our Insulation and Protection technologies.

→ Page 4

Supporting -250 to +1800°C

TOMBO™ brand products are available for all temperature ranges, which is why they are used in a wide range of industrial fields.

→ Page 5-25

5 businesses covering a wide range of fields

Our business covers a diverse range of markets including industrial plants, semiconductors, automobiles, construction, and more, allowing us to continue stable operations over many years.

→ Page 26

A network of more than 200 businesses

We have 190 offices in Japan and 20 offices overseas to meet a diverse range of customers' needs.

→ Page 27

An extension lineup of 3,000 products

Taking advantage of superior Insulation and Protection technologies, our products hold the largest share in each area.

→ Page 5-25

NICHIAS' growth history

1890	1896	Foundation	Commenced manufacture and sales of thermal insulation materials.
1900			See page 4 for a description on the NICHIAS logo.
1910			Commenced the business of installing thermal insulation materials around this time.
1920	1923	Registered the TOMBO brand	Both are the first in Japan! And both are still in production!
1930	1931	Commenced production of jointing sheet gaskets	
	1937	Established the Ohji Factory	
	1938	Commenced manufacture of rock wool products	
	1939	Established the Tsurumi Factory	
1940			Building materials business took off in full scale.
1950	1951	Developed prototype fluoropolymer products	
	1956	Commenced sales of building materials	
		Commenced sales of fluoropolymer products	
		Established the Tsurumi Research Laboratory	
	1959	Incorporated the Hashima Factory	
1960	1962	Listed on the First Section of the Tokyo Stock Exchange	
	1964	Established the Fukuroi Factory	
	1968	Crown Prince (now Emperor of Japan) visited the Tsurumi Research Laboratory	
1970			Commenced manufacture and sales of automotive parts around this time.
	1974	Established the Yuki Factory	
	1979	Established a business foothold in Singapore	
1980	1983	Established a business foothold in Indonesia	
	1985	Commenced manufacture and sales of rubber-coated metal gaskets	
	1987	Organized fluoropolymer products (now advanced products) and autoparts business divisions	
		Developed fluoropolymer products for semiconductor production equipment	
1990	1990	Established a business foothold in Malaysia and Thailand	
	1994	Established the Hamamatsu Research Laboratory	
		Established a business foothold in China	
	1996	Celebrated NICHIAS' 100th anniversary	
2000	2001	Established a business foothold in Vietnam	
	2004	Established a business foothold in Czech Republic	
	2008	Established a business foothold in India	
2010	2012	Established a business foothold in Mexico	
	2013	Moved the Corporate Head Office to Hatchobori, Chuo-ku, Tokyo	
	2016	Established a business foothold in United Kingdom	
		Celebrated NICHIAS' 120th anniversary	
	2017	Established a business foothold in Germany	

Birth of NICHIAS with the TOMBO brand

NICHIAS was born as a pioneer manufacturer of Japan-made sealing and insulation materials. Since then, it has supported the industrialization of Japan with its Insulation and Protection technologies.

Business growth and diversification

Our Insulation and Protection technologies contributed greatly to Japan's post-war recovery and subsequent economic growth based on the chemical and heavy industries. In line with the industrial growth in Japan, we developed a building materials business targeted at the construction boom for buildings and houses.

Autoparts business took off in full scale.

Establishment of five businesses and development of full-scale global business

Along with the expansion of existing businesses, NICHIAS flexibly handles changes in the industrial structure by making full use of its Insulation and Protection technologies. In addition, our large-scale entry into the semiconductor and automobile industries has led to our present basis consisting of five businesses. We are also actively pursuing the growth of our overseas operations.



6 technologies for Insulation and Protection

NICHIAS' Insulation and Protection technologies consist of six core elemental technologies, which contribute to various areas including equipment safety, energy conservation, and environmental preservation.



Sealing technologies

Prevents leakage of fluid from pipe joints, thus helping to ensure safe operation of equipment.



Thermal Insulation technologies

By maintaining the temperature of heated (or cooled) objects and providing insulation against external heat, NICHIAS contributes to energy conservation and the reduction of CO₂ emissions.



Soundproofing technologies

By reducing noise from factories and vibration from vehicle brakes, NICHIAS helps create a quiet and comfortable environment.



Fire-resistant technologies

NICHIAS provides materials that protect buildings against fire, or heat from industrial furnaces and incinerators.



Anti-corrosion technologies

Prevents corrosion and contamination by chemicals. For example, this technology plays an important role in semiconductor and food manufacturing processes where cleanliness and the elimination of bacteria are strictly controlled.



Clean technologies

Maintains cleanliness in processes that do not allow even the smallest amount of impurities. NICHIAS pursues cleanliness to its utmost limit.



About the NICHIAS logo

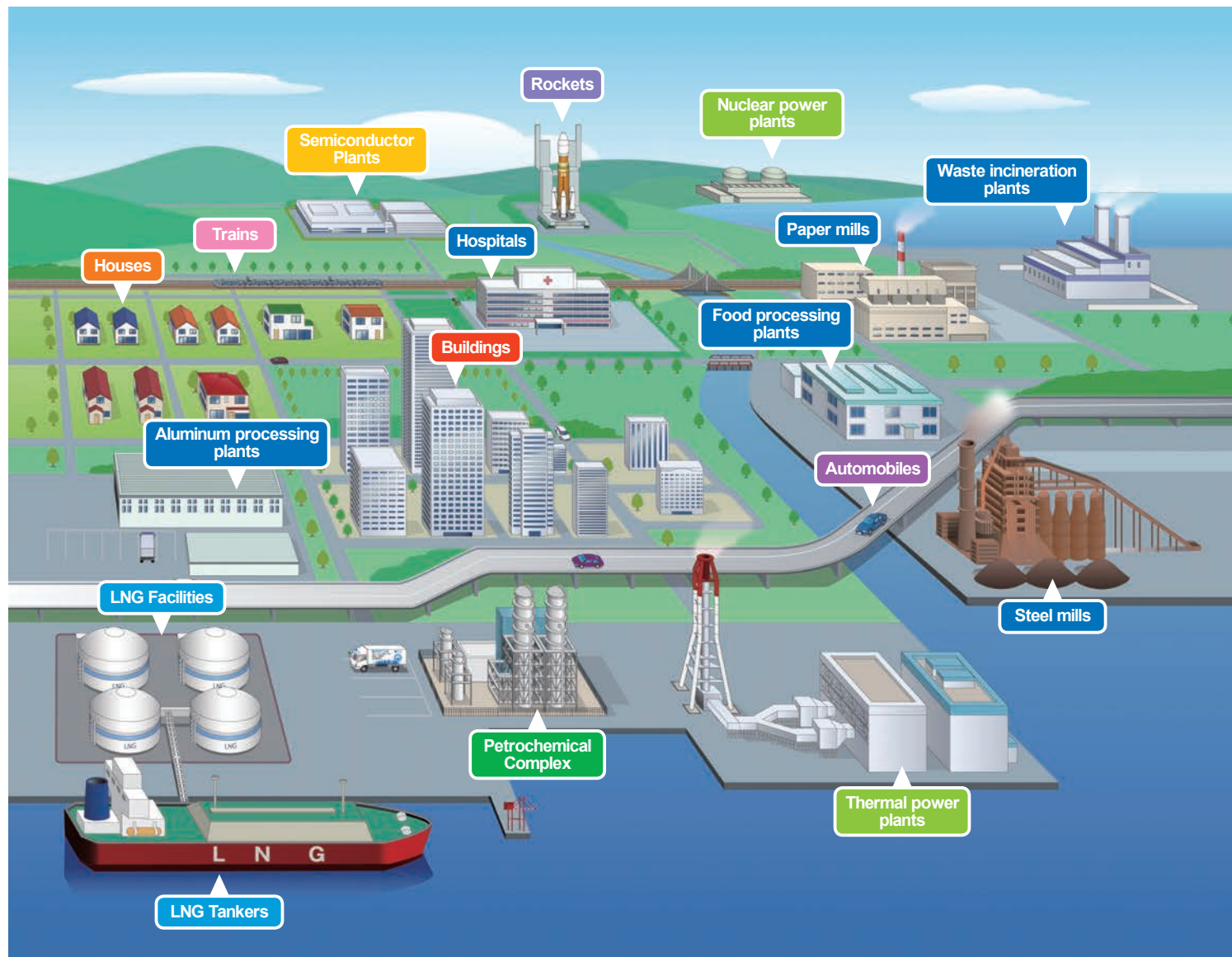
In ancient times, the dragonfly was a symbol of Japan itself. NICHIAS decided on the dragonfly trademark to reflect its vision of an exemplary Japanese company. The trademark was officially registered in 1923. At that time, the dragonfly in the trademark was perched on the ground, but now it is flying towards the sky, mirroring our hopes for the future.

* The dragonfly is called "TOMBO" in Japanese.

* "TOMBO" and the dragonfly are trademarks or registered trademarks of NICHIAS Corporation.

NICHIAS contributes to a wide range of industrial fields.

NICHIAS' products and services are based on our Insulation and Protection technologies and contribute to the growth of a wide range of industries. Our TOMBO™ brand products, which are used in many fields, are described on the following pages.



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TOMBO™ brand in a wide range of fields	p24

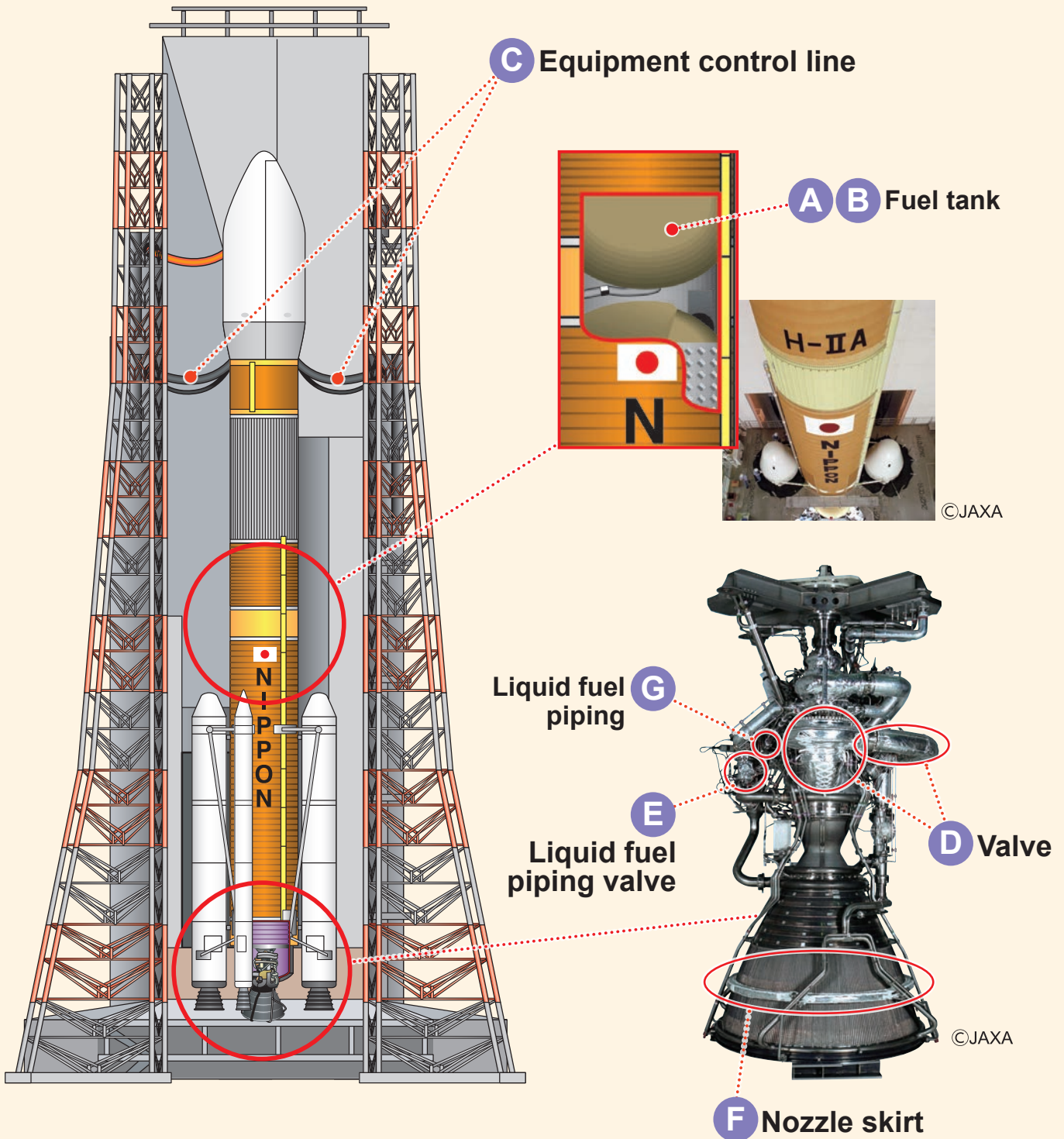
Product names with ™ are trademarks of NICHIAS Corporation.
 Yasai-Hana Block, ECOFLEX, KEICAL ACE SUPER SILICA, and PYROGEL are trademarks of Nippon Rockwool Corporation, Saffil Ltd., Nippon Keical Ltd., and Aspen Aerogels, Inc., respectively.



TOMBO™ brand in AEROSPACE

The TOMBO™ brand flies into space. Products such as our thermal insulation materials for rocket engines and cold insulation materials for fuels are used in the leading-edge aerospace industry.

Rockets





A Foamed heat insulation material

FOAMNERT™ Solution



A solution of heat insulation material used on fuel tanks and the exterior walls of rockets. It provides thermal insulation for liquid fuel that can be at extremely low temperatures.

B Foamed heat insulation material

FOAMNERT™ Processed Parts



Foamed heat insulation material used on the piping for liquid fuel tanks. It provides thermal insulation for liquid fuel that can be at extremely low temperatures.

C Fluoropolymer hose

NAFLON™ PFA Pressure Resistant Hose



A fluoropolymer hose used for equipment control lines to maintain clean conditions.

D Reusable flexible heat insulation material

ENETHERMO™



Reusable heat insulation material for covering valves at the lower part of the engine. It provides insulation against heat from the piping.

E Fluoropolymer processed parts

NAFLON™ PTFE Cutting Parts



Fluoropolymer sealing material used on valves in the liquid fuel piping of the rocket engine. It prevents fuel leakage.

F Heat-resistant cloth

RUBILON™ Cloth



Heat-resistant cloth used on the nozzle skirt of the rocket engine. It provides insulation against heat from the high-temperature combustion gas.

G Hollow type metal O-rings

Metal O-Seal

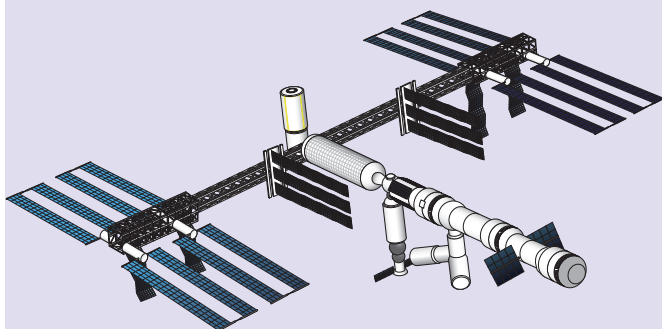


Sealing material used on joints in the liquid fuel piping of the rocket engine. It prevents fuel leakage from the piping.

Column

Space station

Yasai-Hana Blocks that supported the cultivation of azuki beans in space



Konotori IV was launched from the Tanegashima Space Center in August 2013. The rocket delivered a test kit to the space station where an azuki bean cultivation experiment "Space Seeds for Asian Future 2013" was conducted. The rock wool culture medium "Yasai-Hana Blocks" from the NICHIAS Group was used for planting the azuki bean seeds. The experiment was a success, with azuki beans germinating in a weightless environment.

Rock wool culture medium

Yasai-Hana Block™

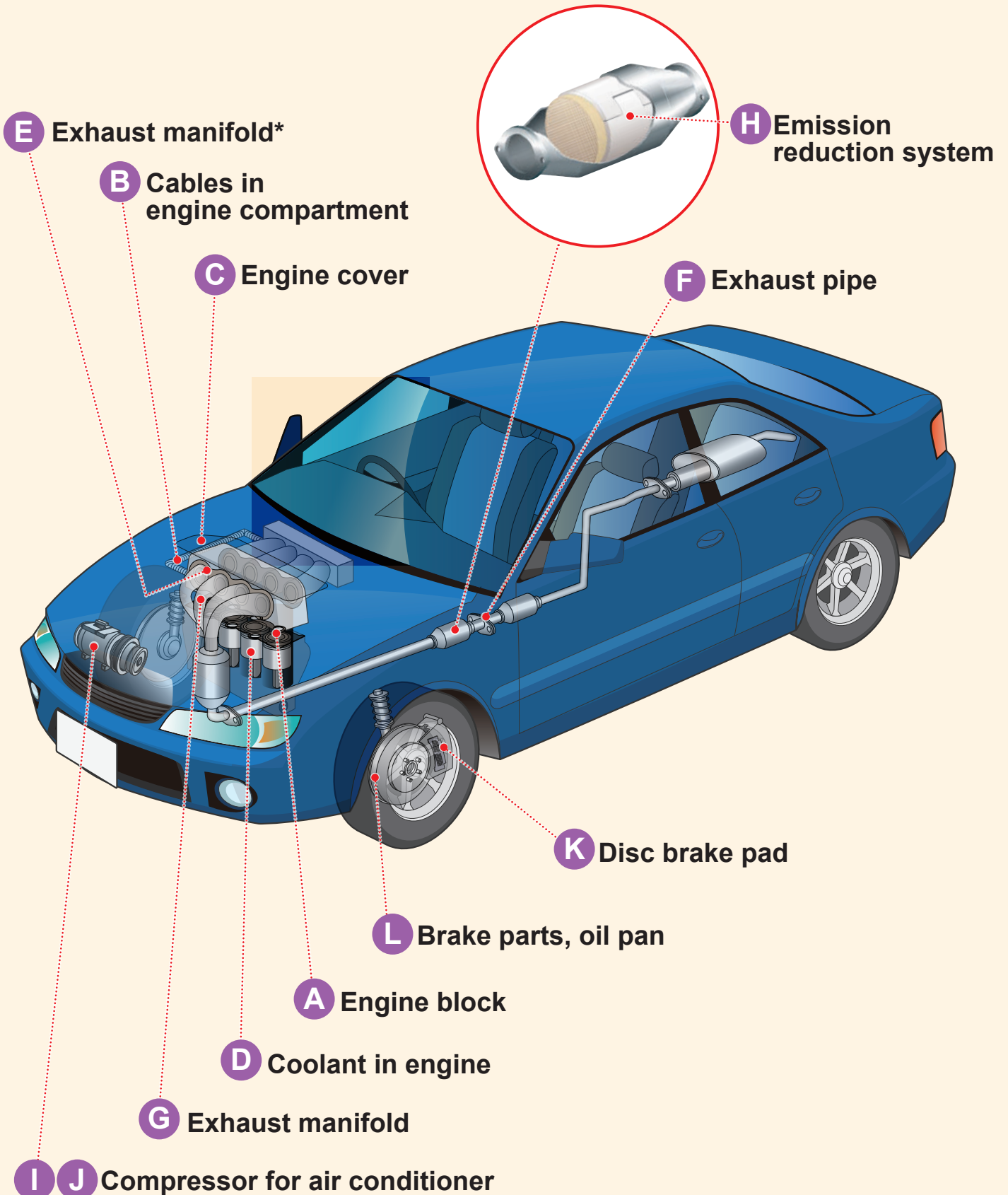
Culture medium made of rock wool used as a seedbed for the cultivation of fruits and vegetables. Also used for the cuttings of flowering trees and shrubs.



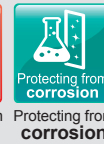


TOMBO™ brand in AUTOMOBILES

The TOMBO™ brand products include sealing materials to prevent the leakage of engine fluid and vibration damping materials to reduce the squeal of brakes, thus supporting safe and comfortable driving.



* The exhaust manifold consolidates the combustion gas discharged from multiple engine cylinders into a single exhaust pipe.



A Cylinder head gaskets
METAKOTE™



Sealing material used for the engine head gasket. It prevents the leakage of combustion gas, coolant and lubricating oil from the engine.

B Tube-shaped insulators
N-Flex Tube™



Flexible heat insulation tube for covering cables, rubber hoses, etc., in the engine compartment. It provides protection against heat from the engine.

C Ultra-lightweight sound insulation cover
AIRTONE™



Lightweight soundproofing cover used on the engine cover, etc. It blocks the sound of engine vibrations.

D Water jacket spacer
Water Jacket Spacer



This is a resin product that is used inside the engine for improved fuel economy. By controlling the flow of the coolant, it keeps the cylinder wall at a constant temperature.

E Exhaust manifold gasket
Metal Gasket



Sealing gasket used on the exhaust manifold. It prevents the leakage of high-temperature exhaust gas.

F Exhaust pipe gasket
VORTEX™ Gasket



Sealing material used on exhaust pipe flanges. It prevents the leakage of high-temperature exhaust gas.

G Heat insulator
INSULCOVER™



A metal cover used on the exhaust manifold, etc., to protect nearby parts. It provides insulation against exhaust heat.

H Catalytic converter support mat
ECOFLEX™



This heat-resistant buffer material protects the catalyst support, which is used for cleaning the exhaust gas, from the vibration and heat of the vehicle. Its excellent heat resistance provides insulation against the heat of the exhaust gas.

I Gasket for compressor
METAKOTE™



Sealing material used in the compressor for the air conditioner. It prevents the leakage of coolant and refrigerant oil from the compressor.

J Sliding material
EXCELIDE™



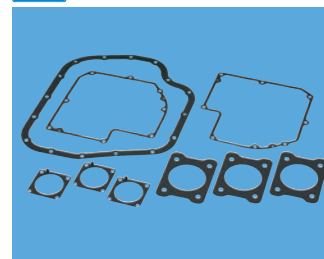
These sliding parts, made of multifunctional resin, are used in equipment such as compressors, ATs and ABSs.

K Brake shim material
METAPLUS™ Multi-Layer Shim



A soundproofing shim attached to the disc brake pad. It prevents unpleasant squealing noise generated during braking.

L Gasket
METAFOAM™



Sealing material used in brake parts and oil pans. It prevents the leakage of oil and water.



TOMBO™ brand in VEHICLES

In motorcycles, aircraft, ships, trains, and more...
TOMBO™ brand products are used in all types of vehicles.

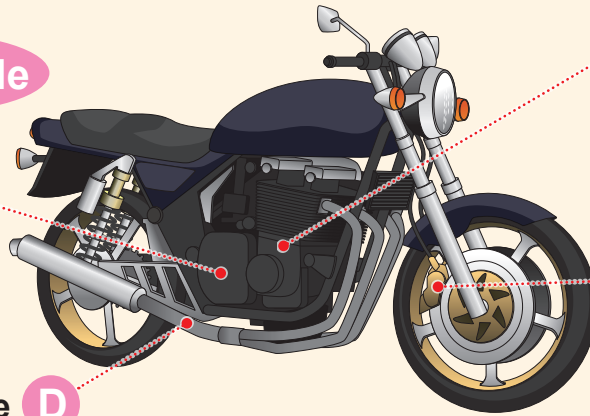
Motorcycle

Transmission **C**

Exhaust pipe **D**

A B
Piping in engine

E Disc brake pad



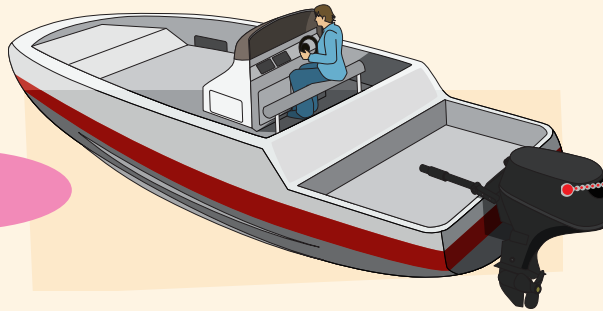
Aircraft

F G



Ship

A Outboard engine

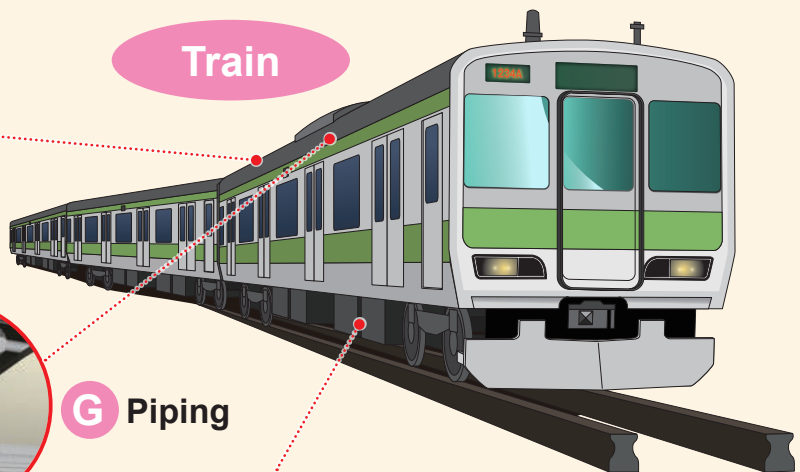
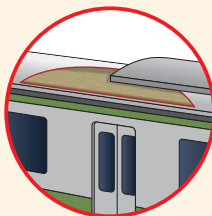


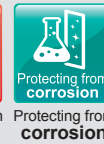
Train

I Ceiling

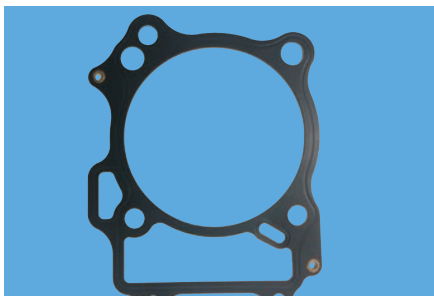
G Piping

H Resistor under car



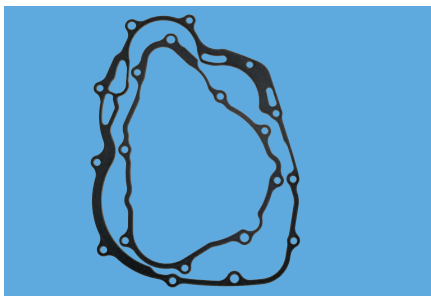


A Gasket
METAKOTE™



Sealing material used in engines and piping. It prevents the leakage of oil and coolant.

B Gasket
METAFOAM™



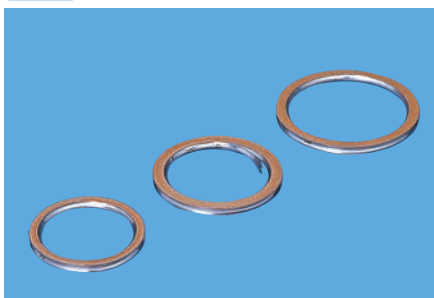
Sealing material used in engines and piping. It prevents the leakage of oil.

C Ultra-lightweight sound insulation cover
AIRTONE™



Lightweight sound insulation cover used in transmissions, etc. It blocks the sound of vibrations.

D Exhaust pipe gasket
VORTEX™ Gasket



Sealing material used on exhaust pipe flanges. It prevents the leakage of high-temperature exhaust gas.

E Brake shim material
METAPLUS™ Multi-Layer Shim



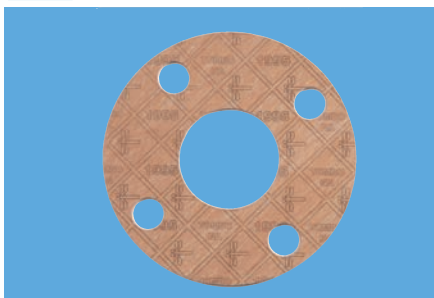
A soundproofing shim attached to the disc brake pad. It prevents unpleasant squealing noise generated during braking.

F Fluoropolymer tube
NAFLON™ PTFE Hose



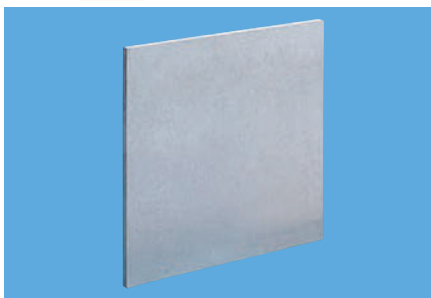
These hoses are used in aircraft galleys, etc.

G General-purpose joint sheet
CLINSIL™ Brown



Sealing material used on flanges and valves of piping. It prevents the leakage of water, oil, air, etc., from the piping.

H High-strength thermal insulation board
HEMISUL™



A thermal insulation board installed between the resistor under a train and the train's floor. It provides insulation against heat generated during acceleration/ deceleration.

I Heat insulation material made of rock wool
MG BOARD™



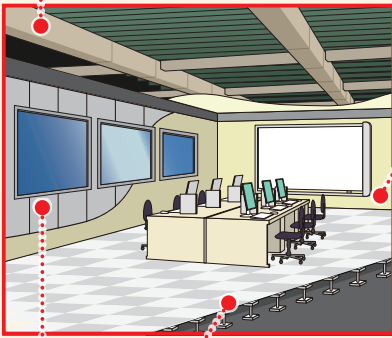
Heat insulation material used in ceilings and under floors. It provides insulation against radiant heat from equipment.



TOMBO™ brand in BUILDINGS

TOMBO™ brand products are also used in buildings, providing safety and comfort through their nonflammable, fireproofing and heat-insulating performance.

A I Steel beam and column



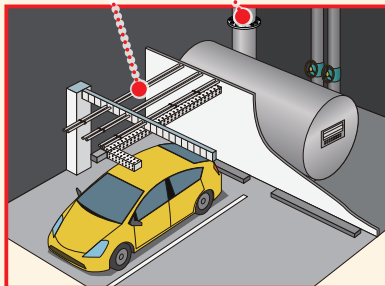
D Office wall

C Double flooring in office

B Building wall

E Piping

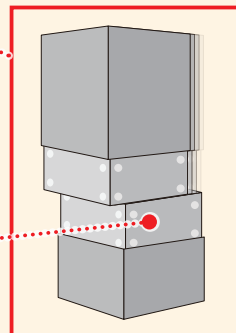
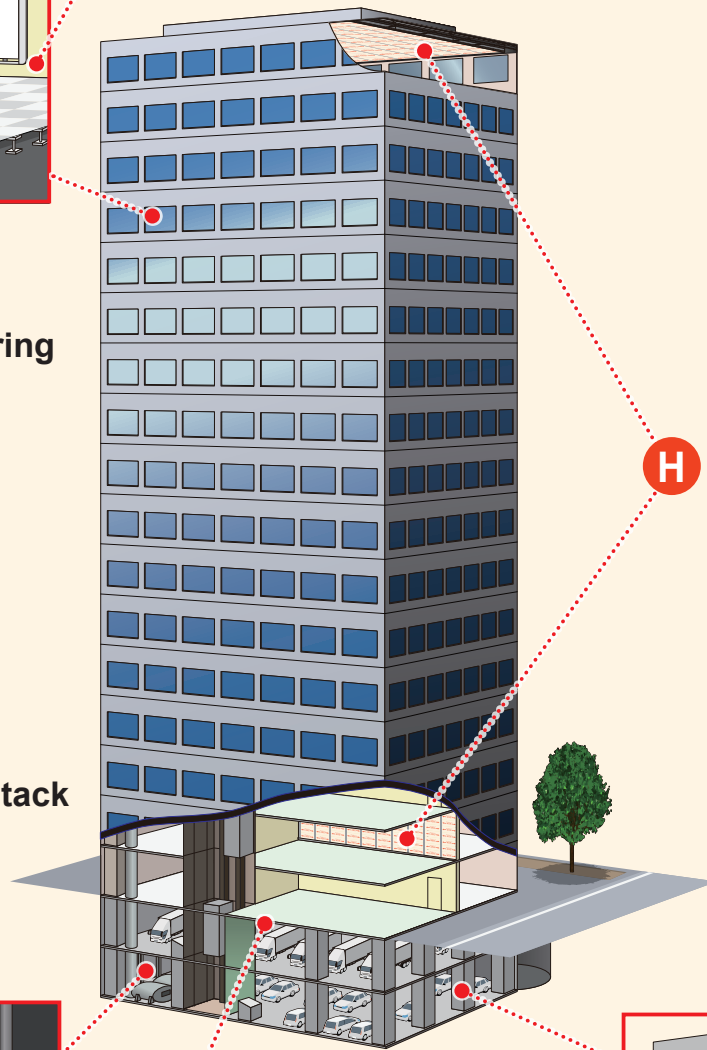
F Exhaust stack



B Floor back

G Seismic isolator

H Ceiling and partitioning wall





A Wrap-type fireproofing material
MAKIBEE™



Wrap-type fireproofing material made of rock wool to cover beams and columns of steel structure buildings. It provides protection against fire.

D Interior incombustible material
ECOLUX™



Incombustible material for use on the walls of offices and meeting rooms as well as for the interiors of toilets and office kitchenettes.

G Fireproof covering material for seismic isolator
MENSIN GUARD™
S



Fireproof covering material used for seismic isolators in buildings. It provides protection against fire.

B Heat-resistant rock wool thermal insulation material with moisture-proof layer
MAKIBEE™
DANNETSU



Heat insulation material used for internal thermal insulation of a building's wall surfaces. It retains the heat from air conditioners.

E Heat insulation material made of rock wool
MG MIGHTY COVER™



Heat insulation material made of rock wool used on the piping of building equipment. It provides insulation against heat from the piping.

H Soundproofing and heat insulation material for buildings
MG BUILPACK™



Soundproofing and heat insulation material used for ceilings and partitioning walls of buildings. It retains the heat from air conditioners while blocking the sound from ceilings and walls.

C Raised access floor
NICHIAS
OMEGA FLOOR™



Raised access floor used for double flooring in offices.

F Stack lining material
CAPOSTACK™
Super



Lining material used for the exhaust stacks of buildings. It provides insulation against exhaust heat.

I Wrap-type fireproofing material
MAKIBEE™
WTA/CLA/BL

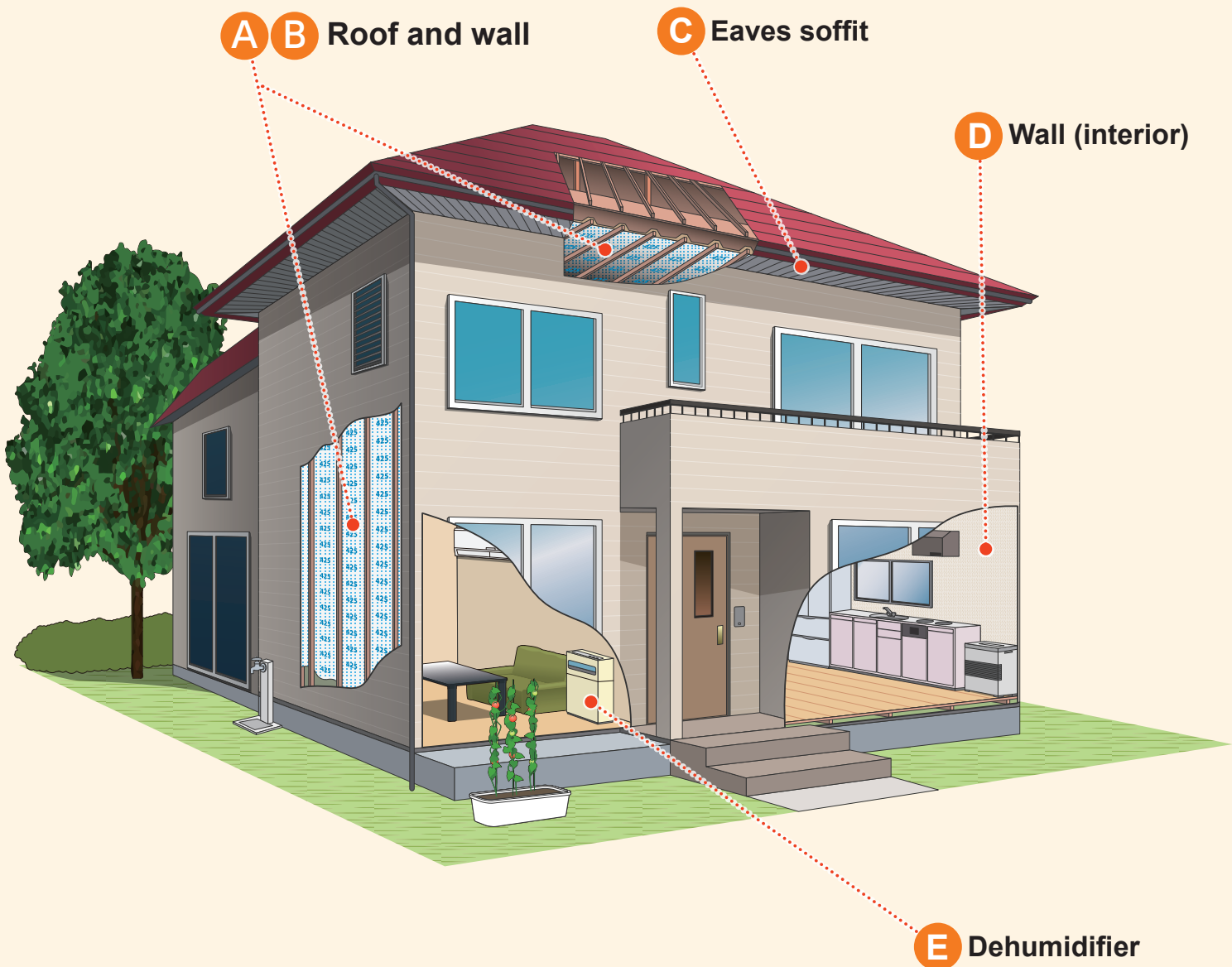


New MAKIBEE™ series with enhanced design. Suitable for buildings with bare steel structures without ceilings. Available in variations of three colors.



TOMBO™ brand in **HOUSES**

TOMBO™ brand products enhance the safety and security of homes, and also contribute to energy conservation, thus supporting a more comfortable life.





A Heat insulation material made of rock wool
HOMEMAT™



Heat insulation material made of rock wool used on ceilings, walls and roofs of houses. It restrains the heat coming in/out of houses.

B Heat insulation material made of rock wool
HOMEMAT NEO™



Moisture resistant film integrated heat insulation material for houses. It cuts off the heat coming in/out of houses.

C Eaves and soffit board
ECOLUX™ Eaves Soffit Board



An incombustible board used on eaves.

D Decorative calcium silicate boards
ASLUX™ Series



Decorative board used as interior materials for hallway walls, and the interiors of toilets and office kitchenettes. This incombustible material can be used in water facilities.

E Desiccant rotor for dehumidifier
HONEYCLE™ GX



A desiccant rotor with a honeycomb structure used in dehumidifiers.

Column

Planning to build a house?

HOMEMAT™ is for you.

When planning to build a house, it is easy to focus on the interior, kitchen, or other areas. But did you know that heat insulation is one of the most important factors for a comfortable house?

A house with high heat insulation provides high cooling and heating efficiency, thus saving energy. A study found that a well-insulated house can save about 80,000 yen per year in cooling and heating costs compared to a house without heat insulation materials. It has also been proven that houses with high heat insulation performance help reduce symptoms such as bronchial asthma, sore throat and atopic dermatitis, and also help prevent heat shock. NICHIAS' HOMEMAT™ provides top-class heat insulation performance among heat insulation materials for houses. If you are planning to build a house, choose HOMEMAT™. Feel free to call the NICHIAS Building Materials Division for more information.

Using HOMEMAT™ for heat insulation means...



Energy saving and a healthy life



TOMBO™ brand in

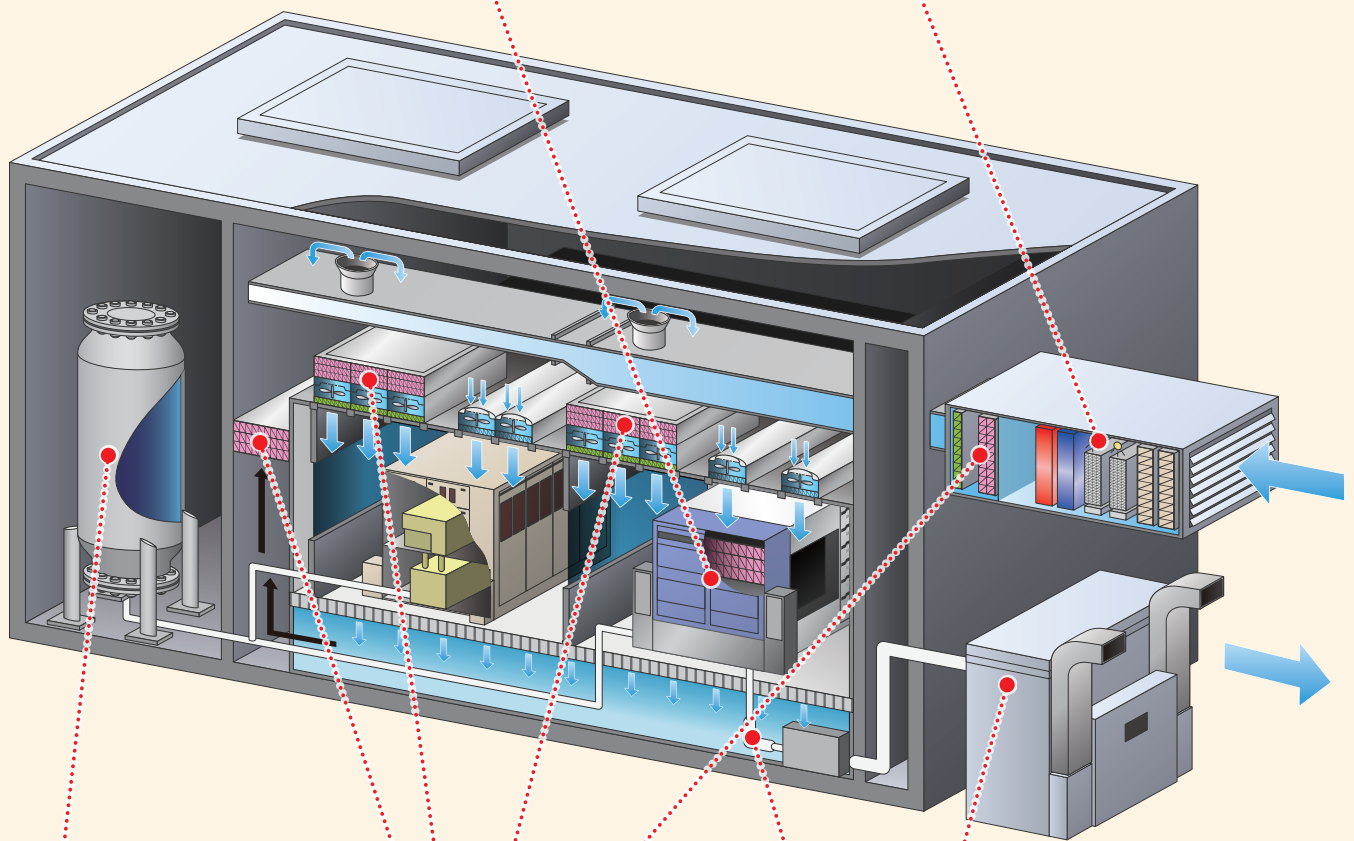
SEMICONDUCTOR PLANTS

Semiconductors are used in many product areas including smartphones, home appliances and automobiles. The manufacturing processes for these semiconductors are also supported by TOMBO™ brand products.

A B C Semiconductor manufacturing equipment

D E Semiconductor cleaning equipment

J Inside of external conditioner



F Chemical solution storage tank

H Ventilation hole

G Piping

I Organic solution disposing equipment



A Heat-resistant perfluoroelastomer
Rubber O-Ring
BLAZER™ NEXT



Sealing material made of perfluoroelastomer used in equipment, piping and valves. It prevents leakage from the piping.

*Perfluoroelastomer is a type of rubber material that offers better resistance to chemicals and plasma compared with ordinary rubber materials.

B Perfluoroelastomer
BLAZER™
O-Ring A



Sealing material made of perfluoroelastomer used in equipment and piping for cleaning processes. It prevents the leakage of cleaning solution.

C Fluoropolymer tube
NAFLON™
PFA-HG Tubing



A fluoropolymer tube used for transporting high-purity chemicals and gases. It prevents the corrosion of equipment piping due to chemicals.

D Jig for wafer cleaning
NAFLON™
PFA Wafer Carrier



A carrier made of fluoropolymer for wafer treatment and transportation. It prevents the corrosion of equipment due to chemicals.

E Fluoropolymer chemical tank
NAFLON™
PTFE Sink



Chemical solution tank used for cleaning wafers in cleaning equipment. It prevents corrosion due to high-purity chemicals and ensures cleanliness.

F Fluoropolymer chemical tank
NAFLON™
Tank Lining



Fluoropolymer tank lining for storing chemicals. It ensures cleanliness of chemicals.

G Jacket heater for pipe heating and insulation
ENETHERMO™
PH



Detachable jacket type heater for heating and heat retention of equipment and piping.

H Chemical filter for low-concentration gas removal
CHEMICAL GUARD™
Series



Filter used in air vents. It removes minute amounts of chemical contamination to ensure cleanliness.

I Volatile organic compound concentrator
SOLVENTCLEAN™



This unit concentrates low-concentration VOC containing gas discharged from factories. By combining with organic solvent treatment apparatus, it can process gas containing VOC efficiently.

J Humidification and removal of chemical substances
HONEYCOMB
WASHER™

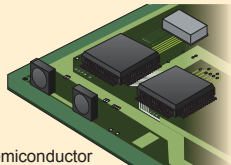
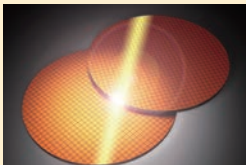


A system which removes water-soluble gases (NO_2^- , NO_3^- , SO_4^{2-} , NH_4^+) present in the outside air or the clean room. It keeps the discharged air clean.

Column

Fluoropolymer products used in semiconductor manufacturing processes that are strictly controlled for cleanliness.

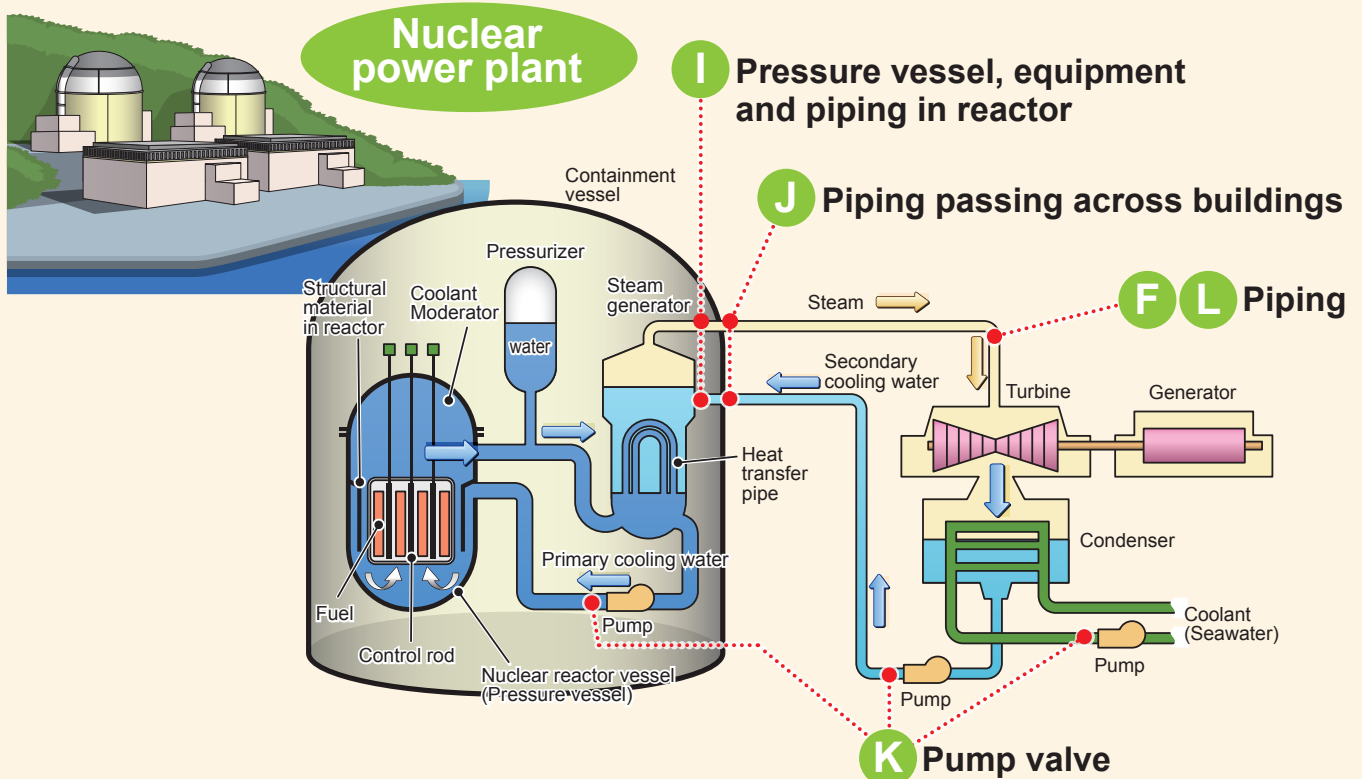
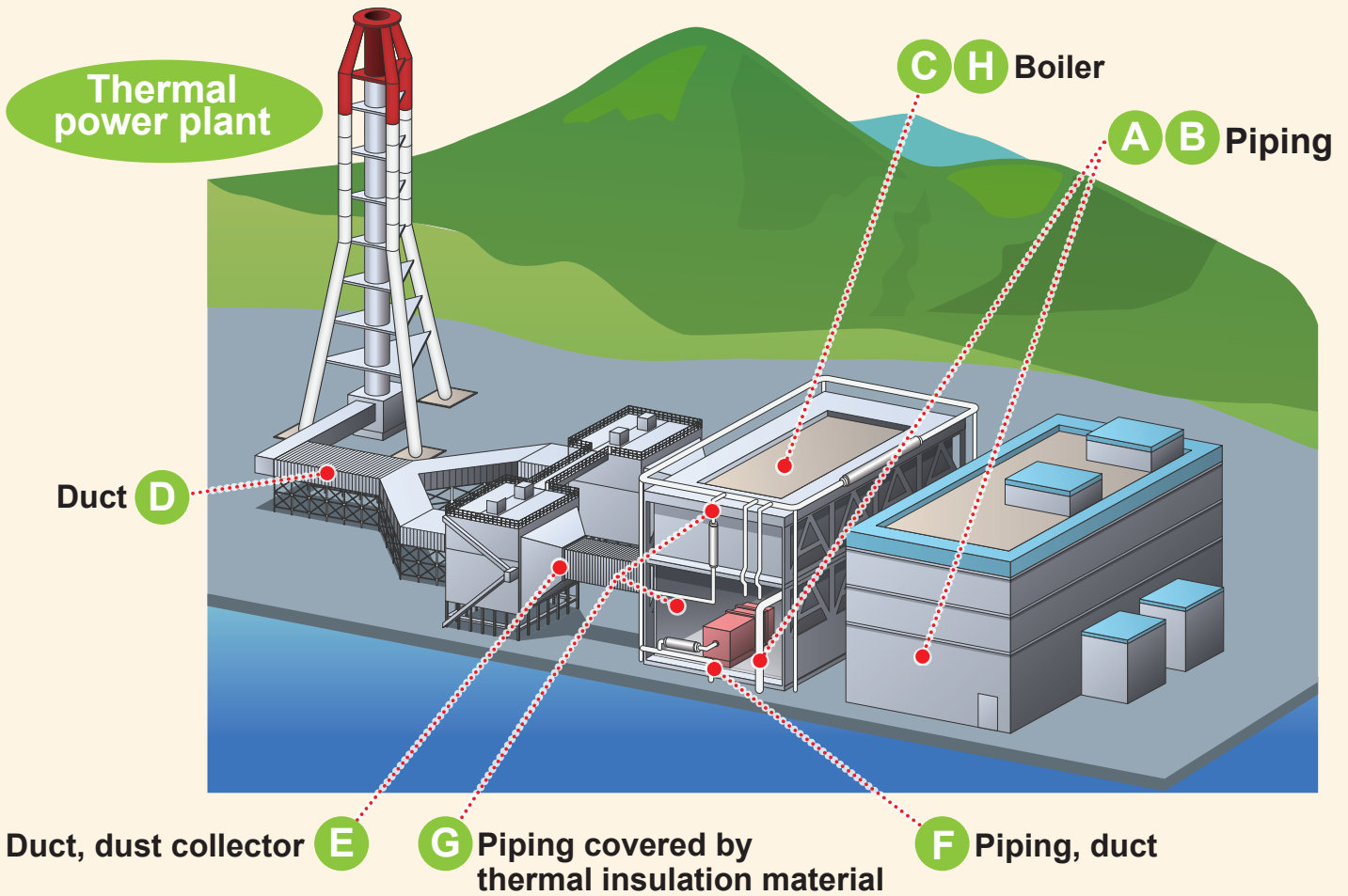
The manufacturing processes for wafers, which are the main materials of semiconductors, are strictly controlled to ensure nano-level cleanliness. Furthermore, the process of cleaning the materials using special cleaning solution is repeated many times. Even the slightest contamination on a wafer may lead to a defect in the semiconductor circuitry. Strict nano-level control is difficult to imagine. If one meter were the diameter of the earth, one nanometer would be about the size of a marble. NICHIAS' fluoropolymer products, which provide excellent resistance to chemicals and ensure high purity, are widely used in semiconductor manufacturing facilities that require stringent control for cleanliness.



TOMBO™ brand in POWER STATIONS

TOMBO™ brand products are also used in equipment in power stations, helping supply electric power that is indispensable to our daily life.





Insulating from leaks



Insulating heat



Insulating noise & vibration



Protecting from fire



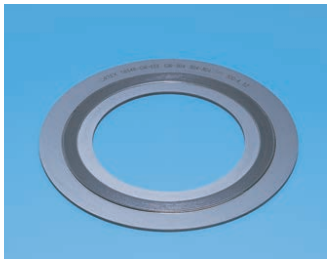
Protecting from corrosion



Protecting cleanliness

A Spiral wound gasket

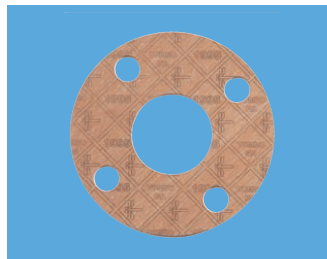
GRASEAL™ VORTEX™ Gasket



Sealing material used on flanges and valves of piping. It prevents the leakage of hot steam, etc., from the piping.

B General-purpose jointing sheet

CLINSIL™ Brown



Sealing material used on flanges and valves of piping. It prevents the leakage of water, oil, air, etc., from the piping.

C Castable refractory

TOMBO™ Fire-Resistant Caster



Fire-resistant material used on the walls, ceiling and bottom of boilers. It blocks fire from the furnace.

D Heat insulation material made of rock wool

MG BOARD™



Heat insulation material used on boilers, ducts, dust collectors, etc. It blocks heat from the boiler and sound from the ducts and dust collectors.

E Nonmetallic flexible expansion joint

NA BELLOW-Q™



A nonmetallic expansion joint used in smoke ducts such as piping and ducts. It absorbs the thermal expansion and contraction of ducts to prevent the leakage of smoke and air.

F Calcium silicate thermal insulation material

KEICAL ACE SUPER SILICA™



Calcium silicate heat insulation material used on various piping and ducts. It provides insulation against heat from the piping and ducts.

G Degraded insulation resuscitation method

é-AIM™ Method (eco-Advanced Insulation Method)



A method that restores the performance of thermal insulation material that has become degraded due to absorbing water. The degraded material does not need to be removed. This method reduces energy loss and retains the temperature of the internal fluid.

H Alkaline earth silicate (AES) wool

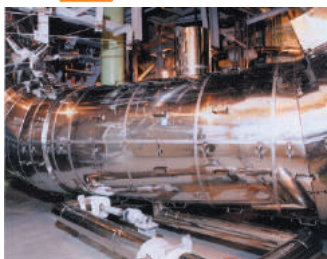
FINEFLEX BIO™ Blanket



This is a heat insulation material made of AES wool that is used on boiler ceilings and furnace walls. It insulates intense heat in furnaces.

I Heat insulation material for nuclear power plants

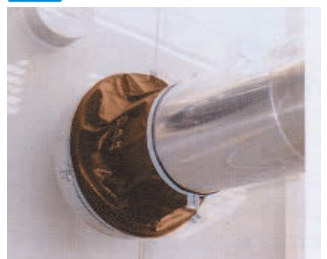
Metallic Heat Insulation



Metallic heat insulation material used on the pressure container of nuclear reactors, equipment and piping. It retains the temperature of the piping.

J Building penetration part sealing material

NU BELLOW-Q™



A flexible expansion joint made of special rubber material, used to seal the clearance between the pipes penetrating walls and floors, and the pipe holes. It provides insulation against hot water and water in the event of an accident or fire.

K Spiral wound gasket

NU GRASEAL™ VORTEX™ Gasket



Sealing material used on pressure vessels, heat exchangers, valves, etc. It prevents the leakage of hot steam and coolant from the piping.

L Reusable flexible heat insulation material

NU ENETHERMO™ K



Reusable heat insulation material for piping, valves, boilers, etc. It provides insulation against heat from the piping.

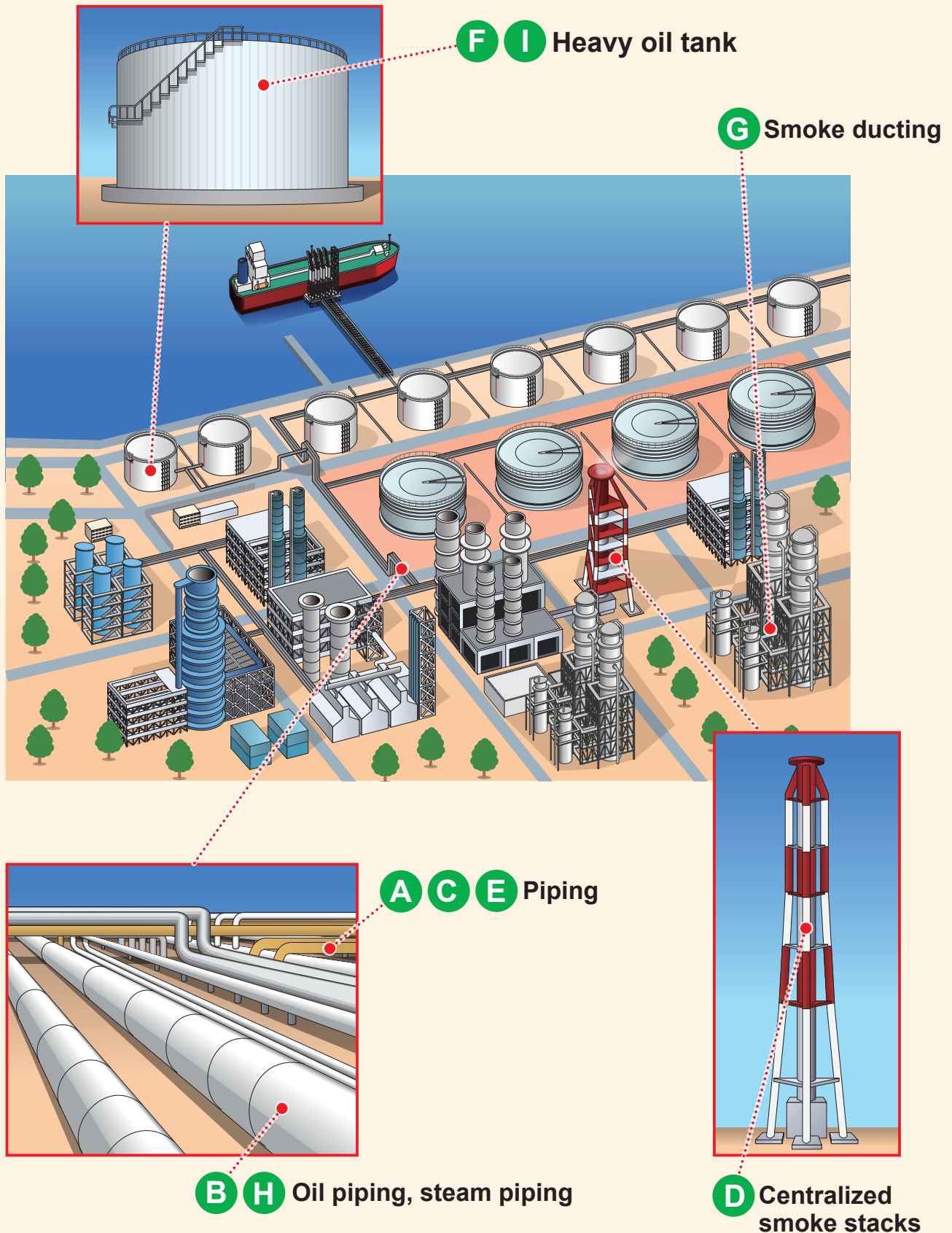
*Since nuclear power plants are typically constructed of high-grade metals and stainless steels, there are regulations on the content of halogen and other components that elute from products. Our products with an "NU" indication have been developed to meet these requirements.



TOMBO™ brand in

PETROCHEMICAL COMPLEXES

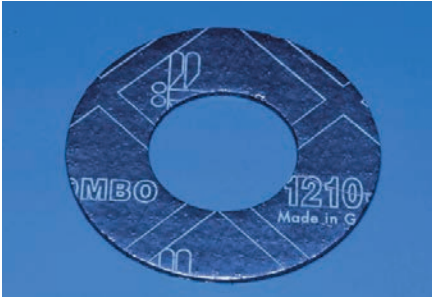
Our lives are greatly supported by petrochemical products. TOMBO™ brand products help ensure safe operation of petrochemical complex facilities that manufacture various petrochemical products.





A Graphite Gasket

GRASEAL™ Gasket



Sealing material used on piping, flanges, heat exchangers, etc. It prevents the leakage of fluid such as naphtha from the piping.

B Calcium silicate thermal insulation material

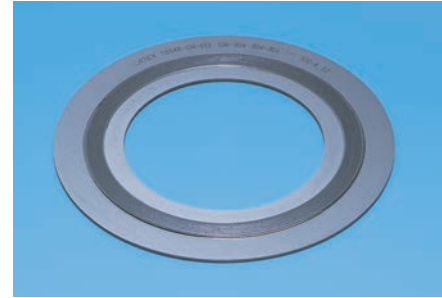
KEICAL ACE SUPER SILICA™



Calcium silicate heat insulation material used for various piping and ducts. It provides insulation against heat from the piping and ducts.

C Spiral wound gasket

GRASEAL™ VORTEX™ Gasket



Sealing material used on flanges and valves of piping. It prevents the leakage of hot steam, naphtha, etc., from the piping.

D Castable refractory for stack lining

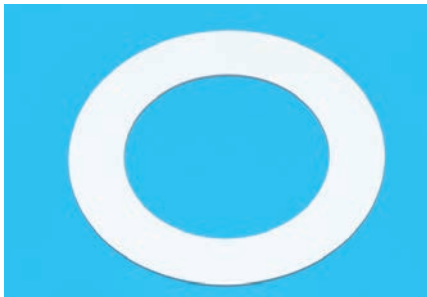
TOMBO™ CASTABLE



Refractory material used on the inside of stacks and ducts. It prevents heat and corrosion due to acidic gas in the stacks.

E Fluoropolymer-based compressed sheet gasket for process application

CLINSIL™ Clean



Sealing material used on flanges and valves of piping. It prevents the leakage of organic solvents and hot oil in the piping to ensure cleanliness.

F Heat insulation material made of rock wool

MG WIRED BLANKET™



Heat insulation material used for equipment such as tanks, ducts and smoke ducts.

G Nonmetallic flexible expansion joint

NA BELLOW-Q™



A nonmetallic expansion joint used for smoke passageways such as piping and ducts. It absorbs the thermal expansion and contraction of ducts to prevent the leakage of smoke.

H Degraded insulation resuscitation method

e'-AIM™ Method

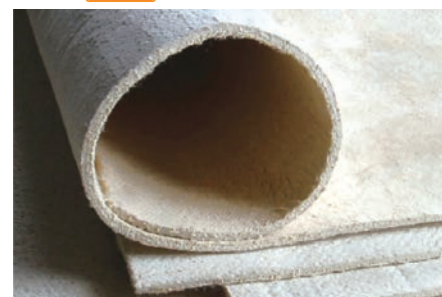
(eco-Advanced Insulation Method)



A method that restores the performance of thermal insulation material that has become degraded due to absorbing water. This is achieved by wrapping PYROGEL™ XT around the degraded material, which does not need to be removed. This method reduces energy loss and retains the temperature of the internal fluid.

I Flexible thermal insulation material with low heat conductivity

PYROGEL™ XT



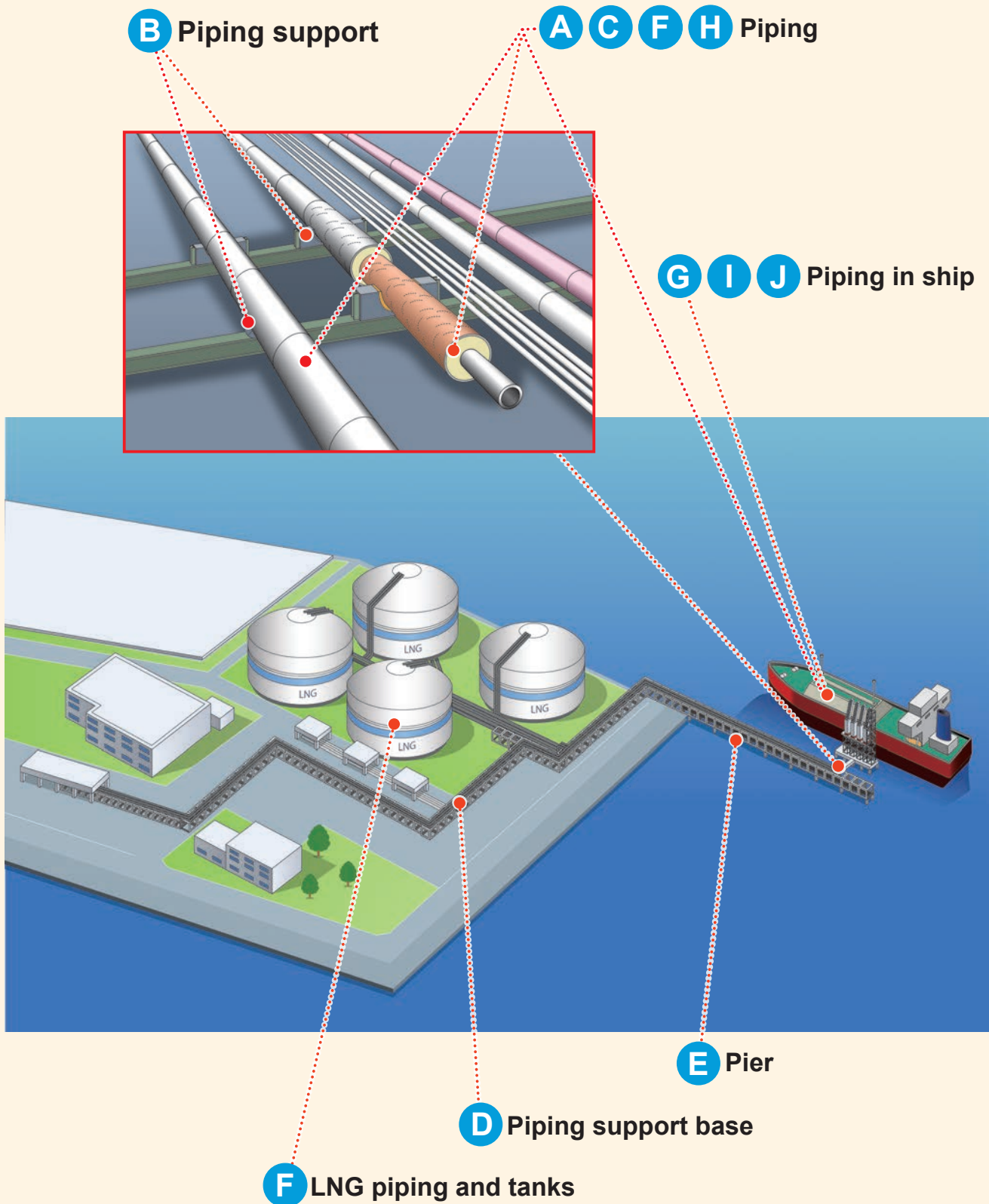
Thermal insulation material used on high-temperature piping, equipment, tanks, etc. It retains the heat inside the equipment.



TOMBO™ brand in

LNG terminals and LNG tankers

Natural gas is cooled and liquefied to be transported in the form of liquefied natural gas (LNG) from overseas. The Insulation and Protection technologies used in the TOMBO™ brand play an important role in these tankers and plant facilities.





Insulating from leaks



Insulating heat



Insulating noise & vibration



Protecting from fire



Protecting from corrosion



Protecting cleanliness

A Non-Freon-based rigid urethane foam

FOAMNERT™ TN Series



Urethane foam cryogenic insulation material used on piping for cryogenic fluid. It keeps the fluid at low temperatures.

B Heat insulation support material for cryogenic piping

FOAMNERT™ Support



Support material used on piping for cryogenic fluid. It supports the piping and keeps the fluid at low temperatures.

C Spiral wound gasket for cryogenic piping

GRASEAL™ VORTEX™ Gasket L



Sealing material used on flanges and valves for cryogenic applications. It prevents the leakage of LNG, etc., from the piping.

D Fire-resistant and cold-resistant covering material

MANDSEAL™



Fire-resistant and cold-resistant material used on exposed pillars and beams of equipment support stands. It provides protection against fire.

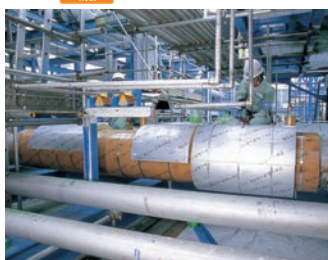
E Fluoropolymer sliding bearing material

NAFLON™ SLIDING PAD



Fluororesin sliding bearing material used on structures and piping in connecting passageways in bridges.

F Cold insulation work



Installing cryogenic insulation materials on piping, tanks, LNG terminals and LNG tankers.

G Glass cloth

MARINETEX™



Noncombustible lagging cloth that is wound around heat piping on ships. It provides insulation against heat from the piping.

H Spiral wound gasket

GRASEAL™ VORTEX™ Gasket



Sealing material used on flanges and valves of piping. It prevents the leakage of fluid from the piping.

I Jointing sheets for ships

CLINSIL™ Yellow



Sealing material used on flanges and equipment on ships. It prevents leakage from the piping.

J Piping support

NAFLON™ U Bolt



This piping support allows smooth extension and contraction of piping caused by temperature changes in piping on a ship.

Column

NICHIAS' cryogenic insulation materials used in ultra-low temperature environments

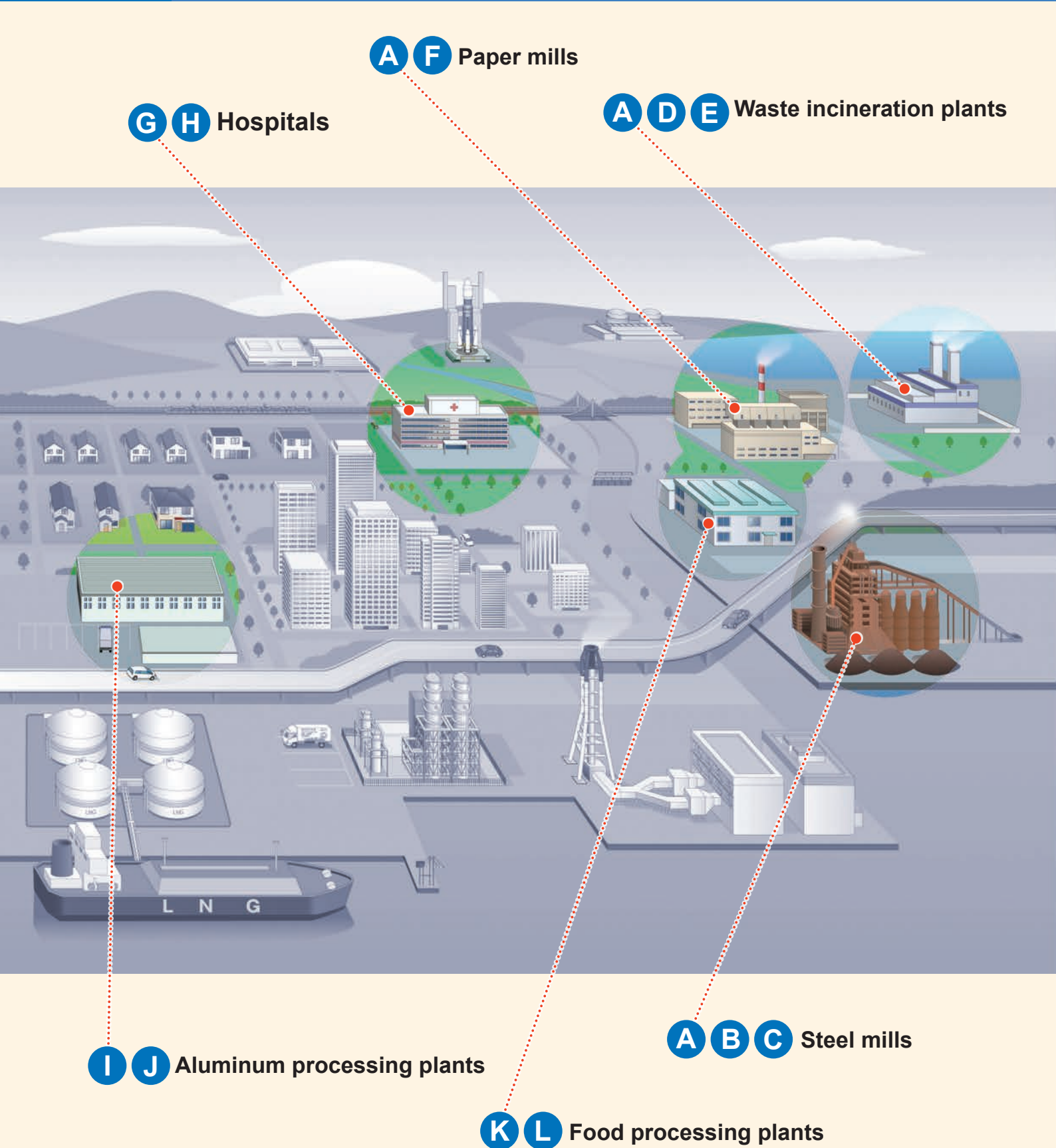
Natural gas is cooled and liquefied to be transported in the form of liquefied natural gas (LNG) from overseas. The volume of natural gas is reduced to one 600th when liquefied, allowing transportation and storage in large quantities. The cooling temperature (boiling point) of natural gas is as low as -162°C , which is difficult to imagine in everyday life. NICHIAS' technology for retaining heat such as urethane foam based cryogenic insulation materials contributes to the operation of gas infrastructures that are indispensable to daily life.



TOMBO™ brand in

wide range of fields

NICHIAS' products based on our Insulation and Protection technologies contribute to a wide range of industries.





A Castable refractory

**TOMBO™
CASTABLE**



Refractory material used on the walls, ceiling, and bottom of furnaces. It blocks fire from the furnace.

B Alkaline earth silicate (AES) wool

**FINEFLEX BIO™
Blanket**



This is a heat insulation material made of AES wool that is used on boiler ceilings and furnace walls. It insulates intense heat in furnaces.

C Heat insulation material for extra high temperatures

FINEBLOCK™



This is a heat insulation material, made of alumina fiberblanket or alkaline earth silicate wool blanket, for furnace linings. It insulates intense heat in furnaces.

D Nonmetallic flexible expansion joint

NA BELLOW-Q™



A nonmetallic expansion joint used for smoke passageways such as piping and ducts. It absorbs the thermal expansion and contraction of ducts to prevent the leakage of smoke.

E Heat insulation material made of rock wool

MG BOARD™



Heat insulation material used in furnaces, ducts, etc. It blocks heat from the boiler and sound from the ducts and dust collectors.

F Anti-corrosion packing

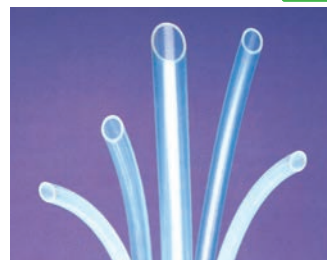
**NAFLON™
Fiber Packing-T**



Packing used for the rotating shafts of various pumps. It prevents the leakage of fluid and corrosion due to strong acid.

G Fluoropolymer tube

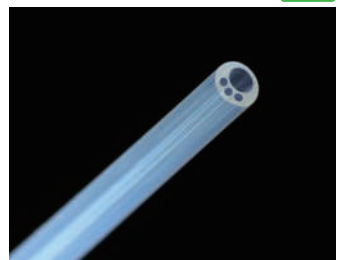
NAFLON™ Tube



Fluoropolymer tube used in medical equipment. It ensures cleanliness.

H Fluoropolymer tube

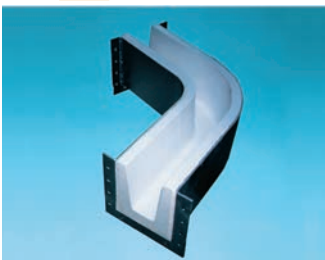
**NAFLON™ Tube
(Multi-Lumen)**



A fluoropolymer resin tube with multiple holes mainly used for catheters.

I Molded shapes for molten aluminum vessel

**LUMISUL™
LD**



Inner lining material (molding) for molten metal vessels. It makes direct contact with molten aluminum alloys and provides protection against heat from the molten aluminum.

J Calcium silicate heat insulation material

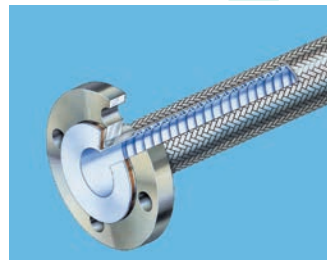
**LUMIBOARD™
LD**



A heat insulation board with excellent machinability that makes direct contact with molten aluminum alloy. It cuts off heat from hot molten aluminum.

K Fluoropolymer pliable hose

**NAFLON™ PTFE
Super Pliable Hose**



A PTFE pliable hose for transporting materials. Its outer surface is reinforced with a wire braid.

L Sanitary Use Gasket

**SANICLEAN™
Gasket**



Sealing material mainly used in product filling lines.

Five Businesses of NICHIAS

NICHIAS is engaged in five diverse businesses such as plant equipment, semiconductors, automobiles and buildings, which have different market trends. Although their economic situation may vary, these businesses as a whole are resistant to economic downturns, allowing us to achieve stable long-term growth.

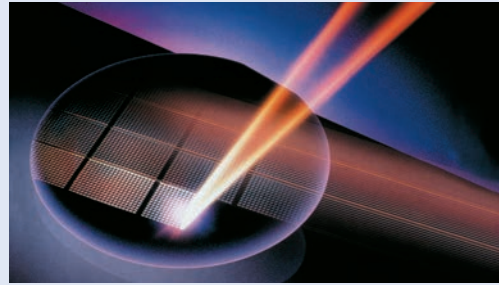
Energy and Industrial Plants

By providing engineering services to facilities for power plants, LNG terminals and petrochemical complexes, and products such as sealing materials, the Energy and Industrial Plants business supports important infrastructures that form the basis of our life. This division has more offices than our other businesses to quickly and accurately meet the needs of customers.



Advanced Products

Semiconductors are used in many product areas including smartphones and home appliances. The Advanced Products business provides parts and materials used in the semiconductor production processes. Although this field is subject to rapid changes in both technology and economic situation, we have established a flexible system to ensure quality and delivery that satisfies our customers.



Industrial Products

NICHIAS' Industrial Products business offers a wide range of products including sealing and heat insulation materials using our Insulation and Protection technologies in various industries ranging from food processing plants to the aerospace industry. This division has the longest history and the most diverse range of customers among our businesses. As the core operation in the NICHIAS Group, this division also serves to create new businesses.



Autoparts

The Autoparts business provides various materials such as sealing, heat protection, soundproofing, and vibration damping materials used on parts related to automobile engines and brakes. With its global supply system, this division has the highest ratio of overseas production and sales among our businesses. With its flexible development capability, the division delivers products to all automobile manufacturers in Japan.



Building Materials

NICHIAS' Building Materials business provides building materials with noncombustible, thermal insulating, fireproofing, and soundproofing properties for various buildings including houses, factories, and office buildings. This division also installs these products. Its products boast the largest share in each material category by meeting the demand from the highly matured domestic building market for a safer, more comfortable living environment.



These five businesses may appear to belong to different areas, but they share a common core — NICHIAS' Insulation and Protection technologies.

NICHIAS Group Network

Domestic Business Offices

With more than 160 sales offices, NICHIAS is close to customers throughout Japan, quickly delivering products and services that meet the customers' needs by taking full advantage of its Insulation and Protection technologies.

Factories: 23
Sales offices: 162
Laboratories: 2



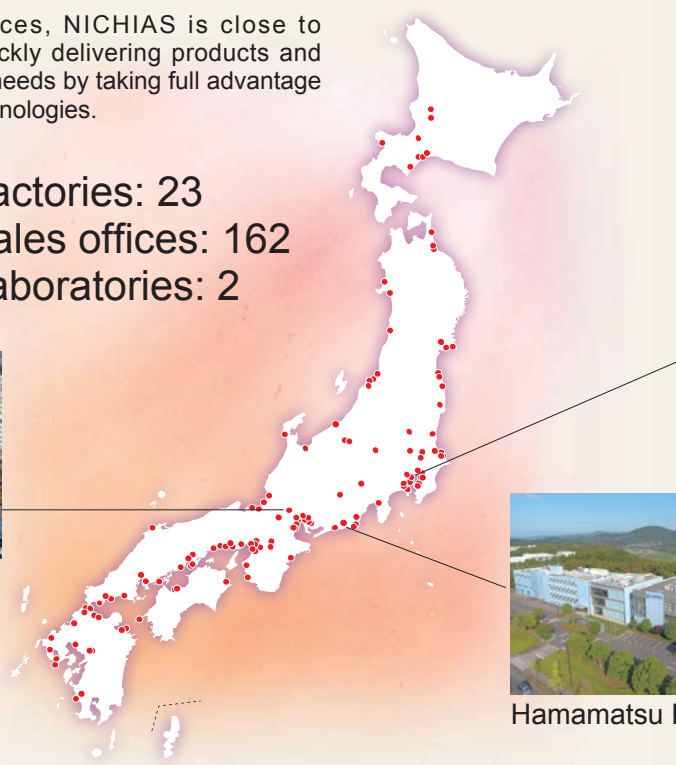
Hashima Factory



Head Office



Hamamatsu Research Laboratory



Overseas

The NICHIAS Group is actively pursuing the growth of its overseas operations. The TOMBO™ brand is spreading throughout the world.



Czech Republic

Factories: 14
Sales offices: 10



China



Indonesia

Indonesia, Malaysia,
Singapore, Vietnam,
Thailand, China, India,
Germany, United Kingdom,
Czech Republic, Mexico



Malaysia



NICHIAS Corporation

Head Office

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International Marketing and Sales Group
Phone: 81-3-4413-1132 Fax: 81-3-3552-6108
Web Site: <http://www.nichias.co.jp/>

Overseas Sales Companies

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Phone: +86-20-3879-1640 Fax: +86-20-3879-1647

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NICHIAS EUROPE (UK) LTD

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Overseas Factories

Indonesia

PT. NICHIAS ROCKWOOL INDONESIA

PT. NICHIAS METALWORKS INDONESIA

Malaysia

NICHIAS FGS SDN. BHD.

NT RUBBER-SEALS SDN. BHD.

Vietnam

NICHIAS HAIPHONG CO., LTD.

China

SUZHOU NICHIAS INDUSTRIAL PRODUCTS CO., LTD.

(苏州霓佳斯工业制品有限公司)

SUZHOU NICHIAS SEAL MATERIAL CO., LTD.

(苏州霓佳斯密封材料有限公司)

SHANGHAI XINGSHENG GASKET CO., LTD.

(上海兴盛密封垫有限公司)

SHANGHAI GOYU AUTO PARTS CO., LTD.

(上海五友汽车零部件有限公司)

India

NICHIAS INDUSTRIAL PRODUCTS PRIVATE LTD.

Czech

NICHIAS AUTOPARTS EUROPE a.s.

Mexico

NAX MFG, S.A.DE C.V.

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- 2) Properties/applications shown in this catalog are typical. The products shown in this catalog shall not be used for any purpose other than prescribed application.
- 3) Performance data shown in this catalog are developed from in-house testing and/or field reports from customers. Failure to select the proper products could result in property damage and/or serious personal injury.
- 4) Performance verification under actual operating conditions is recommended even for the application shown in this catalog.
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