



SUSTAINABLE BUSINESS FOR CARBON NEUTRALITY

For a Virtuous Cycle of Environment and Growth



Intro

This catalog is compiled as part of a project named “Thailand-Japan Sustainable Business Seminar and Business Matching for Carbon Neutrality”, organized by Japan External Trade Organization (JETRO) Bangkok.

Both Thailand and Japan are working on achieving carbon neutrality, with the former promoting “BCG Economic Model” as its national strategy and the latter formulating the “Green Growth Strategy”. In the pursuit of realizing a virtuous cycle of environment and growth, the need for public-private collaboration and international cooperation between the two countries is increasing.

On January 13, 2022, JETRO Bangkok and the Eastern Economic Corridor Office (EECO) revised our cooperation Memorandum of Intent (MOI), witnessed by H.E. HAGIUDA Koichi, Minister of Economy, Trade and Industry, Japan and H.E. Supattanapong Punmeechaow, Deputy Prime Minister and Minister of Energy of Thailand. This revision will help further deepen our existing close partnership with the EECO and build an even more resilient supply chain between Japan and Thailand, making contribution to the policies of both countries including BCG policy of Thailand and stimulating investments from Japanese enterprises to Thailand, especially within the EEC region.

As for the first concrete initiative based on the MOI, JETRO Bangkok and EECO held a webinar themed "Thailand-Japan Sustainable Business Seminar for Carbon Neutrality" (online) on February 7, 2022 to introduce the Government-Private efforts made in line with the policies of both countries. Following this activity, an online business matching event between Japanese and Thai enterprises is planned to be held by the end of the month with the same theme as the webinar's one.

This catalog introduces the products, technologies and services of the Japanese enterprises that joined the business matching event, as examples of sustainable businesses aiming towards achieving carbon neutrality. We hope that this catalog contributes to promoting more sustainable businesses in Thailand and eventually in the ASEAN region.

Lastly, we would like to express our sincere gratitude towards the EECO and everyone involved in the project.

March, 2022

Japan External Trade Organization (JETRO) Bangkok



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Fields for Potential Application

In this catalog, we introduce sustainable businesses by Japanese companies with the potential of contributing to achieving carbon neutrality globally. These businesses are categorized into nine categories based on their potential field(s) of application with indication by corresponding icons. For businesses that can be applied to more than one field, you will find multiple icons.


















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Plant-based biomass plastic raw material Bio-polyol "ECONYKOL" [®]	Thai Mitsui Specialty Chemicals Co., Ltd.		32
CO ₂ Capture and high purity Regeneration Energy-saving CO ₂ capture equipment (ESCAP [®])	Thai Nippon Steel Engineering & Construction Corporation Ltd.	  	33
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Recycling fly ash, sewage sludge ash and the likes into adsorbent/antibacterial material CircuLite

AC Biode Co., Ltd.



UPCYCLING ASH TO...
CLEAN SOIL,
OIL SPILLS,
CAPTURE CARBON



THE OPPORTUNITY

Ash mostly ends up in landfills, but we can turn ash into:

				
Ash Mostly end up at landfills just as waste	COVID-19 Huge demands for masks and filters	Agriculture Contamination Contaminated from fertilizer and heavy metals	Industry Contamination Toxic materials from emissions	Nuclear Contamination After a Nuclear accident
	Antibacterial (filters, masks)	Neutralize NPK fertilizer	Filters	Decontaminate radioactivity

Service and Technologies

CircuLite = multi-purpose chemical product made by upcycling fly ash, bio-mass ash, sewage sludge ash, alumina waste, lithium by-products etc. They use the ash previously used for landfill or cement as adsorbent and antibacterial material to replace active charcoal and zeolite and used for purposes such as filtering, soil quality improvement, water quality improvement, deodorants, cosmetics and so on. They provide upcycling technology, and also sell CircuLite itself.

Sustainability

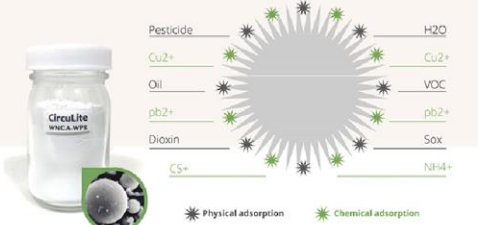
For the treatment of ash, it will cost around a few million to few 100 million JPY. CircuLite enables the upcycling of such ash into a high added value product, and it has been confirmed to absorb carbon dioxide, which can make it a replacement for high-cost adsorbents such as zeolites.

Experience

The company builds an upcycling factory for CircuLite adjacent to a power plant/sewage sludge incineration facility. They already have completed cases in Japan and Taiwan, and investment payback can be expected in around 3 to 4 years. Various types of ash can be used to upcycle into CircuLite with stable quality, and by adding an ion exchange function to it, it can become an adsorbent capable of absorbing both physically and chemically. It has also been confirmed to absorb carbon dioxide, and we can expect that the production will cost less than one-tenth of the previous method.

TECHNOLOGY

CircuLite: $\text{CaO} \cdot \text{SiO}_2 \cdot \text{Al}_2\text{O}_3 \cdot n\text{H}_2\text{O} + a$



Physical adsorption **Chemical adsorption**



Company Information

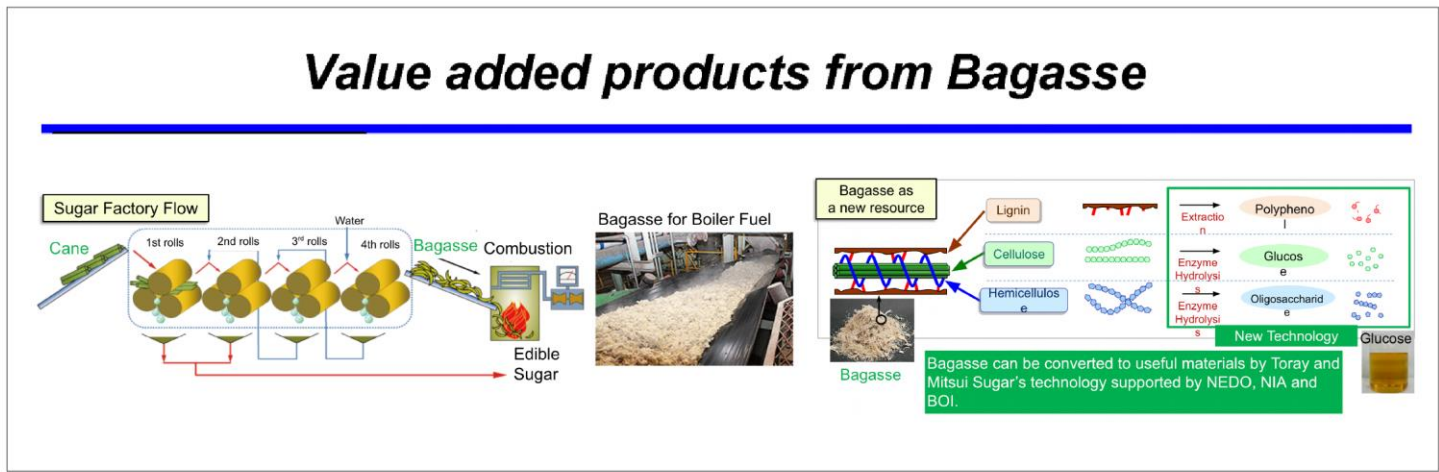
Company Name: AC Biode Co., Ltd.
 Industry: Chemical, medicine, petrochemistry and coal product manufacturing
 Address: 498-6 Hanazono-cho, Iwakura, Sakyo, Kyoto, Kyoto 606-0024
 Website: <https://www.acbiode.com/circulite>
 Affiliated Company in Japan: Same as above
 Contact: tadashi.kubo@acbiode.com (Kubo)

Message

We are a clean-tech start-up based on chemistry and material science, with 4 business fields; (1) Upcycling of fly ash, biomass ash, sewage sludge and the likes into adsorbents and antibacterial material, and sales of CircuLite itself; (2) Sales of bio-toilets that do not need water infrastructure; (3) Development of AC battery and circuits; (4) Development of plastic waste depolymerization catalyst.

Upcycling sugar-cane residue (bagasse) Feed and chemical material : create cellulose sugar, oligosaccharides, and polyphenols

Cellulosic Biomass Technology Co., Ltd.



Service and Technologies


Using sugar-cane residue (bagasse) produced by Thailand's core industry - the sugar industry, as its material, they produce cellulose sugar which has the potential of being biochemical/bioplactic raw material; oligosaccharide with growth promotion and intestinal regulation effect in livestock; and polyphenols which is a functional food with potential in beauty enhancement effects for cosmetics goods and anti-diarrheal effects for livestock.

Sustainability

It can be manufactured by B (using biotechnology), C (producing valuable products from the agricultural residue that's currently being incinerated), and G (low energy consumption using the membrane technology from non-edible material bagasse). We can produce high added value products from bagasse which is discharged in the sugar industry and used for purposes such as power generation. With this we will contribute to solving various social issues such as "reduction of feed usage" in feed industry, "reduction of fossil resource by using carbon neutral material" in biochemical manufacturing, and "competition with food".

Experience

This project has received technology verification and market evaluation by Toray Industries, Inc. and Mitsui Sugar Co., Ltd. as "International demonstration projects for increasing the efficient use of energy / The Demonstration Project for an Energy-Saving Cellulosic Sugar Production System Using Bagasse in the Kingdom of Thailand" by Japan's national research and development agency New Energy and Industrial Technology Development Organization (NEDO) and Thailand's National Innovation Agency (NIA).



Company Information

Company Name: Cellulosic Biomass Technology Co., Ltd.
 Industry: Manufacturing of raw materials for biochemicals, feed and food etc.
 Address: (Headquarters) 6th Floor, Bubhajt Building, 20 North Sathorn Road, Silom, Bangrak, Bangkok 10500 Thailand
 Website: <https://www.toray.com/global/>
 Affiliated Company in Japan: Toray Industries, Inc. Mitsui Sugar Co., Ltd.
 Contact: metakarn.learkiatratchata.t6@cbtthai.com (Bew)

Message

We are looking for communication with corporations who can consider developing a business using our raw material or are interested in our manufacturing system. If any of the below interests you, please feel free to contact us.

Renewable energy and agriculture production from the same plot of land Solar Farm®

Farmland Co., Ltd.

Service and Technologies

The combination of agriculture and solar energy by Solar Farm® allows for an increase of land use efficiency unlocking its potential to provide both renewable energy and food self-sufficiency at the same time. Solar Farm® has got its patent in Japan, USA, China & Taiwan. In 2017 has obtained Polaris Medal. Our activity was taken up in Whitepaper issued by MOE in 2019 and registered in 「 Good Practice for adaptation against climate change 」 by METI in 2020/2021.



Sustainability

Through the adoption of bi-facial, transparent solar panels Solar Farm® is able to maximize renewable energy production while allowing for appropriate amounts of light to reach crops below the solar array so that agriculture production can maintain near normal levels. Any loss in agriculture production can be made up through electricity sales or savings from solar.

Experience

In 2020, an MoU was concluded with the Chilean Ministry of Agriculture to implement a 20kW Solar Farm® pilot project. Its construction will be completed in Q1 of 2022 whereby studies will commence to identify the ways to best adapt the system for farmers of Chile. In Mongolia, 2017, through the support of the Joint Credit Mechanism subsidy from the Japanese government a 10.4MWac (12.7 MWdc) solar system which incorporates Solar Farm® began its operations in Mongolia. In Japan, since 2015 Farmdo Group has constructed, maintained and managed over 50 Solar Farm® locations.



Company Information

Company Name: Farmland Co., Ltd.
 Industry: Other manufacturing
 Address: NF2 Building, 1-1-1
 Tonyamachi, Maebashi, Gunma
 371-0855
 Website:
<https://farmdo.com/en/farmland.html>
 Affiliated Company in Japan:
 Same as above
 Contact: w-remi@farmdo.com (Remi)

Message

We, Farmdo Group have obtained support from customers under our business policy “Support agriculture; Make efforts towards an increase in farmers’ incomes.”. Since our society is being reformed dramatically day by day, we are pursuing new business models constantly. Farmland contributes to people and the global environment by creating and offering safer and enrich life environment. Solar Farm® creates a new ideal style of agriculture for young generations. With our group management system, we strengthen each function and go forward with “dream cycle”. That is the way we contribute to society.



ENERGY EFFICIENCY



BIOMASS / INNOVATIVE MATERIAL

Insulation paint born out of space rocket development GAINA

GAINA Pro Co., Ltd.



Service and Technologies

An insulation paint born out of Japan's space rocket technology development. Just applying as a paint, it can easily provide an insulation coating to any object. When applied to exterior walls, it will protect from the heat from sunlight and when applied to interior walls, it will trap the cold air of indoor, which can vastly reduce the energy used in air conditioning of various buildings, hotel, warehouse, factory, school, hospital and airport. The normal insulation paints will decrease if stained, but this product is hollow ceramic structure, the functionality remains the same even if stained.



Sustainability

By applying this product on buildings, air conditioning efficiency can be increased and thus energy consumption is vastly reduced. So, it will contribute to the reduction of CO₂ emissions at power plants. For the end user, this will mean a great saving on electricity bills, and the amount saved can be collected as investment cost. The durability is long at over 3 times that of a normal paint, so maintenance cost can be reduced too. There are cases where air conditioning cost becomes less than half, depending on the region and building's structure. With its ability to curb energy consumption and reduce CO₂ emissions and repair cost, this paint is considered a sustainable paint.

Experience

[Representative operations] Roof of Toyota and Nissan's automotive factories; refrigerated warehouse in Miyagi prefecture, exhibition room of national treasures in Todai-ji, resort hotel in Palau, train roofs in Spain and an airport facility in Saudi Arabia and Apparel warehouse's temperature decreased by 5-10°C. with applying as a paint.

[Experimental studies] In Dubai, UAE, we painted one shipping containers with a normal paint and the other with this product to measure the interior temperature. When the outside temperature was 50°C, the temperature inside of the container with normal paint exceeded 75°C and was immeasurable, while the container with this product was 46°C.

GAINA

Company Information

Company Name: GAINA Pro Co., Ltd.
Industry: Other services
Address: 834 Shimo-Hiratsuka, Tsukuba, Ibaraki 305-0813
Website: <https://www.gaina-pro.com/>
Affiliated Company in Japan: Same as above
Contact: info@gaina-pro.com

Message

Our product, GAINA, is a cutting-edge product created with Japan's space development technology (JAXA). It was recognized by the United Nations as part of UNIDO in 2019, and is compatible with SDGs, which it's attracting attentions worldwide. The implementation is not difficult, anyone from any country can simply paint it to achieve the insulation effect and contribute to the reduction of energy cost and CO₂ emissions. Apart from GAINA, we also have Rust Samurai which is used to simply paint over rusty areas to repair the rust, and mineral water that can devitalize coronavirus by more than 99.99%. We are looking for partners who can handle local manufacturing, implementation and sales activities.

Undisclosed

Eradicate measurement mistakes and eliminate raw material scrap and waste

Multi-variety automatic measurement, manual measurement & trace management

Hakaru Plus (Thailand) Co., Ltd.

Service and Technologies

Automatic measurement technology that automates measurements of multi-variety, high precision, and wide range. This technology is especially suitable for measurement of auxiliary material and additives. For materials that are difficult for automation due to the cost and their specific qualities, we provide a management system for manual measurement and eradicate measurement mistakes that occur from human intervention. It carries out data tracing from material incoming, storage, picking, measurement, to material input, and enables the simplification of management tasks and centralization of data. With these technologies we will contribute to saving energy, increasing precision, reducing measurement mistakes, environmental improvements and so on.



Sustainability

By eradicating measurement mistake with automation and manual measurement management, they can reduce material waste that occur from scrapping and re-measurement, eventually contributing to carbon neutrality. The tracing management allows mistake-free material storage (shelf management, expiry date, FIFO, lot control) as well as mistake-free input of blending machine, which enables improvement and stabilization of product quality as well as simplifying the management tasks.

Experience

Delivery experience for industries that require multi-variety measurement such as ink, paint, rubber, resin, chemical, food, medicine, battery, glass, ceramic etc. Delivery regions include Japan, East and Southeast Asia, North America and EU. Subjects of measurement can be each industry's main raw material, auxiliary material and additives, regardless of whether it is in powder or liquid form. It can also be used for powder and high-viscosity liquid prone to bridging and jetting. They provide system design customized based on customer requirements.



Company Information

Company Name: Hakaru Plus (Thailand) Co., Ltd.
 Industry: Other manufacturing
 Address: 59/19 Moo 2, Tambon Rachathewa, Amupur Bangplee, Samutprakarn 10540 Thailand
 Website: <http://www.hakaru.co.th/>
 Affiliated Company in Japan: Hakaru Plus Corporation
 Contact: yamauchi_y@hakaru.co.th (Yamauchi)

Message

Using the abundant experience gained over 100 years, we develop/provide numerous new systems and equipment ranging from software to hardware. We answer to customers' needs with the technology to "measure". we have introduced four businesses; measurement, ready-mixed concrete, weight measurement, and medical. In Thailand, we operate Japanese-quality weight measurement business by Thai production, which covers design, manufacturing, sales to on-site maintenance.

Energy saving/renewable energy and FA automation one-stop support Comprehensive improvement solution for manufacturing and factory equipment

Hamasho Corporation (Thailand) Ltd.

Service and Technologies

An engineering service specialized in energy-saving/renewable energy proposals targeted at crucial utilities for factory operation, such as electricity, gas, water and oxygen; installation of an advanced fire extinguishing system; and so on. Providing solutions for automation of manufacturing equipment and manpower reduction, they offer a one-stop service that provides implementation support for comprehensive improvement solutions for a wide variety of customers. Also, aside from HDD, automotives, food and chemical industry where they have recognized experience and know-hows, they are also committed to providing various solutions for the EV and battery industry.

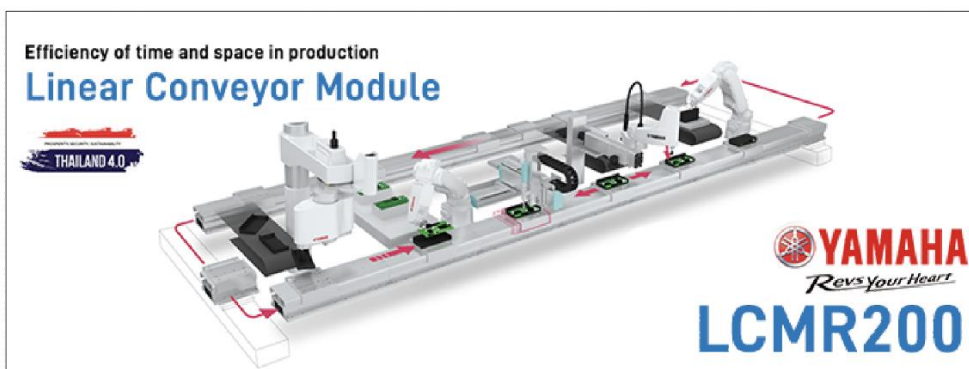


Sustainability

With the wide range of products, engineering function and one-stop service as the top 3 strengths, they support the improvement and implementation of energy-saving/renewable energy and contribute to the expansion of SDGs activities and achievement of carbon neutrality. They also provide support for the implementation and progress of various robots and specialized machines in order to support the effort for automation of manufacturing processes and reduction of manpower in alignment with the policies of Thailand 4.0. They contribute to a wide array of fields and industries as a provider of comprehensive energy-saving environment and factory automation solutions.

Experience

[Past implementation examples for Thailand-based Japanese companies] As part of ESG investments and SDG activities, they have been engaged in the implementation of a solar power system and also developing a project dedicated to transitioning boiler system into LPG and making it more energy-saving as the next energy-saving activity. They provide a gradual solution proposal to realize the near-future zero-carbon achievement scheme raised by the customer's headquarters. Additionally, they have an in-factory eco park operation scheme targeted at promoting employees' health and contributing to Thailand's local environment, and plan to consistently carry out comprehensive projects.



Company Information

Company Name: Hamasho Corporation (Thailand) Ltd.
 Industry: Trading
 Address: 825 Phairokijja Building 11th Floor, Debaratana Road, Bangna-Nua, Bangna, Bangkok 10260 Thailand
 Website: <https://hamasho.co.th/>
 Affiliated Company in Japan: Hamasho Corporation
 Contact: kazuya.hashiba@hamasho.co.th (Hashiba)

Message

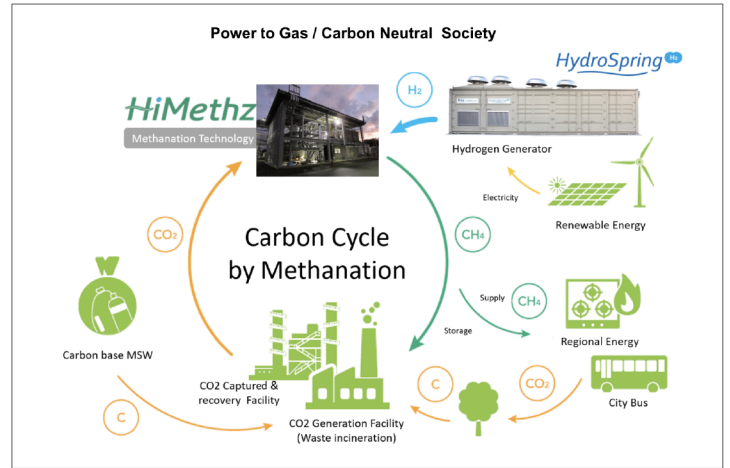
We are a Japanese trading company that entered its 26th year of expansion into Thailand. We have 3 core businesses; MRO consumable subsidiary material business; FA automation/manpower reduction/robotics business and; our department's energy-saving environmental business. Within the three years since the organization of business with focus on "renewable energy and environmental engineering business". We can also provide a one-stop service for FA business from SIER selection to machine selection, and evaluation to after implementation.

Fully automated production of green hydrogen using only renewable energy battery and water Water electrolysis system "HydroSpring"

HITZ (Thailand) Co., Ltd.

Service and Technologies

System capable of fully automated production of high purity hydrogen from renewable energy. Material used are only battery and water without any chemical, so the operation can be safely managed. The operation status can be checked with the remote monitoring system built in by default.



Sustainability

The green hydrogen produced by this product can be used to produce the heat source of boilers, to produce green ammonia by ammoniation, and to be re-converted into energy by utilizing fuel cell. Also, by combining with the company's methanation system "HiMethz", it can convert carbon dioxide emitted from factories into methane gas, to be reused as the heat source of factories. By re-capturing the carbon dioxide generated by these factories and appropriating for HiMethz, this can help to achieve the in-factory carbon recycling and contribute to the decarbonization effort.

Experience

HydroSpring is adopted in the "P2G system technology development and verification targeted for the construction of a CO2-free hydrogen society" by the enterprise bureau of Yamanashi since 2016. The final target is to (1) develop and verify a system technology of 74.0% water electrolysis system efficiency in order to manufacture a 1.5MW water electrolysis apparatus and achieve 80% in the said efficiency level in the future, and (2) construct a system adaptable to the changes in boundary conditions and establish a business model of Power to Gas system targeted at a CO2-free hydrogen society through verification of its technology feasibility and economy feasibility in the real world field by operating a sustained system from the production to utilization of hydrogen. The enterprise bureau of Yamanashi has created a business model using solar power from Komekurayama power plant to produce, compress/storage and supply hydrogen to the neighboring households with power demand.

Other technology

Transforming waste into energy. Hitachi Zosen Waste to Energy system.

The system for this Waste to Energy plant was chosen with our stoker-typed technology, granted from the former Von Roll company in Switzerland. We have achieved 1,063 references worldwide, particularly in Thailand we handed over Waste to Energy plant in Rayong in 2021, incinerating 300 tons of refuse derived fuel, the "RDF", daily to generate 9.9MW, of which 8.0MW of electricity is to be sold. The amount of this supplying electricity is worth contributing to 5,000 households in Thailand.



Company Information

Company Name:
HITZ (Thailand) Co., Ltd.
Industry: Other manufacturing
Address: 19th Floor, Room 1911, BB Building 54 Sukhumvit 21 (Asoke) Road, Klong Toey Nua, Wattana, Bangkok 10110
Website:
<https://www.hitachizosen.co.jp/english/>
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Hitachi Zosen Corporation
Contact:
morita_ma@hitachizosen.co.jp (Morita)

Message

In 1881, the Osaka Iron Works was founded by E. H. Hunter, and by now passing 140 years. We, with our philosophy "we create value useful to society with technology and sincerity to contribute to a prosperous future", in the "Clean energy", "Clean water", and "Environmental conservation, and building resilient and prosperous community" business fields, will bring transformation as a solution partner of our customers.



Chemical-free water treatment system using electrolysis technology High-efficiency electrolysis wastewater treatment system "MICRO WATER SYSTEM"

Igaden Co., Ltd.



Service and Technologies

With its original electrolysis technology, the product achieved separation and decomposition of oil emulsified in water and recalcitrant wastewater without using chemical, which have been difficult to treat until now. Electrolysis apparatus has been implemented for use in silica removal from factory wastewater and cooling tower circulating water, purification of lakes and marshes, wastewater treatment in stock raising, and final wastewater treatment system of biomass facility. The apparatus will be useful in saving water, energy, and also space by integrating the equipment, contributing to the achievement of SDGs and carbon neutrality.

Sustainability

The purification of factory wastewater is directly linked to environmental conservation of rivers, lakes, marshes, and the ocean. We believe such heightened awareness will lead to global environment conservation. In addition, with the previous treatment method involving the use of chemical, there was an issue of increasing amount of sludge resulting from the large chemical input for separation process. However, as this electrolysis treatment technology is also capable of suppressing the amount of sludge produced in the process, reduction of manufacturing waste and waste treatment cost can be achieved.

Experience

In Kasumigaura, Ibaraki, where Igaden is located, eutrophication of water in the recent years resulting in deteriorating water quality has been an issue, and the company has been providing wastewater treatment equipment that caters to such specific needs. With the implementation of water quality improvement equipment for cooling towers, energy consumption of circulation pump can be reduced by 20%, and by replacing with the heat treatment equipment used for incinerating and vaporizing recalcitrant wastewater, it can also help steer away from fossil fuels. This technology is also applied in places other than factories, such as advanced removal of phosphorus in a university-affiliated ranch, decomposition of high-density nitrogen in a lab and so on.

株式会社イガデン
IGADEN CO.,LTD.

Company Information

Company Name: Igaden Co., Ltd.
Industry: Other manufacturing
Address: 78-4 Shinoyama, Joso, Ibaraki 300-2721
Website:

<http://www.igaden.com/indexEnglish.htm>

Affiliated Company in Japan:

Same as above

Contact:

Konishiyasu Trading (Thailand) Co., Ltd. (Distributors in Thailand)

moro@konishiyasu.com (Moroguchi)

Message

Our main products are wastewater treatment equipment for factory, water quality purification equipment for cooling tower, and electrolytic alkaline cleaning water generation equipment, with an abundant history of delivering the products overseas. In Thailand, our distributor Konishiyasu Co., Ltd. has staff with expertise to ensure a wide coverage of support including the neighbouring countries.

Liquid filter with zero industrial waste Element-less filter "FILSTAR"

Industria (Thailand) Co., Ltd.



Service and Technologies

Liquid filter designed to generate centrifugal force with the water flow when passing through the filter, allowing it to forgo the need for filter element for removing impurities. It has achieved a high filtration spec with its unique technology and also capable of eliminating running cost, maintenance, and industrial waste, as well as having a long lifespan. Separating solid from liquid usually requires filter element, but this emits carbon dioxide during production, purchase & transportation, and disposal after use. This product does not use filters, so it does not only help reduce the related cost but also contribute to achieving carbon neutrality.

Sustainability

Normal filter elements are made of synthetic resin such as polypropylene, polyester and nylon, so using a normal filter would mean a constant disposal of these plastic-based consumables. On the other hand, our product which doesn't use filter element can provide zero plastic usage solution in its liquid filtration processes. Also, as this filter does not require consumables like the filter element, it can help eliminate the disposal cost for consumables too.

Experience

This product has a history in successfully reducing the use of consumables (filter elements) from 5,000 pcs/year to zero by replacing normal filters in one production line of an aluminum part manufacturing factory. The content weight of synthetic resin per filter element is approximately 500 grams, which means the amount we reduced is equivalent to 2,500 kilograms worth of plastic and synthetic resin per year. Other than this, costs such as the industrial waste disposal and maintenance were reduced to almost zero, contributing to a total cost reduction of approximately 20 million JPY. It is a filter that is friendly to both the earth and companies, and could become a standard in the field.

industria
industria(Thailand)Co.,Ltd.

Company Information

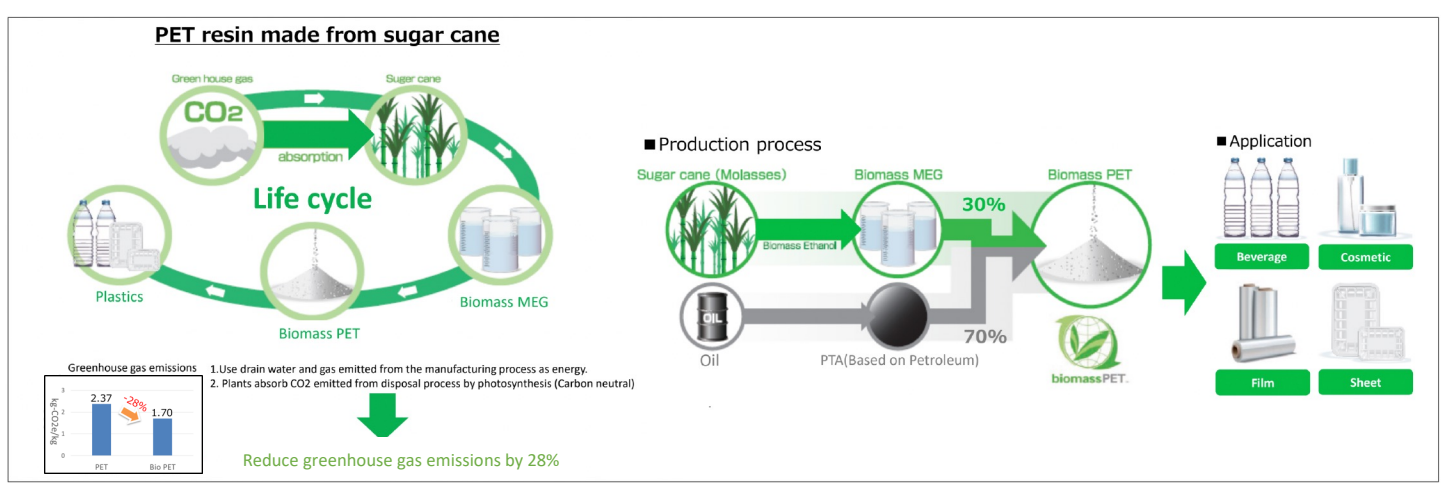
Company Name:
Industria (Thailand) Co., Ltd.
Industry: Normal machine
equipment manufacturer
Address: No.36/56 RK Biz Center
Project, Motorway Road, Kwaeng
Klongsongtonnun, Khet Ladkrabang,
Bangkok 10520 Thailand
Website: <https://industria.co.jp/en/>
Affiliated Company in Japan:
Industria Co., Ltd.
Contact:
goto@industria.co.th (Goto)

Message

We are a maker of Industria brand products such founded in Saitama, Japan, in 1991. Our Thai local subsidiary was established in 2014, and the main customer base of our own product, FILSTAR, is the processing factories of Japanese automotive factories. Also, we compile a test report internally to verify the effect before implementation. We work hard every day to do good for the mankind, the earth, and companies.

Upcycling the by-products of sugar manufacturing Plant-based PET resin

Iwatani Corporation (Thailand) Ltd.



Service and Technologies

The product uses biomass PET whose main material is biomass mono-ethylene glycol derived from molasses produced as a by-product when white sugar is extracted from sugar cane. With this method, 30% of the PET resin composition can be made with plant-derived material, which makes it compatible with existing equipment without changing the outline equipment or conditions. It can also be provided in the form of films and sheets.

Sustainability

Iwatani has been conducting surveys based on LCA (Life Cycle Assessment) which quantitatively evaluates impact on the ecological system and environment from development stage. In 2011, they conducted a joint research and survey with Dai Nippon Printing Co., Ltd. and Tokyo City University. In the research, they compared the process from production to product disposal of biomass MEG and biomass PET to that of petrochemical PET and confirmed that the former can reduce around 28% of the entire greenhouse gas emissions (equivalent to 0.67 kg per 1 kg of product).

Experience

The company started handling biomass PET resin since 2010, and the sales amount in 2021 was 23,000 tons. For beverage PET bottles, they have sales history to multiple major Japanese beverage makers, while also being adopted for containers of cosmetics and hair care products. Moving forward, they will not only sell domestically in Japan, but also introduce a wide range of product lineups to the Southeast Asian market as part of their business expansion plan.

Support the achievement of carbon neutrality with energy conversion technology

Iwatani is a clean energy promotion corporation. They have been contributing to the Reduction of CO₂ emissions by supplying LPG, LNG and refrigerant gas which are low in greenhouse gas. They also provide energy such as environment-conscious refrigerant gas, biomass fuel, ammonia and hydrogen and have abundance of experience as a company handling various kinds of energy. They provide clean energy suggestions based on client's request and circumstances.



Company Information

Company Name: Iwatani Corporation (Thailand) Ltd.
 Industry: Trading
 Address: 323 United Center Building, 29th Floor, Room No.2903, Silom Road, Silom, Bangrak, Bangkok 10500 Thailand
 Website: <http://www.iwatani.co.jp/eng/index.html>
 Affiliated Company in Japan: Iwatani Corporation
 Contact: Biomass PET resin tsukamoto@iwatani.co.jp (Tsukamoto)
 Gas yuki-oiwa@iwatani.co.th (Oiwa)
 Biofuel kento-honda@iwatani.co.jp (Honda)

Message

We are a leading company in the carbon neutral businesses symbolized by companies providing hydrogen, energy conversion (LPG & LNG), biomass fuel, Bio-PET and EV battery material.

Next generation innovative photovoltaic system integrated with building's exterior walls and windows T-Green® Multi Solar (Abbreviated material name: T-GMS)

Kaneka (Thailand) Co., Ltd.

Service and Technologies

“T-Green® Multi Solar” generates electricity through photovoltaic laminates integrated into the wall and window surfaces of buildings. This has been developed by bringing together Taisei Corporation’s expertise in planning and constructing photovoltaic system that integrate into building materials with the photovoltaic laminates of Kaneka Corporation. This exterior system provides for the same level of durability as general exterior materials, outstanding workability due to the photovoltaic laminates being integrated into the exterior materials, and continuous power generation for over 30 years.



*This is a co-developed product of Taisei Corporation and Kaneka Corporation.

Sustainability

Society is calling for more widespread use of renewable energy in order to achieve carbon neutrality. There is an increase in companies taking measures against the long-term power outages that have been caused due to natural disasters, demand for securing independent sources of power is growing, including from the point of BCPs (Business Continuity Plans) and LCP (Life Continuity Performance). This is a photovoltaic system that can be installed to office buildings, mid-sized and high-rise buildings, to which installation of photovoltaic system has been difficult. Thus “T-Green® Multi Solar” will contribute to adoption of renewable energy and independent power source of buildings.

Experience

Since 2021, the product has been adopted to skylight and aperture area of public and commercial buildings as building material. The product is highly regarded for its designability and it has been awarded of the Good Design Awards 2021 (sponsored by the Japan Institute of Design Promotion) . Kaneka Corporation and Taisei Corporation aim to make further major contributions to the realization of ZEBs (Zero Energy Buildings) to mid-sized and high-rise buildings which limited space is available for installation of Photovoltaic systems in areas such as its roofs.



T-Green Multi Solar (See-through type)

Example: Complex facility "CAN@YELL" in Furubira (Completion scheduled for February 2022)

* "T-Green®" is a registered trademark of Taisei Corporation.



The Dreamology Company
—Make your dreams come true—

Company Information

Company Name:
Kaneka (Thailand) Co., Ltd.
Industry: Other manufacturing
Address: 388 Exchange Tower, 21st Floor Unit 2101-1 Sukhumvit Rd, Klongtoey sub-district Klongtoey district, Bangkok 10110 Thailand
Website: <https://www.kaneka.co.jp/en/>
Affiliated Company in Japan:
Kaneka Corporation
Contact:
takeshi.morimatsu@kaneka.co.jp (Morimatsu)
manabu.asaka@kaneka.co.jp (Asaka)

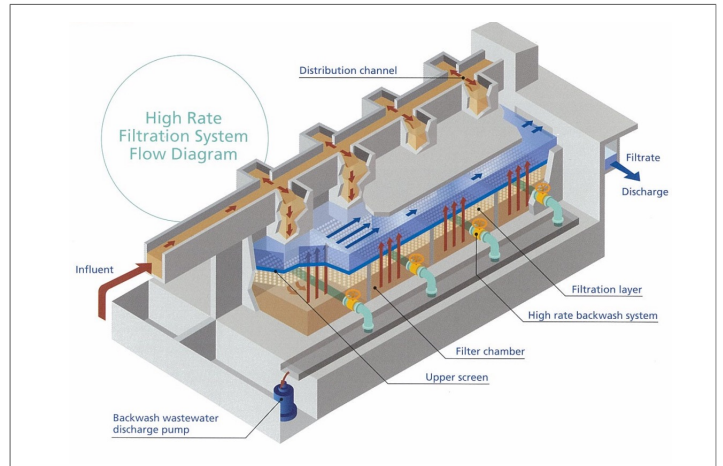
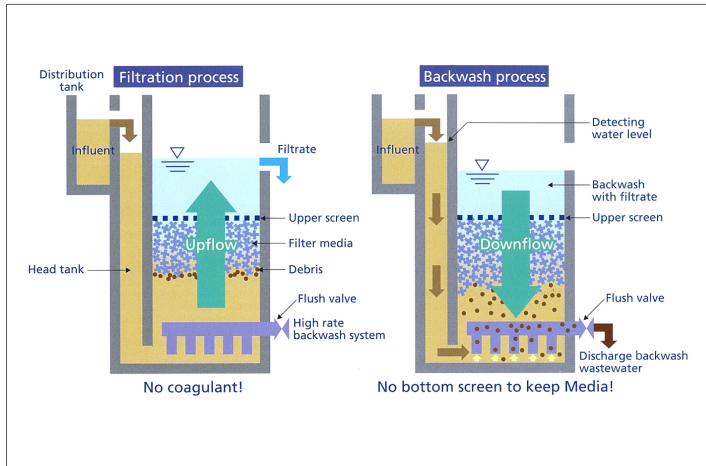
Message

Since its foundation in 1949, Kaneka has overcome and grown through the transitions in time and environment with the creative harmony between people and technology. Kaneka is a company dedicated to making the world "healthy" by standing by all lives on the earth, making food wholesome, cheering people and animals, energizing businesses and brightening societies. We, Kaneka, will continue to expand the possibilities of "science" and make the societies' and people's wishes come true by providing various solutions.



Achieving non-coagulation and small-footprint rainwater treatment High Rate Filtration system

METAWATER Co., Ltd.



Service and Technologies

The High Rate Filtration system is a system capable of filtering (removing) suspended solids such as grease balls and PVC fibers at the filtration speed of approximately 1,000 m/day by installing it in primary sedimentation tanks or relay pump stations.

Sustainability

In many countries and regions, it has been concerned that the climate change is causing increased rainfall and localized heavy rainfall (stormwater) resulting in critical disasters such as flooding. It is also predicted that the frequency of such stormwater downpour will increase even more due to the continuation of greenhouse gas emission. Under such dire situation, there is a need for promotion of pre-emptive measures against overflow of combined sewer system (CSS), and this system can contribute to address such vital issue. The main features of this system are; (1) reduction of construction cost by utilizing the existing tank; (2) no need for coagulant; (3) no need for pre-treatment equipment, which brings about the result of no need for works such as transporting residues during and after operation. Point 1 helps reduce the concrete volume and point 2 helps minimize the volume of waste generated, hence, contributing to the reduction of CO₂ emission.

Experience

This system has the installation reference of over 40 locations, mainly in the cities of Japan. Also, under the Japanese government's ODA loan assistance projects, it was adopted for "Yen Xa Sewerage System Project" in Vietnam, and the project is currently in progress. In the coming future, METAWATER will further focus on expanding its sale to Southeast Asian countries and across the globe.

- Certified under MLIT's SPIRIT 21 Technology Assessment as a technology for CSS improvement.
- Received METI Minister's Award (The 34th Outstanding Environmental Equipment Award Project organized by the Japan Society of Industrial Machinery Manufacturers)



Company Information

Company Name: METAWATER Co., Ltd.
 Industry: Water Industry (Engineering, M&E works, PPP investment, etc.)
 Address: JR Kanda Manseibashi Building, 1-25 Kanda Sudacho, Chiyoda-ku, Tokyo 101-0041
 Website: <https://www.metawater.co.jp/eng/>
 Affiliated Companies Overseas : in U.S.A. and Europe
 Contact: info-meta@metawater.co.jp

Message

We are one of the largest engineering company in Japan in the water and environment sector. Currently, we have our own unique technologies in ceramic membrane filtration system, ozonizer, sludge incineration system, and Pre-Treated Trickling Filter method and so on. We are based in Vietnam, Cambodia, Singapore, the Netherlands, Switzerland, Germany, and the US. We promote CSR activities such as water and environmental resource conservation and disaster recovery assistance, pursuing contribution to the sustainable society.



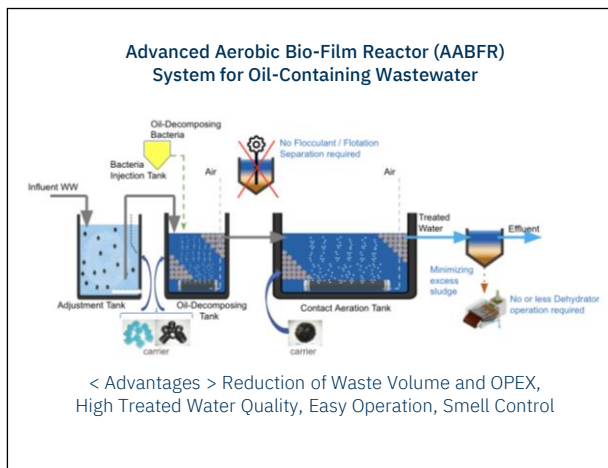
Large-scale cost reduction by reducing sludge volume

Sludge volume reduction technology that achieves near-zero excess sludge in oil-bearing water treatment

Mitsubishi Chemical Aqua Solutions Co., Ltd.

Service and Technologies

A system that combines fat splitting bacteria and high-intensity contact aeration method to treat wastewater with high oil and grease content from such as food processing factories. With the existing methods such as dissolved air floatation method and conventional activated sludge processing method, there are numbers of issues including the consumption of large amount of chemical additives, complex operation management, unstable treatment, and a large-scale sludge generation. However, this AABFR system uses fat splitting bacteria to achieve a stable treatment with little to no excess sludge generated. In this way, a major reduction in operation cost (manpower cost) and sludge treatment cost is possible.



Sustainability

Fat splitting bacteria and high-intensity contact aeration method, especially when introduced in places such as food processing factories, can achieve near-zero excess sludge generation in treating wastewater with high oil and grease content. Therefore, it can contribute to the reduction of greenhouse gas previously emitted from sludge incinerations and the like (contribution to achieving carbon neutrality). We also have a track record of successfully reducing the sludge generation by 1/15 with this method as compared to the existing methods, enabling a major cost reduction. Furthermore, this technology does not require constant presence of operators and will resolve manpower shortage problems of factories.

Experience

This technology has been successfully applied to over 100 cases. Most of them are for confectionery factories, frozen food factories, dairy product factories, seafood factories. The system can cover wide range of wastewater treatment volumes, from approximately 50 to 1,600m³/day. In Thailand, a high oil and grease content wastewater treatment system with a 500 m³/day capacity has already been implemented for a frozen food factory (Raw water quality: BOD 700mg/L, SS 400mg/L, n-Hex 400mg/L Treated water quality: below criteria for all parameters and released to the sewage system). In another case of 300 m³/day plant, sludge generation (processing cost) was reduced by 1/15, and manpower cost for operation by 1/10 (the cost reduction of more than 17 million JPY per year) compared to the conventional activated sludge processing method.

Solid technical capability ensures stable provision of safe drinking water

The system uses water from sources such as underground water, surface water and treats the water mainly with membrane filtration technology to supply drinking water to hospitals, factories, condominiums and shopping complexes etc. The system is custom-designed according to customer's requirements such as raw water quality and amount of water to be treated (water demand). A remote monitoring system installed in the system enables stable operation and optimum maintenance by monitoring the system operational status and water quality in real-time from both Thailand and Japan.



Company Information

Company Name: Mitsubishi Chemical Aqua Solutions Co., Ltd.
Industry: Construction industry (construction, civil engineering, equipment etc.)
Address: 1-2-2 Nihonbashi Hongokucho, Chuo, Tokyo, 103-0021
Website: <https://www.mcas.co.jp/en/>
Affiliated Company in Japan: Same as above
Contact: MCJP-MBX-MCAS_OBD_INFO@mchcgr.com

Message

We are a company who satisfies to various needs of customers worldwide ranging from drinking water supply to wastewater treatment. We provide high added-value solutions that utilize our membrane filtration technology and processing materials developed by Mitsubishi Chemical. By utilizing the technologies and knowledge gained in Japan, we are also engaged in overseas business expansion covering the developing countries.

Technology that supports energy transition CO₂ capture/storage technology, hydrogen/ammonia-based power generation system

Mitsubishi Heavy Industries (Thailand) Ltd.

Service and Technologies

For sustainable future, we need “to reduce, not to emit and to collect and re-use” CO₂ exhausted when we generate energy. We provide a wide range of products and services with its technologies which supports decarbonization in societies = energy transition, such as energy saving, electrification, and CCUS (carbon capture, utilization, and storage) solutions. By combining cutting-edge technologies and with its optimal solutions such as replacement of coal-fired power generation with gas-fired GTCC, hydrogen combustion gas turbines GTCC/engines, biomass/ammonia combustion coal-fired power, and CCUS, Mitsubishi Heavy Industries will move the world forward to achieve "decarbonization of existing infrastructure", "building a hydrogen solutions ecosystem" and " building a CO₂ solutions eco system".



Sustainability

- Decarbonization of existing infrastructure: With verification and commercialization of carbon-free power generation with hydrogen/ammonia, decarbonize thermal power generation by 2025. Will also contribute to decarbonization with safe and reliable nuclear power generation
- Building a hydrogen solutions ecosystem: With engagement in building ecosystem covering from hydrogen production, transportation, storage and to usage , establish a decarbonization technology by around 2025
- Building a CO₂ solutions ecosystem: With engagement in building ecosystem covering from capture, transportation, storage to conversion , increase applications of its carbon capture technologies to diverse emission sources and scales.

Experience

The company has the largest market share worldwide in CO₂ capture from flue gas and is a leading company with achievements such as delivering the world's largest CO₂ capture plant in the US. For hydrogen utilization, Mitsubishi Heavy Industries received an order in March 2020 from Intermountain Power Agency for 840,000KW-class hydrogen-fired GTCC power generation project as part of the GTCC power generation project to utilize renewable energy derived hydrogen in Utah, US. This project was about delivering the GTCC power generation equipment with two M501JAC gas turbines which uses the hydrogen-fired large gas turbine technology implemented by Mitsubishi Heavy Industries. It aims for reaching 30% hydrogen mixed combustion by 2025, and 100% hydrogen combustion by 2045.



Company Information

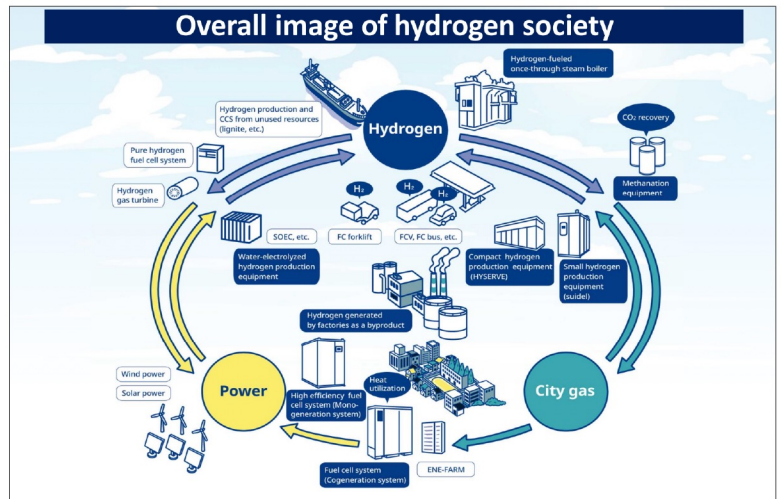
Company Name: Mitsubishi Heavy Industries (Thailand) Ltd.
 Industry: Other manufacturing
 Address: 173/31, 173/34 Asia Centre Building, 25th Floor, South Sathorn Road, Thungmahamek, Sathorn, Bangkok 10120, Thailand
 Website: www.mhit.co.th
 Contact: ryo.takubo.pv@mhi.com (Takubo) amorn.anathanandorn.th@mhi.com (Amorn)
 Parent Company in Japan: Mitsubishi Heavy Industries, Ltd.
 Website: www.mhi.com

Message

We, Mitsubishi Heavy Industries, are currently working towards "development of growth areas" as one of the targets set in the 3-year mid-term business plan for 2021 to 2023. One example of the "growth areas" is energy transition, which involves promotion of utilization of hydrogen and ammonia, and decarbonization technologies such as CCUS.

CO₂ emission-free hydrogen boiler High efficiency hydrogen-fueled flow-through boiler

Miura Industries (Thailand) Co., Ltd.



Service and Technologies

With its high boiler efficiency, Once-through boilers are widely used for heat source - the company developed a hydrogen-fired version of the boiler, and in January 2017, they became the first in Japan to commercialize the product capable of using 100%* hydrogen fuel (*Based on the company's own research). For the equipment used in hydrogen line, explosion-proof structures are used to prevent explosion from leaked gas. For the solenoid valves, hydrogen explosion-proof structures (d3aG4 or equivalent or higher) are selected for use. Also, as hydrogen burns at a high rate, a corrugated plate backfire arrester with high flame-extinguishing performance is adopted as standard.

Sustainability

The CO₂ emission volume of steam boilers widely used for industrial heat source is said to account for around 6% of the total emission in Japan (direct emissions around 1,138 million in 2018). CO₂ emission per 1 ton of steam (0.7MPa, 20°C water supply) is approximately 355kg-CO₂ for coal fuel, 243kg-CO₂ for heavy fuel oil, and 161kg-CO₂ for natural gas. On the other hand, for this product (hydrogen boiler), since the combustion only generate water, the CO₂ emission volume during combustion is practically zero, making it an option towards achieving carbon neutrality.

Experience

At the moment, due to issues such as hydrogen price and supply chain, implementations have only been done in factories that generate byproduct hydrogen during production. However, since the first model was installed in Okayama Chemical Co., Ltd., the boiler has been installed in more than 10 factories with byproduct hydrogen throughout Japan. The boiler was awarded "New Energy Fund Chairman's Award" by the New Energy Award in 2020, "Japan Machinery Federation Chairman's Award" for excellent energy saving machine system and certified as Ministry of the Environment's L2-Tech product. Also received the first ever certification for steam boiler (SI-2000AS-H2A, Nox = below 50ppm (Conversion at O₂=0%)) by the low NOx equipment certification scheme.

Company Information

Company Name:
Miura Industries (Thailand) Co., Ltd.
Industry: Normal machine
equipment manufacturer
Address: 84/2 moo 9, Bangwua,
Bangpakong, Chachoengsao 24130
Thailand
Website: <https://www.miuraz.co.jp/en/>
Affiliated Company in Japan:
Miura Co., Ltd.
Contact:
miura-thai@miuraz.com

Message

In Japan, once-through boilers account for 77% of all boilers in terms of the evaporation volume. Miura Industries is a leading company in the Once-through boiler market with approximately 60% market share. MIURA INDUSTRIES (THAILAND) is the Thai local subsidiary company. In Thailand, we are similarly offering online maintenance, engaged in chemical manufacturing and water analysis, with maintenance sites in Chachoengsao, Bangkok, Rayong, Ayutthaya, Surat Thani. Currently there are over 1,200 of our boilers running in Thailand.

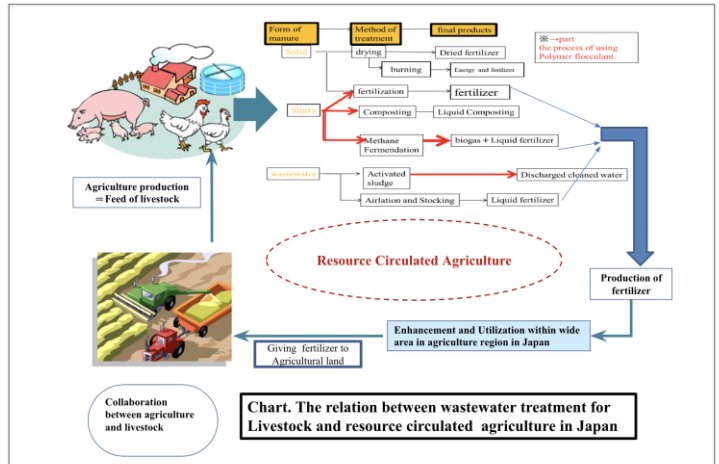
Polymeric flocculant that promotes a circular society ARON FLOC C series, E series

MT AquaPolymer, Inc.

The dewatering machine condition used Polymer flocculant of MTAP ~ wastewater of food plant in ASEAN country ~



This dewatering machine was used polymer flocculant of MTAquaPolymer. The load of dewatering process increased three times as the case of using domestic polymer flocculant.



Service and Technologies

Agents used as flocculants and dewatering agents for wastewater from a wide range of industries, including sewage, paper mills, chemical plants, and wastewater from the livestock industry. Polymer flocculant is an agent that flocculates, concentrates, and dehydrates wastewater for solid-liquid separation. By selecting a grade that matches the properties of the wastewater and adding the optimum amount, the volume of sludge can be efficiently reduced. The dewatered cake can also be adjusted to a low moisture content. We select and provide not only single grades but also blended grades of polymer flocculants suitable for the properties of organic sludge.

Sustainability

In Japan, livestock wastewater is dewatered by adding MT AquaPolymer's appropriate polymer flocculant. The dewatered cake can be aerobically fermented into compost, contributing to the promotion of a circular society. In the treatment of wastewater from livestock production and when discharged wastewater is allowed to settle naturally by staying in ponds as it is, evaporation of water and GHGs contained in the wastewater, such as carbon dioxide and methane gas from anaerobic conditions are released. On the other hand, the use of a polymer flocculant in livestock wastewater treatment, the use of an optimal polymer flocculant reduces the time spent in wastewater storage by solid-liquid separation, and the GHG released during the treatment is reduced.

Experience

Sales record in Southeast Asia and China (via local distributors). By removing suspended solids as a solid during wastewater treatment, the load on the water environment can be reduced. In addition, the moisture content of dewatered cake can be lowered, it can be dried efficiently and used as auxiliary fuel for boilers as a raw material for cement or as a fertilizer. In the case of the use of polymer flocculant in livestock wastewater treatment, the dehydration cake after solid-liquid separation can be converted into compost by fermentation as fertilizer for agricultural land. Crops grown on farmland can be used as livestock feed, thereby realizing a circular livestock production model. Similar utilization potential exists for the products that organic wastewater can produce.



Company Information

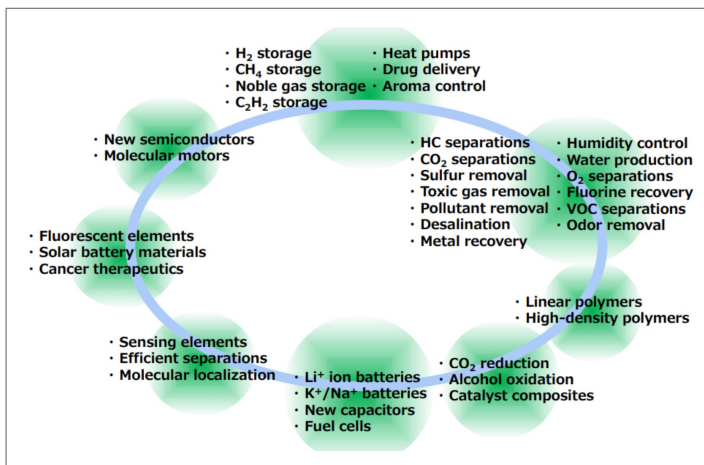
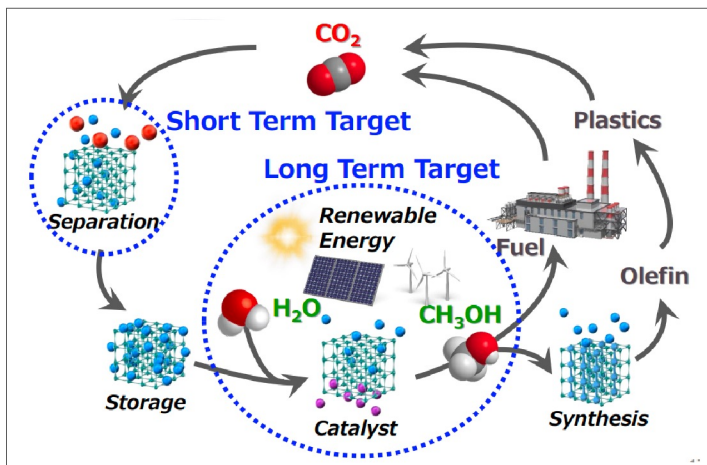
Company Name: MT AquaPolymer, Inc.
 Industry: Chemical, medicine, petrochemistry and coal product manufacturing
 Address: Ueno Building 3F, 2-6-2 Kajicho, Chiyoda, Tokyo 101-0044
 Website: <http://mtaqua.co.jp/eng/>
 Affiliated Company in Japan: Same as above
 Contact: ken.takeda@mtaqua.co.jp (Takeda)

Message

MT AquaPolymer, Inc. is a joint venture by Toagosei Co., Ltd. and Mitsui Chemical Inc. By integrating the polymer manufacturing technologies - mainly polymer flocculants as wastewater treatment chemicals, and technical services for wastewater treatment that have been developed by each company, we provide high-quality products and optimal solutions, aiming to improve the water environment in a sustainable manner.

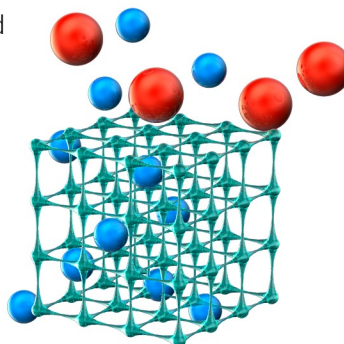
Cutting-edge versatile material that can freely adsorb and desorb molecules Metal Organic Framework (MOF)

Nagase (Thailand) Co., Ltd.



Service and Technologies

MOF is a nano-level controlled porous material composed of metal and organic compounds forming a regular three-dimensional structure. These properties enable the removal and separation of impurity molecules and molecular storage, which have been difficult and expensive with existing materials. It is expected to have a significant impact not only on the energy and environmental solution industries, but also on a wide range of other industries.



Sustainability

It is believed to contribute to CCUS (Carbon capture, utilization, and storage). Amine absorption is well known as the method for carbon capture, but MOF captures CO₂ by physical and chemical absorption, enabling an even more energy saving adsorption/desorption control. Atomis, by designing MOF based on each customer's gas composition, provides solutions aligned with each issue. Also, for business expansion in Thailand, they are considering (1) production and sales of MOF to MOF customers or (2) joint development and commercialization with MOF customer candidates or MOF modularization partner candidates.

Experience

Atomis has two core technologies: (1) an in-house database containing the data necessary to design the optimum MOF for each customer's application (what they want to adsorb/desorb) and (2) MOF mass production technology based on solid phase synthesis methods. Atomis supplies MOF to Nippon Fusso Co., Ltd. for use in improving the durability of fluorine coatings. For its own application, Atomis is developing the next-generation gas cylinder that uses MOF - CubiTan®. CubiTan®, which uses methane as the target gas, is scheduled to be launched in 2024. As for CO₂ capture, they are working with various companies on a joint development basis.



Company Information

Company Name:
Nagase (Thailand) Co., Ltd.
Industry: Trading
Address: No. 952, Ramaland Bldg.,
14th Floor, Rama IV Rd., Kwaeng
Suriyawongse, Khet Bangrak, Bangkok,
10500 Thailand
Website:
<https://www.nagase.co.jp/english/>
Affiliated Company in Japan:
NAGASE & CO., LTD.
Contact:
yoshiro.numata@nagase.co.jp
(Numata)

Message

Nagase & Co., Ltd. is a trading company specialized in chemical, with a history of over 180 years. With more than 100 subsidiary companies in and outside of Japan. We have knowledge with Atomis' core technologies related to MOF, a next-generation porous material. In particular, Nagase and Atomis aim to create businesses that contribute to carbon neutrality for companies in Japan and abroad by utilizing MOF.

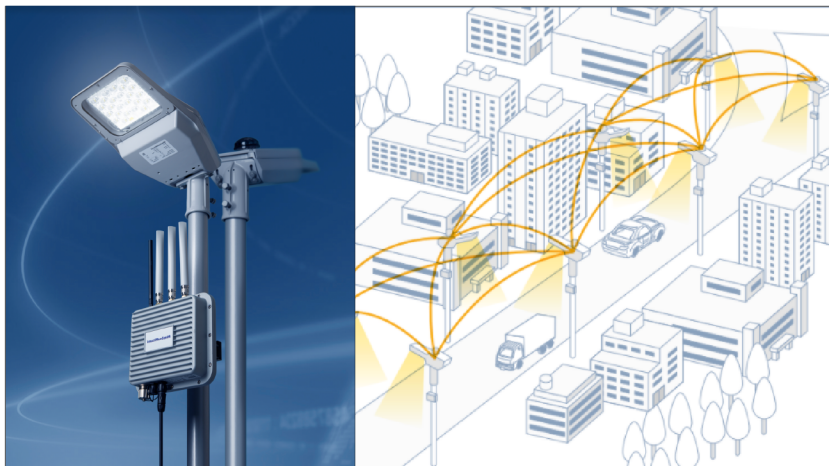


Smart city concept with IoT lighting equipment as its core Next generation LED street lights with high extensibility

NMB-Minebea Thai Ltd.

Service and Technologies

Energy-saving road lamps with high energy efficiency as compared to normal road lamps and standard LED road lamps. The high uniformity of light ensures the road is evenly lit. It can also be centrally managed and is highly scalable. By combining various sensors with the unique network structured by the road lamps, functions related to the city life can be centrally monitored. The energy consumption of road lamps is high due to the fact that they often stay on throughout the night for safety reasons. By implementing this product, reduction of energy use can be expected.



Sustainability

Smart road lamps is capable of a wide range of light adjustment depending on factors. At times like midnight when the traffic is low, brightness can be reduced while still ensuring safety - with these adjustments it can reduce maximum 80% of energy waste and contribute to the reduction of CO₂ emissions. It can also help with disaster prevention and reduction by connecting with an environmental sensor which can simultaneously measure eight items including the temperature and humidity, or a water gauge, Lighting equipment will not only help light the streets but also play a role in saving energy, improvement of city life convenience and safety.

Experience

In Thailand, 167 lamps have been installed as part of the joint research on AI City with Thammasat University. In Cambodia, with the support of Japan's Ministry of the Environment, they installed 5,672 lamps as part of JCM project, and demonstrated its energy saving effect by 60-70%. They are expected to reduce 559 tons of CO₂ per year. In the case of environmental sensor, they conducted an experimental study of "operation related to improving the accuracy of solar radiation forecasts by utilizing smart lighting data" in collaboration with Japan Weather Association, and are verifying the accuracy improvement effect on solar power generation forecasting.



Passion to Create Value through Difference

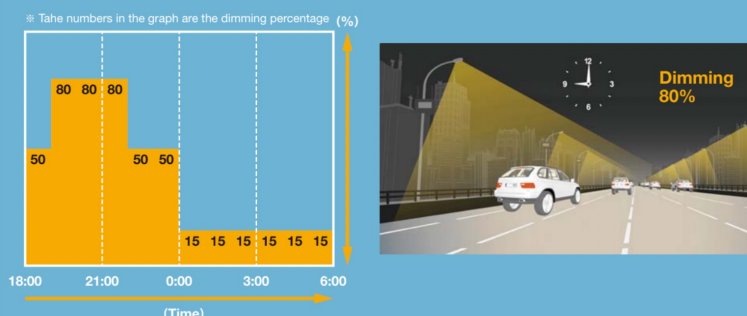
Company Information

Company Name:
NMB-Minebea Thai Ltd.
Industry: Electrical and electronic machinery manufacturing
Address: 19th Floor, Wave Place Building 55 Wireless Road, Lumpinee Pathumwan, Bangkok 10330 Thailand
Website: <https://www.minebeamitsumi.com/english/>
Affiliated Company in Japan: MinebeaMitsumi, Inc.
Contact: ykobayashi@minebea.co.th
Tel : +66(0)2253-4897 EXT. 210
H/P : +66(0)6-1415-3560 (Kobayashi)

Message

MinebeaMitsumi group produce a wide range of electronic components from ball bearings to precision machining parts. Currently, we have 93 bases in 22 countries across the world, and Thailand has the highest production volume of all. With our high technical capabilities and high quality, we also develop environmentally conscious products.

Example of Dimming Schedule by Hour





Generating clean energy Steam turbine

Shin Nippon Machinery Co., Ltd.

Generating Power
for Human Life, SNM



Service and Technologies

Steam turbine that can be installed as power equipment for driving generators in distributed power generation plants (small to medium scale) fueled by biomass fuels or waste which maintains the extraction pressure even when the extraction flow rate fluctuates and can control up to 90% of the extraction flow ratio. For more than 70 years since its establishment, the company has been working on cost saving, high quality, high precision, high added value, and immediate response. In Thailand, the company provides highly efficient, trouble-free, and safe operation with sufficient after-sales service by its local office.



Sustainability

By using this high efficiency turbine for biomass power generation and waste incineration power generation that uses urban waste as its fuels, the company will contribute to the decarbonized society in terms of promoting use of renewable energy. Also, waste incineration power generation can contribute to solving environmental hygiene issues arising from urban waste landfills that are hard to manage, as well as the issue of methane gas emissions from waste, which has an even stronger greenhouse effect than carbon dioxide.

Experience

The company had been carrying out installation of steam turbine in Thailand's sugar manufacturing companies since before biomass power generation became popular 50 years ago, and their products have been contributing as the main machine for power generation equipment that uses bagasse as its fuels. Until now, their supply of steam turbines has expanded to 80 countries with total of 2,100 machines across the world. This steam turbine is used in places such as the steam supply machine for air-conditioning in Suvarnabhumi Airport, and as a power supply for the major industrial areas in Thailand.



Company Information

Company Name:
Shin Nippon Machinery Co., Ltd.
Industry: Normal machine equipment manufacturing
Address: ThinkPark Tower, 1-1, Osaki 2-Chome, Shinagawa-Ku, Tokyo, Japan 141-6025
Website: <http://www.snm.co.jp/>
Affiliated Company in Japan:
Same as above
Contact: (+81) 03-6737-2634

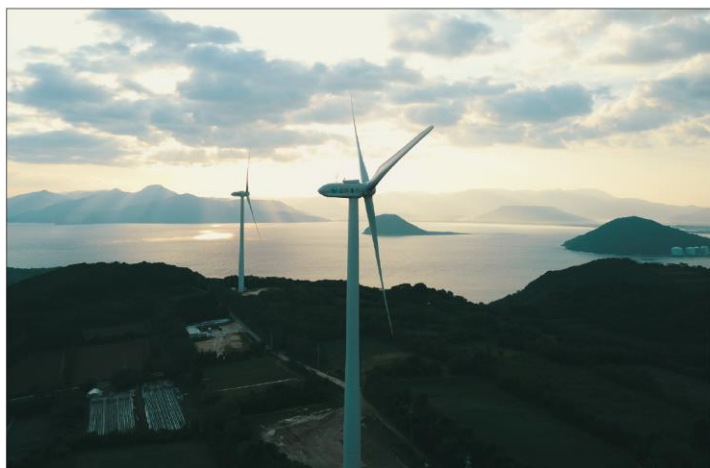
Message

Waste incineration power generation will not only help to solve social issues of environmental hygiene with its contribution to achieving carbon neutrality by biomass power generation, but will also help in reducing methane gas emission, which has higher greenhouse effect than CO₂. By installing our steam turbine as the drive of such power generation system, we will ensure a highly efficient, trouble-free operation and contribute to the energy supply that is appropriate for a decarbonized society.



Clean energy implementation that can be started right away Solar energy corporate PPA

Shizen International Inc., Representative Office in Bangkok



Service and Technologies

Solar energy PPA (Power Purchase Agreement) for the manufacturing industry. As customers do not need to bear the installation cost of solar energy system themselves, they can purchase clean energy for a long term (15 to 20 years) without initial cost or operating cost. The service also provides comprehensive solutions to renewable energy including the implementation of storage batteries.



Sustainability

In the emerging trend where it is unavoidable for many companies to implement renewable energy, the means of procurement is highly limited. Solar energy corporate PPA is an effective method to implement clean energy in such situation as it doesn't require an initial investment.

Experience

[Example 1] Implemented a 5MW solar panel for Ampas group - a major automotive parts manufacturer in Thailand. The installation was completed in late July of 2020. Solar power system was installed on the roof of seven factories in Bangpu industrial estate (including the joint venture of Ampas and Murakami Corporation, Japan's biggest manufacturer of automotive rear-view mirrors)

[Example 2] On 29th October, 2020, they signed a corporate PPA with Aisin Thai Automobile Casting (ATAC), Thai local subsidiary of Aisin group (Toyota group). A 1MW solar power system to be installed on the roof of ATAC's factory in Kabinburi Industrial Zone, Prachinburi. Installation completed on 26th April, 2021. PPA for an additional 2.7MW for expansion was signed in November 2021.



Company Information

Company Name: Shizen International Inc., Representative Office in Bangkok
Industry:

Electricity, gas and water service
Address: T-One building, 15 floor, room 15-116, No.8, Sukhumvit soi 40, Sukhumvit rd., Prakanong, Klongtoei, Bangkok 10110 Thailand

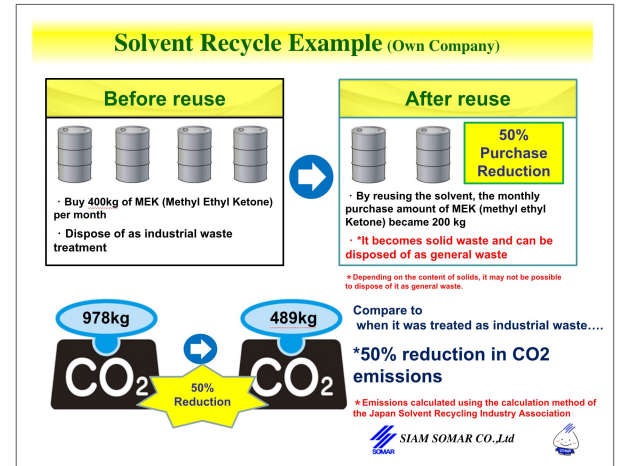
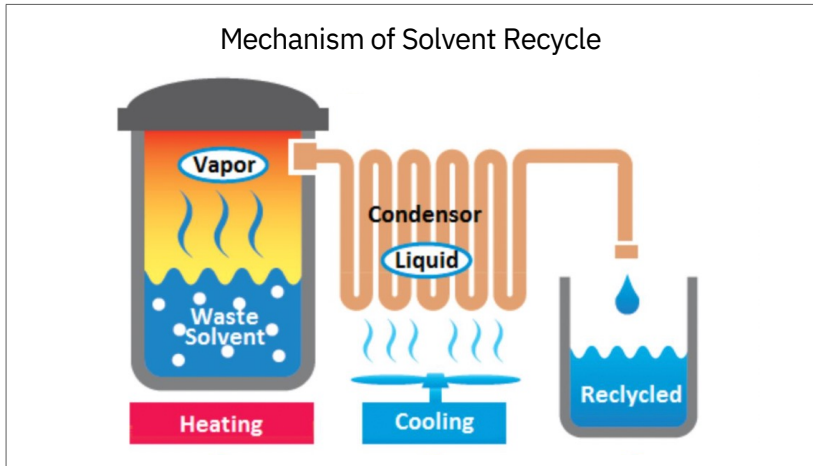
Website: <https://www.shizeninternational.com/>
Affiliated Company in Japan: Shizen Energy Inc.
Contact: si-thailand@shizenenergy.net

Message

We are a company that is working towards promoting the lifestyle with safe and sustainable energy by building natural power plants across the world. In Japan, we have developed approximately 1GW worth of renewable energy power plants. Our overseas businesses began in 2016, and currently we have solar power and wind power businesses in Malaysia, Thailand, Vietnam, Indonesia, the Philippines, and Brazil. Shizen Energy Group aims to engage in 10GW worth of power generation businesses across the world by 2030.

Recycling waste organic solvents used in cleaning Distillation and regeneration of used organic solvent

Siam Somar Co., Ltd.



Service and Technologies

A solvent recycling business that collects used organic solvents, remove impurities from them and regenerate them. Waste solvents such as hydrocarbon solvents, alcohol solvents, ketone solvents, ester solvents, and brominated solvents are vaporized and liquefied by cooling fans to regenerate the solvents. This service will collect waste solvents from customers and return the regenerated solvents.

Sustainability

While used organic solvents will emit carbon dioxide when going through heat treatment for disposal, by recycling them with this service, not only can we reduce waste but also contribute to the reduction of CO₂ emissions. Also, distilling and regenerating used solvents and cleaning agents in factories and offices will allow recycled use of the solvents and cleaning agents. This way, cost of purchasing new liquids and industrial waste disposal costs can be significantly reduced, thereby saving resources and reducing the environmental burden.

Experience

In the case of a company that used to purchase 400 kg of MEK (methyl ethyl ketone) per month and disposed waste solvents as industrial waste before switching to the regenerated solvents, their new purchase volume of MEK reduced to 200 kg per month after adopting this service. Also, by using the regenerated solvents, CO₂ emissions were reduced by 50% as compared to what it would have been if the solvents were treated as industrial waste (calculated with the calculation method by Japan Solvent Recycling Industry Association). In the case of Siam Somar themselves, the waste generated from solvent recycling was able to be disposed as normal waste, so they managed to reduce disposal cost. *Depending on the solid contents, there are cases where it cannot be disposed as normal waste.



Company Information

Company Name: Siam Somar Co., Ltd.
 Industry: Trading
 Address: 399 Interchange Bldg 26th Fl Unit2 Sukumvit Rd., Klongtoey-Nua, Wattana, Bangkok 10110 Thailand
 Website: <http://www.somar.co.jp/english/index.html>
 Affiliated Company in Japan: SOMAR Corporation
 Contact: info@siamsomar.co.th

Message

Siam Somar Co., Ltd. manufactures and sells epoxy adhesives, surface protection agents and encapsulants, and sells shading films, high-performance films, protective films, solvent regeneration equipment, and food additives. We have an abundance of experience in the automotive, electronic, and food industry, and have been growing as a company with both trading and manufacturing functions. <Reduction of environmental burden with 3R promotion> Our factory has acquired ISO14001, and we are manufacturing environmentally-friendly products to play our part in the preservation of the environment.

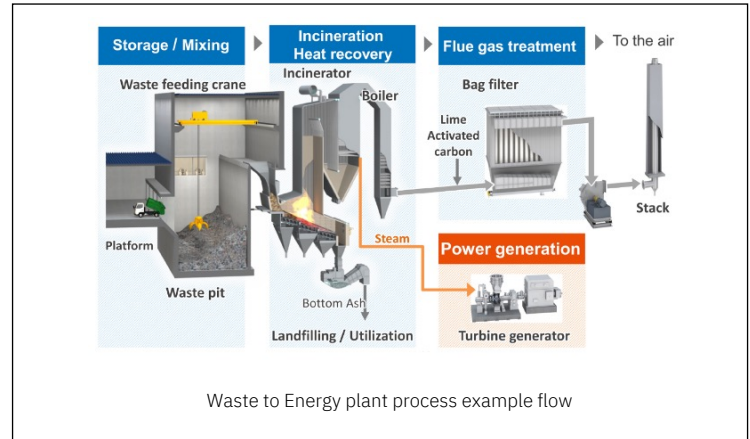
From biomass and waste to utilization of steam, electricity, and CO₂

Biomass / Waste to Energy plant

Siam Takuma Co., Ltd.

Service and Technologies

Various scales (around 2MW to over 50MW) of Biomass Power plant / Waste to Energy plant supplied with our own technologies of combustion and boiler is our major business. Based on our extensive experience and know-hows, we select and design the optimum combustion method and boiler. Also, by reducing auxiliary power and unburned portion, we supply plants that can operate stably with high efficiency (excellent energy saving performance).



Sustainability

By efficiently utilizing biomass fuels, agricultural residues, and wastes, we contribute to prevent air pollution and greenhouse gas emission from activities such as open field burning, and at the same time create energy sources such as steam and electricity. By promoting resource utilization and renewable energy, we will contribute to reduce CO₂ emissions and realize a decarbonized society.

Experience

The biomass power plant and combustion gas purification system installed in Okayama, Japan which were completed and started operation in March 2019, are located next to a greenhouse for vegetable cultivation. This plant uses lumber from nearby regions and imported woods such as palm kernel shells (PKS), and is successfully operating a sustainable operation as a biomass trigeneration plant that supplies three types of energy necessary for operation of the facility - electricity, heat for heating and cooling use, and carbon dioxide for promoting vegetable growth. In this project, we helped achievement of the customer's innovative concept of biomass tri-generation through joint efforts such as experimental study.



Company Information

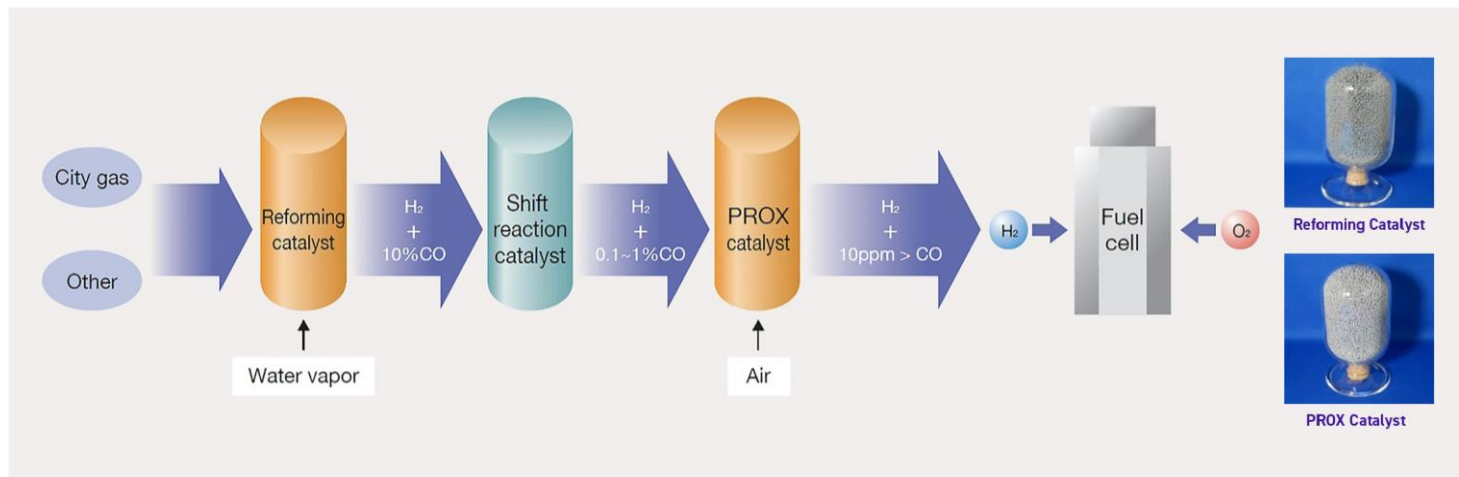
Company Name:
Siam Takuma Co., Ltd.
Industry: Other manufacturing
Address: 77/53 Sinn Sathorn Tower
15th Fl, Krungdhonburi Rd.,
Klongtong, Klongsarn, Bangkok,
10600 Thailand
Website (TAKUMA CO., LTD.):
<https://www.takuma.co.jp/english/>
Affiliated Company in Japan:
TAKUMA CO., LTD.
Contact: info@siamtakuma.com

Message

Takuma is a company providing waste treatment, water treatment, and energy plant businesses - which is exactly why we take "environment" and "energy" very seriously. Since 2021, we have been incorporating ESG into our activities and aiming to maintain our role of being an indispensable presence in society over the long term sustainably. We have a long-time accumulated experience in the waste treatment and biomass power generation industry with our own combustion and boiler technology. In Thailand, we can provide services such as plant delivery, commissioning, and after-sales support.

Precious metal catalyst that will contribute to the decarbonized society Reforming catalyst, PROX catalyst and Oxidation catalyst

Tanaka Kikinzoku International (Thailand) Co., Ltd.



Service and Technologies

Tanaka provides reforming catalyst, a catalyst that generates hydrogen from hydrocarbon such as natural gas, and PROX catalyst, which has the ability to selectively oxidize and remove carbon monoxide that occurs during hydrogen generation. PROX catalyst is a catalyst that selectively oxidizes and removes carbon monoxide down to below 10ppm from the hydrogen and carbon monoxide that occur from the reforming action. Tanaka Kikinzoku is capable of providing low-cost catalyst that shows high activity for a wide range of temperatures from low to high heat, with low precious metal loadings.

Sustainability

This product is a catalyst that generates hydrogen from city gas and biomass-derived methane gas and utilize it for purposes such as fuel cell. It is expected that, besides automotive, electrification of consumable energies will also advance as one of the technologies to achieve carbon neutrality. In this trend, it is also predicted that the fuel cell as part of the electrification technology will be utilized in renewable energy-derived pure hydrogen, biogas, or natural gas reformed hydrogen. Also, methanation catalyst and carbon dioxide reforming catalyst, which apply this technology, will contribute to reduction of carbon dioxide.

Experience

- Adopted by "ENE-FARM", fuel cell system for practical home use in Japan
- Introduction of demonstration equipment for catalysts (reforming and oxidation catalysts, etc.) developed for carbon dioxide reduction and utilization.



Company Information

Company Name: Tanaka Kikinzoku International (Thailand) Co., Ltd.
 Industry: Trading
 Address: 952 Ramaland Building, Zone F, 14th Floor, Rama4 Road., Suriyawongse, Bangrak, Bangkok 10500 Thailand
 Website: <https://www.tanaka.co.jp/english/>
 Affiliated Company in Japan: TANAKA Kikinzoku Kogyo K.K.
 Contact: wanichaya-p@ml.tanaka.co.jp (Wanichaya)

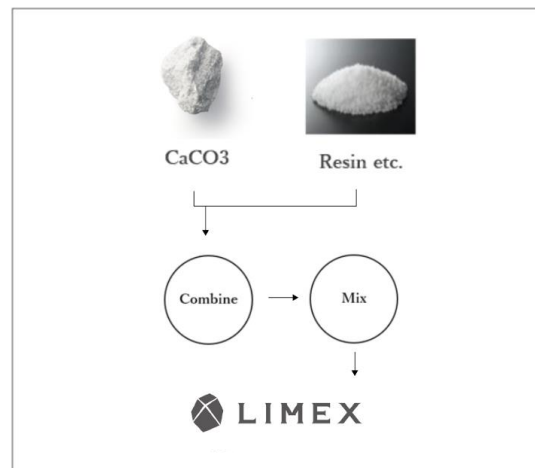
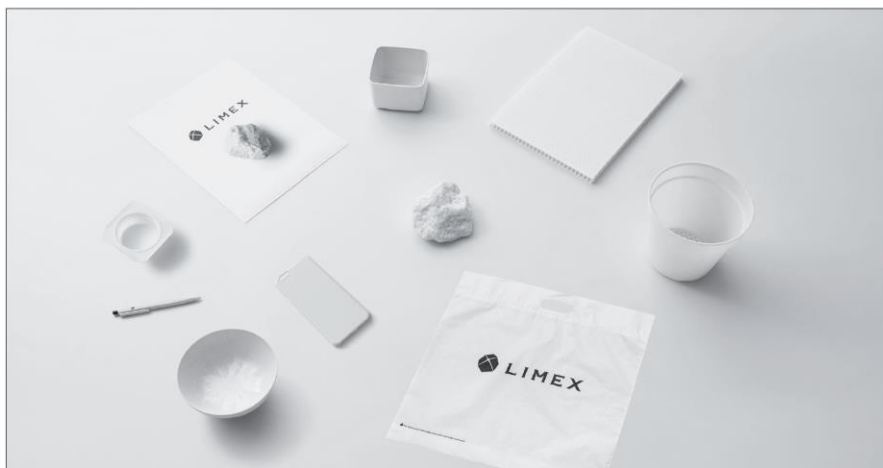
Message

Tanaka Kikinzoku Group is working as precious metal professionals. We provide services in the three fields of "Industrial use", "Asset use", and "Jewelry use". There are a wide variety of industrial-use application, with industrial precious metal products we are developing ranging from everyday automotive, mobile and other devices, to cutting-edge energy, medical and aerospace. We take charge of every operation involved in precious metals, from bullion procurement, to processing and manufacturing, sales, and recycling. Through this extensive service we will help solve our customers' issues with the optimal combination.



New replacement material for plastic and paper made with limestone as its main material Environment-conscious material LIMEX

TBM Co., Ltd.



Service and Technologies

LIMEX is an inorganic filler-dispersion composite material containing more than 50% inorganic materials such as calcium carbonate. LIMEX Pellet can be processed into items such as packing material, containers, and daily products with existing molding machines, and LIMEX Sheet can be printed and bound with existing printers and binding machines. Since the main material is limestone, it can contribute to the preservation of resources with high risk of depletion such as petroleum, water, and forest resources. They can also be recycled as they can regenerate without separating inorganic materials with thermoplastic resin.

Sustainability

Limestone, the main material of LIMEX, is a material that exists in abundance on the earth. As compared to petroleum-based plastic, for limestone, the CO2 emissions at the raw material procurement stage can be reduced to approximately 1/50, and at the time of incineration by 58%. Also, LIMEX Sheet can reduce the amount of water needed for manufacturing by around 97% as compared to normal papers. Since it does not use any wood pulp, it can also help preserve natural resources with risk of depletion. *All given figures are calculations for reference, and not guaranteed figures.

Experience

LIMEX has been adopted by over 8,000 companies and municipalities and is patented in more than 40 countries across the globe. Apart from being introduced at international conferences such as COP and G20, it is also registered on UNIDO's Sustainable Technology Promotion Platform "STePP". The technology is being used for various purposes including shopping bags in retail stores, clear files and calendars in offices, menus and take-away containers in restaurants, plastic models, stationeries, hotel amenities and so on.

T B M

Company Information

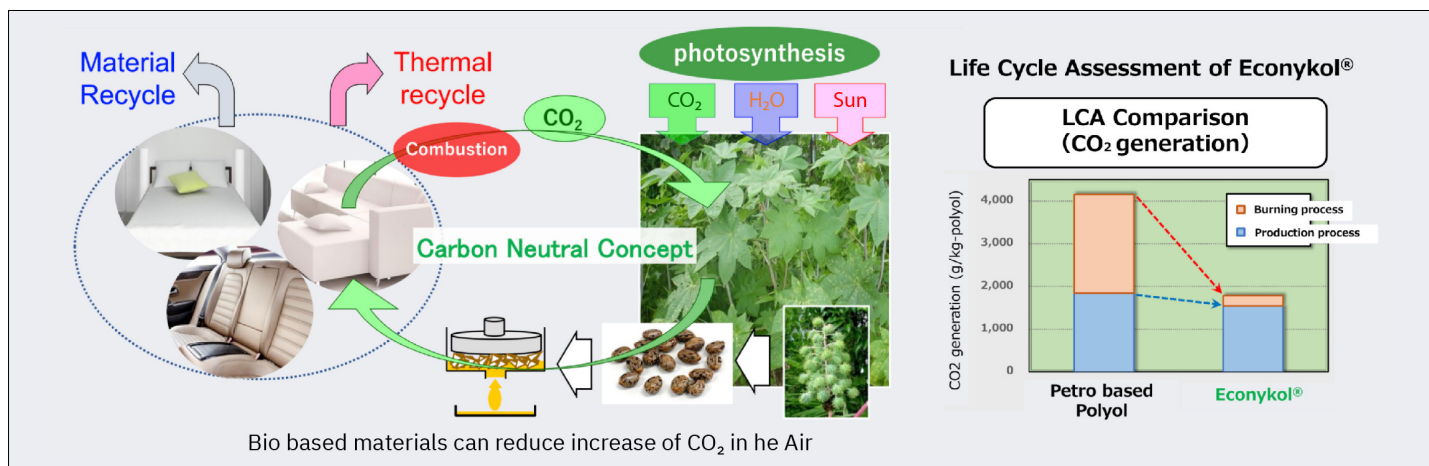
Company Name: TBM Co., Ltd.
 Industry: Chemical, medicine, petrochemistry and coal product manufacturing
 Address: Toho Hibiya building 15F, 1-2-2, Yurakucho, Chiyoda, Tokyo 100-0006
 Website: <https://tb-m.com/en/limex/>
 Affiliated Company in Japan: TBM Co., Ltd.
 Contact: d-sato@tb-m.com (Sato)

Message

TBM's mission is to "build a bridge for the future we want" and "realize of "sustainability revolution". Our businesses in Japan and abroad include development, manufacturing and sales of environmentally-conscious materials, such as "LIMEX", a new material with limestone and "CircleX", that contains more than 50% recycled materials. In collaboration with municipalities and private enterprises, we are also promoting recycling that collects and regenerates used LIMEX and scrap plastics. In 2021, we ranked 4th with business value at 133.6 billion JPY in the "NEXT Unicorn Survey" by The Nihon Keizai Shimbun, and were introduced as a unicorn company.

Plant-based biomass plastic raw material Bio-polyol "ECONYKOL®"

Thai Mitsui Specialty Chemicals Co., Ltd.



Service and Technologies

Through the research and development on plant material utilization, Mitsui Chemicals has succeeded in creating plant-based polyol that can be used in actual applications. While the existing urethane material uses 100% petroleum polyol, bio-urethane replaces it with plant-based polyol ("ECONYKOL®"). As Thai Mitsui Specialty Chemicals (TMSC) possesses technologies to adjust characteristics such as density, hardness, and elasticity, they can provide products that match customers' demands as a total system. They answer to customers' needs for pursuing both environmental effort with sustainable product development and market expansion.

Sustainability

Based on life cycle assessment, this product can reduce CO₂ emission by half as compared to petroleum-based polyol (based on Carbon Neutral Concept). Therefore, this will contribute to concerns about increase of carbon dioxide in the atmosphere. The company and Mitsui Chemicals group are also considering a circular model, where they will tear into fine pieces bio-urethanes used in products such as beds and use prepolymer (adhesive) that contains plant components to congeal the fine pieces to be recycled as rebonded foam. The rebonded foam can then be reused as part of a new bed.

Experience

Apart from its adoption in the cushion of office chairs and cosmetic powder puffs, the technology was also the first to be used in the cushion of car seats, which requires a high durability. With the increasing importance of reducing environmental burden, adoption of the technology in various products can be expected. Non-edible plant material is selected as the source for this bio-urethane, so it does not hinder any effort in resolving food issues. In 2013, they built a polyol manufacturing factory in India, the country of origin of the material, and ensure a stable quality and supply capability.



Company Information

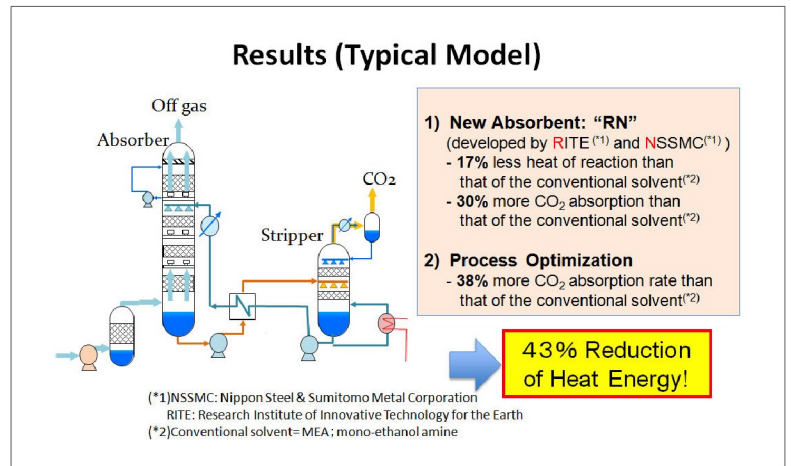
Company Name: Thai Mitsui Specialty Chemicals Co., Ltd.
 Industry: Chemical
 Address: 12th Fl., Sathorn Thani Bldg. 2, 92/28-29, North Sathorn Rd., Silom, Bangrak, Bangkok 10500 Thailand
 Website: <https://jp.mitsuichemicals.com/en/>
 Affiliated Company in Japan: Mitsui Chemicals Co., Ltd.
 Contact: usaka@tmsc.co.th (Usaka)

Message

Mitsui Chemicals, established in 1955, is a diversified chemical manufacturer with businesses in basic chemicals, mobility, healthcare, food & packaging, and new generation businesses. We have about 100 affiliated companies in Japan and abroad. In Thailand, we established a company (TMSC) about 30 years ago, they are developing their business in the industrial resin-related and urethane-related fields, focusing on functional products. We also have its own R&D department to develop products. In the coming future, the company will focus on products to contribute to the realization of a sustainable society.

CO₂ Capture and high purity Regeneration Energy-saving CO₂ capture equipment (ESCAP®)

Thai Nippon Steel Engineering & Construction Corporation Ltd.



Service and Technologies

Energy-saving carbon dioxide capture system that uses chemical absorption method, capable of manufacturing 99.9% or higher purity carbon dioxide from impure feedstock gas, for purposes including food and carbonic drink, all while reducing heat consumption by more than 40% compared to the existing technologies. The captured CO₂ can also be utilized as chemical feed stock, EOR (Enhanced Oil Recovery) and CCS (Carbon Capture and Storage).

Sustainability

Our technology can reduce CO₂ emissions from such as power plants, cement plants and steelworks, and able to regenerate carbon dioxide at a low temperature (below 100 °C) and with heat consumption. It can contribute greatly to concepts such as carbon credits and carbon offsetting.

Experience

Based on the energy-saving carbon dioxide recovery technology developed by COURSE50 (development of environment-friendly process technology), which is a research commissioned by the National Research and Development Corporation New Energy and Industrial Technology Development Organization (NEDO). For commercial achievements, we completed construction of a 120 Ton- CO₂/day plant in Hokkaido prefecture in 2014 and a 143 Ton- CO₂/day plant in Ehime prefecture in 2018.

Bioethanol from cellulosic inedible raw material

2nd Generation ethanol manufacturing technology using biomass as its material, which would not conflict with food material such as cellulose and food waste. It has a high yield of over 250 liter per dry ton of biomass raw material. In Thailand, it can be a supporting technology for the BCG economic initiatives that the government has, by mixing the ethanol made with cellulose produced as agricultural residue. An experimental plant has already been built in the Philippines.



Company Information

Company Name: Thai Nippon Steel Engineering & Construction Corporation Ltd.

Industry: Construction industry (construction, civil engineering, equipment etc.)

Address: 909 Ample Tower 5th Fl., Debaratna Road, Bangna-Nua, Bangkok 10260 Thailand

Website:

<https://www.eng.nipponsteel.com/english/>

Affiliated Company in Japan:

Nippon Steel Engineering Co., Ltd.

Contact: swatanabe@thainippon.co.th (Watanabe)

anuphanp@thainippon.co.th (Anuphan)

Message

We are plant engineering and EPC company in oil and gas and petrochemical industry, with 35 years of history in Thailand. To achieve a carbon neutral society, we will introduce the unique technologies of Nippon Steel such as CO₂ capture technology (ESCAP) and bioethanol manufacturing technology for decarbonization society.

Small-sized biogas system that can fit into a container Small-sized methane power plant

Vioce Co., Ltd.



Service and Technologies

A compact and simple biogas system that has every equipment stored in a 20-foot ocean freight container. It is an on-site system that can easily carry out waste treatment at the site where waste is being generated. Also, with its unique dual-pipe heating system, it is compact yet highly functional.

Sustainability

This small-sized methane gas power plant carries out methane fermentation of waste and reuse it as energy in biogas form. This enables reduction of greenhouse gas emissions and use of renewable energy. In addition, the digested liquid that remains after energy use can be returned to farmland as liquid fertilizer, thus contributing to the construction of a circular society.

Experience

This product has abundance of experience in Japan including sales to NTT group and Toyota group. In the example at a cut vegetable factory, before the implementation of this product, when commodifying the cut vegetables, it would produce residues that weighed around 2 tons per day, and the disposal of these vegetable residues would cost 28,000 JPY each day. After implementing this product, the organic waste that had been disposed by incineration is now being reused as biogas energy through methane fermentation. The products enables an environmentally-conscious waste treatment that helps reduce waste, minimize greenhouse gas emissions, and supply renewable energy. For its cost effectiveness, investment recovery is expected to be in 7 to 8 years.



Company Information

Company Name: Vioce Co., Ltd.
 Industry: Other manufacturing
 Address: 295-9 Nishinosho, Wakayama, Wakayama 640-0112
 Website: <https://vioce.jp/en/>
 Affiliated Company in Japan: Same as above
 Contact: muraoka@vioce.jp (Muraoka)
teruakisukeno@gmail.com (Sukeno)

Message

We, Vioce Co., Ltd. is a company that engages in waste treatment as its main business. With a large-scale water treatment facility in operation, we collect, transport, and treat various types of waste from across Japan. We are an environmentally friendly company that promotes the "loop of resource circulation", whereby we give back to the farmland by recycling any organic resources that remain after the treatment, into fertilizer.



JETRO's Service Guide

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JETRO Thailand Website (English / Thai)

<https://www.jetro.go.jp/thailand/>



JETRO Headquarters Website (English)

<https://www.jetro.go.jp/en/>

Sustainable Business for Carbon Neutrality

For a virtuous cycle of environment and growth

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