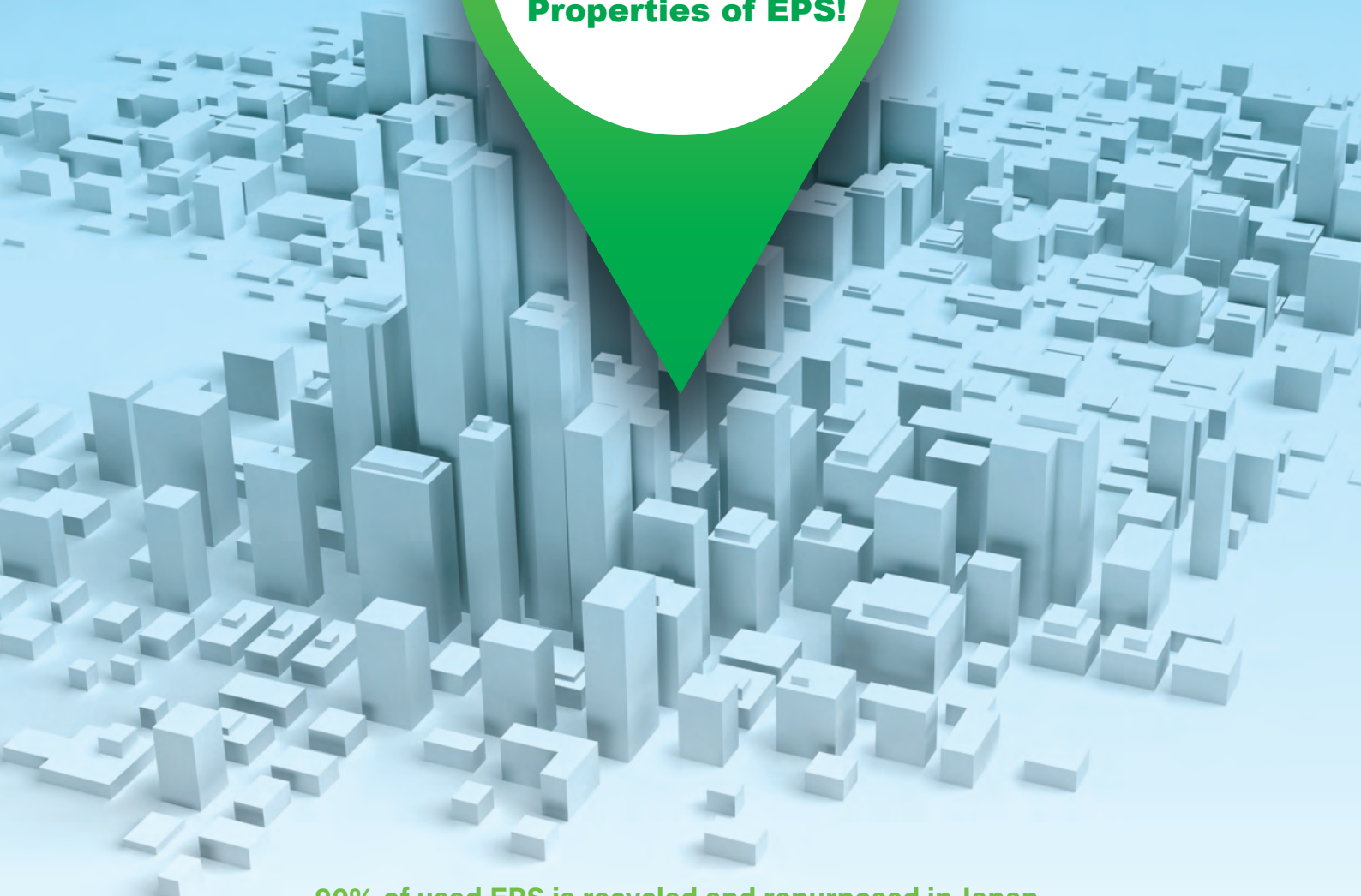
JEPSA

INFORMATION 2020-2021

JEPSA INFORMATION

Protecting the Global Environment with the Excellent Properties of EPS!



90% of used EPS is recycled and repurposed in Japan.

JEPSA

JAPAN EXPANDED POLYSTYRENE ASSOCIATION

Protecting the Global Environment with the Excellent Properties of EPS!

We, Japan Expanded Polystyrene Association (JEPSA), delivered the new slogan, “Protecting the Global Environment with the Excellent Properties of EPS!”. By using this slogan, we encourage a deeper understanding of EPS, which has many excellent and versatile properties. EPS has great thermal insulation properties, shock-absorbency, lightweightness, resource saving properties, durability, recyclability, and moreover, processability. We are cooperating with all stakeholders to accomplish progressive and versatile development of this material which will make a positive impact on society.
For building a sustainable society and protecting the global environment, our ideal goal is to have “100% of used EPS recycled and repurposed”.

JEPSA’s main missions are:

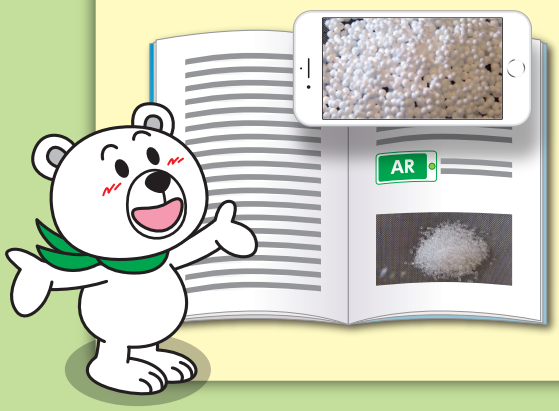
- **Encouraging the sound development of the EPS industry**
- **Encouraging the correct understanding of EPS**
- **Encouraging resource circulation and useful recovery of used EPS**
- **Research on environment, safety, hygiene, marketing and encouraging new development of the EPS business field**
- **Partnering with domestic and international related organizations**
- **Supporting government agencies with proposals when executing administrative policies**
- **Execution of general projects to achieve our goal**

This year’s action plan for the EPS market growth:

1. Expanding the demand in the fishing and agricultural industries; The excellent characteristics of EPS, such as freshness preservation, is highly suitable.
2. Contributing to society by reducing environmental load and resource consumption using EPS.
   “EPS has the ability to maintain temperature consistency, which can contribute to slowing down global warming by reducing CO_2 emissions.” Expanding the EPS market with insulating materials for building, construction materials, electronics appliances, housing equipment, auto parts, and transportation materials.
3. Increasing resource circulation, rising effective resource usage, promoting correct recovery treatments.
   “Cooperating with domestic and international related organizations for innovation.”
4. Encouraging the development of the EPS industry.

You can reach our resources on your smartphones.

ARARAR graphics!



① Download the app “COCOAR2” to your smartphone

Access the download page from your phone by reading the QR code or from Google Play/App Store.

ANDROID APP ON Google play

Download on the App Store

② Hold your smartphone over the icon to the left.

AR

Hold your smartphone over the icon to the left. You can see videos and details.

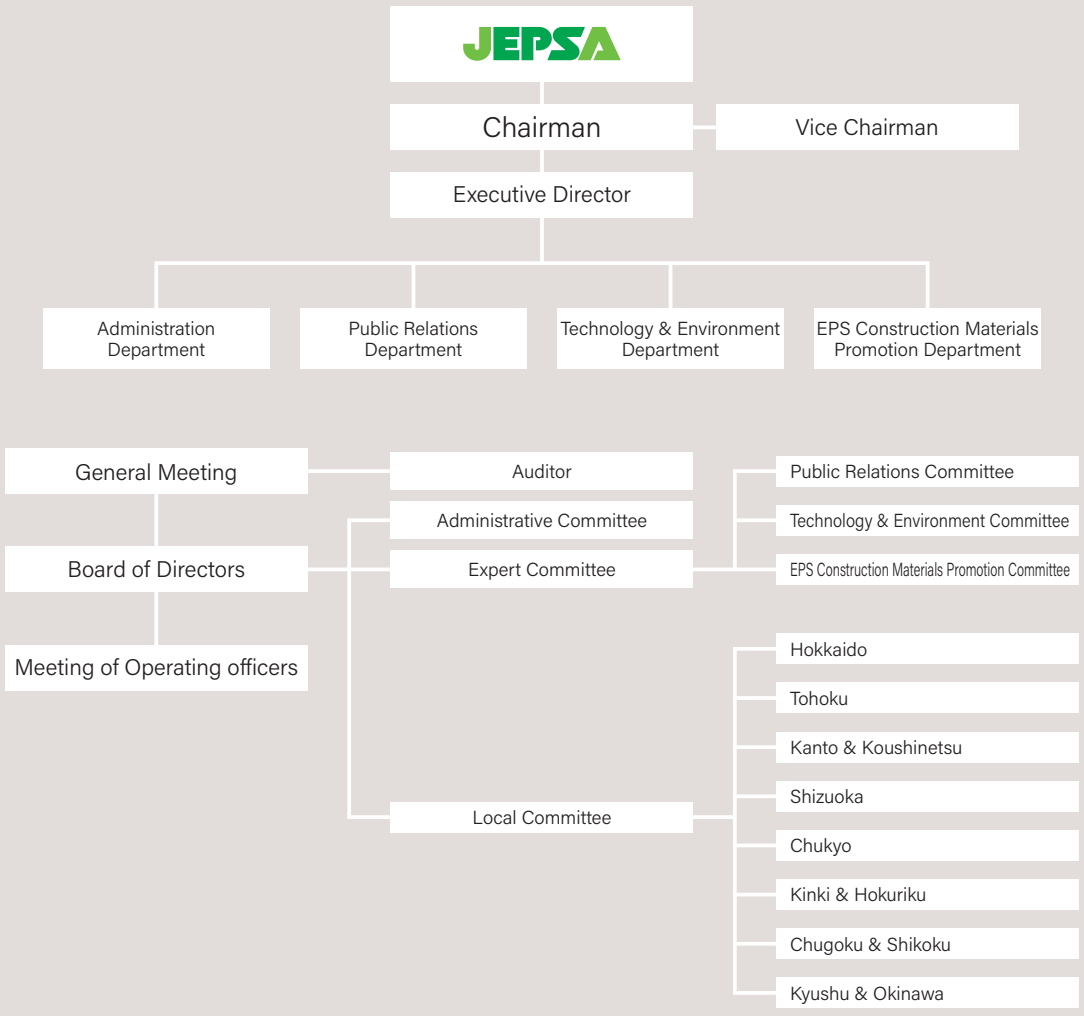
Organization Profile

- **Organization Name** — Japan Expanded Polystyrene Association (JEPSA)
- **Address** — 6F Showa Akihabara Bld. 2-20 Kanda Sakuma-cho Chiyoda-ku, Tokyo 101-0025 Japan
  TEL: +81-3-3861-9046 / FAX: +81-3-3861-0096
- **Establishment** — June 1st 2010 (Re-organized and name changed from Japan Expanded Polystyrene Recycling Association)
  ※Japan Expanded Polystyrene Recycling Association, Established on May 20th 1991
- **Members** (4 Corporations / 1 Association)

ACHILLES CORPORATION	2-21-1 Kita-Shinjuku Shinjuku-ku, Tokyo
KANEKA CORPORATION	1-12-32 Akasaka Minato-ku, Tokyo
JSP Corporation	3-4-2 Marunouchi Chiyoda-ku, Tokyo
Sekisui Kasei Co., Ltd.	2-4-4 Nishi-Tenma Kita-ku Osaka-city, Osaka
Japan Foam Styrene Industry Association	2-9-6 Kandata-cho Chiyoda, Tokyo

Japan Foam Styrene Industry Association, 122 companies

JEPSA Organization Chart



The 3 Types of Polystyrene Foam

Expanded Polystyrene is Used for a Variety of Applications and Formed to Various Shapes.

What is generally called Polystyrene foam is divided into 3 categories (①EPS, ②PSP, ③XPS) depending on the method of manufacturing. The most common one you will see in daily life is EPS. We, Japan Expanded Polystyrene Association (JEPSA), are an organization in the EPS industry.

①EPS [Expanded Polystyrene]

Polystyrene particle foam

After the first expansion of the raw material (expandable polystyrene beads), EPS will be molded into a variety of shapes and can be applied for various markets. The molded bead-formed surface texture of EPS is it's notable characteristic.

Containers for Agricultural and Fishery Products

Insulation for EcoCute

EPS Building Materials (External Insulation)

Road Construction Materials (EPS Civil Engineering Construction Method)

②PSP [Polystyrene Paper]

Polystyrene foamed sheet by extrusion

This polystyrene foamed sheet is mainly used for food containers by vacuum molding. Commonly used ones are white without printing designs. There are colored and patterned trays as well.

For PSP inquires…

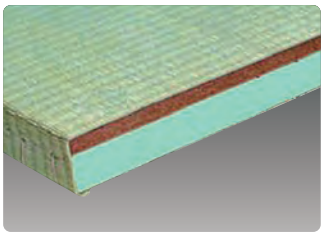
Japan Polystyrene Foamed Sheet Industry Association (JASFA) https://www.jasfa.jp/

3F Tokon Building, 26 Kanda-Higashikonya-cho
Chiyoda-ku, Tokyo101-0034 Japan

③XPS [Extruded Polystyrene]

Polystyrene foamed board by extrusion

This plank foam is produced through a continuous molding process that the polystyrene is melted and mixed with blowing agents and additives in the extruder.
Main application is for thermal insulation materials in construction work.



※Photo by JSP

For XPS inquires…

Extruded Polystyrene Foam Industry Association (EPFA) https://www.epfa.jp/

7F Shinbashi Enter Building, 5-8-11 Shinbashi
Minato-ku, Tokyo 105-0004 Japan

An Ecofriendly Material Mainly Consisting of Air

EPS is a Resource-Saving Material Composed of 98% Air*1

The EPS raw material is expandable polystyrene beads which contain blowing agents and whose diameter is around 1mm. When the beads are steam-heated they usually expand up to 50 times *2 of the original mass. Because EPS is manufactured by a foaming process, 98% of total volume (mass) is constituted of air, the remaining 2% are the raw polystyrene which are derived from petroleum. Due to this small amount of raw material, it can be said that it is an excellent resource-saving product.

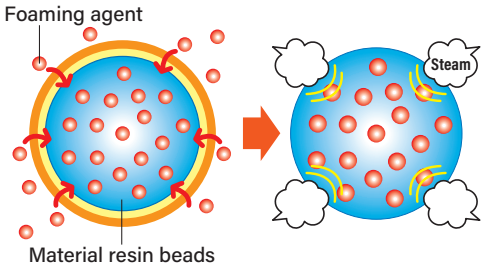
How EPS Products Are Made

*1: When foamed at 50 times expansion
*2: Sometimes used for approx. 3-100 times expansion foam

Raw Material Resin Beads

When steam is applied directly to the raw beads, the blowing agent inside is heated and swells. The raw material resin beads also swell from this heating process.

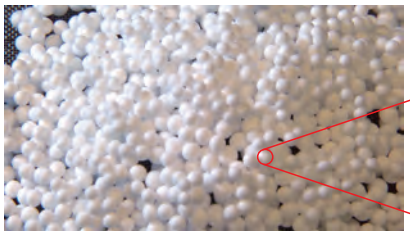
AR Please check out the video of foam formation



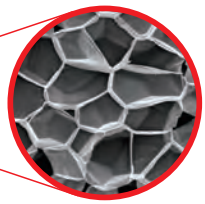
Expanded Polystyrene Beads

Expanded materials are foamed at 50 times *1 of the original mass and becomes expanded beads consisting mostly of air.

*1: Other than 50 times expansion



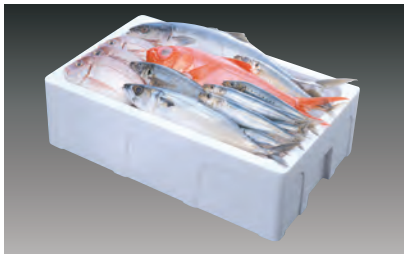
Microscope Photo

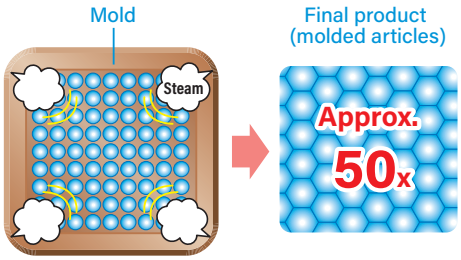


EPS is divided into a lot of small closed cells

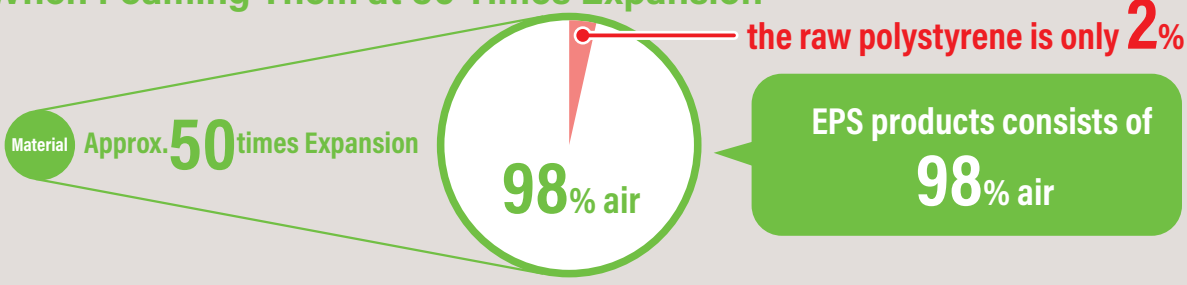
EPS Molded Articles

Fill the foam beads into the mold and heat them again with steam. The foam beads go through a second expansion process and fuse to each other, which forms into the desired shape. This will become the final product.





When Foaming Them at 50 Times Expansion



EPS is a Highly Resource-efficient Material by Virtue of the Air Inside

The 98% Air inside EPS Products Makes it Excellent Properties

EPS products are comprised of 98% air, so they have excellent insulation and shock-absorbent properties. Furthermore, it is used in various industries because it has great lightness, processability, and durability. Also, due to it being a single material, it is easy to recycle.

Excellent Characteristics of EPS

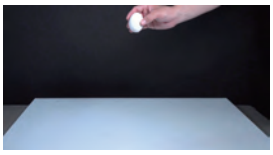
① Insulation

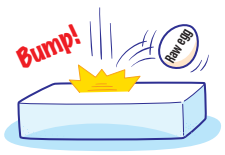
As it contains a lot of air, EPS shows excellent heat and cold insulation performance. Cold things stay cold and warm things stay warm. EPS is a collection of expanded beads that consist of tiny independent air bubbles. Since there is less air circulation in each air bubble, it is difficult for heat transfer to happen.

EPS made it possible to preserve the freshness of fish, while it was difficult to do so with wooden boxes prior.

② Shock Absorbency / Cushioning properties

The EPS independent air bubbles have excellent shock absorption. This protects the products as a cushioning material for packaging things like home appliances and delicate equipment.





AR **Please check out the shock absorbency test video.**

EPS absorbs the shock so even a raw egg would not crack.

③ Lightweight

Extremely lightweight because the product consists of 98% air and 2% polystyrene.

④ Resource Saving

EPS is made with only 2% of petroleum-derived material and 98% of air, so it is extremely resource-saving.

⑤ Durability

EPS can retain its shape semi-permanently if it is not exposed to direct sunlight (Ultraviolet rays). For weight load durability, it can tolerate up to 5 tons per 1 square meter on its surface when loaded evenly. (expanded EPS pressure allowance in the case of 20 Kg/M3)

⑥ Recyclability

Since EPS is derived from a single material, it has excellent recycling abilities that can easily be reused as a renewable resource (ingot, and pelletized) by just applying heat.

⑦ Processability

It can be easily shaped by cutting it with a knife or using a heating wire.

[Usage example] Taking advantage of the characteristics of it being ③ lightweight and ⑤ durable

With the EPS embankment construction method (GEO FOAM), it can be used instead of soil (EPS blocks 50cm thick, 1m x 2m in size) in some construction projects. It has excellent durability even after 40 years of use.

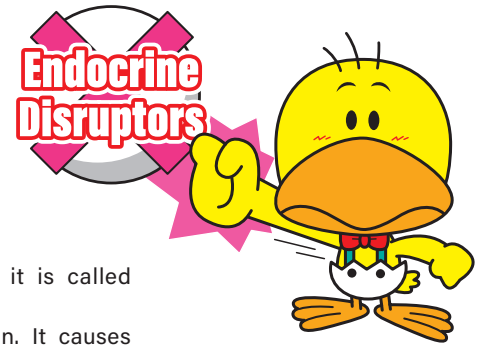
(EPS Development Organization : http://www.cpcinc.co.jp/edo/)

Ex) Ratio of weight for same cubic volume (1㎥) soil = 1.3 – 1.8 ton / concrete and asphalt = 2.3 ton / EPS = 0.02 ton

EPS Leaves Little Environmental Footprint and has No Negative Effect on Health

EPS Does Not Contain Any Endocrine Disruptors

Styrene dimers and trimers were listed as endocrine disruptor suspected substances in 1998. However, they were confirmed to have “no negative effect on health” after confirming results of elution tests at research institutions. Also, the Ministry of Health, Labor, and Welfare, Ministry of Agriculture, Forestry and Fisheries, Ministry of Economy, Trade and Industry, and Ministry of the Environment have confirmed to have “no problems”. Styrene dimers and trimers were removed from a list called “SPEED ’98”, which was enacted by Ministry of the Environment in Oct. 2000.



SPEED’98: Strategic Programs on Environmental Endocrine Disruptors '98

- What are dimers and trimers? : When there is one styrene molecule, it is called monomer, when two, it is dimer, and when three, it is called trimer.
- Endocrine disruptors are often called “environmental hormones” in Japan. It causes hormones changes in the body or disrupts hormone functions. Effects on reproductive function, etc.…

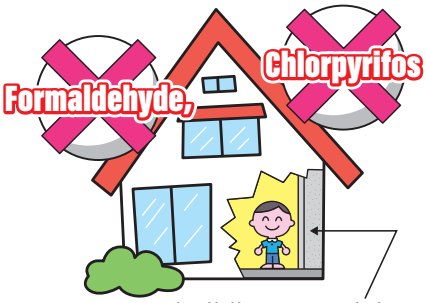
Revisions to the Food Sanitation Act (enforced in June 2020)

For securing the safety of plastic food containers, our industry has traditionally set strict restrictions on raw materials by following voluntary standards (in accordance with PL standards). As the Food Sanitation Act came into effect, standards now follow the Positive List system which was enacted by the Japanese government (PL Standards applicable to all plastics).

Considering the Impact of Sick House Syndrome

Substances that are restricted in the Building Standards Law, such as formaldehyde and chlorpyrifos, are not used.

*Possible small residual amounts of styrene, toluene, xylene, and ethylbenzene could be present due to the manufacturing process.



EPS building materials

Combustion and Incineration

EPS mainly consists of carbon and hydrogen. Under complete combustion, it becomes carbon dioxide (CO_2) and water (H_2O) without generating dioxin. Like other materials, when under incomplete combustion, it generates soot and carbon monoxide. When disposed at home please follow the directed community disposal rules.

Freon is not used as a Foaming Agent

EPS is manufactured by foaming, so it contains foaming agents (hydrocarbons) such as butane and pentane. Freon (fluorocarbon), which has a severe effect on the ozone layer, is not used in any process from manufacturing the material to the final product. There is no history of using Freon in the production of EPS.

Various Application of EPS

EPS products utilizing virtue of the air inside

Taking advantage of the characteristics of EPS, which is mainly composed of air, is widely used in everyday life such as shipping boxes for fresh foods, cushioning materials for home appliances, electronic office equipment, construction materials, industrial materials, and so on.

Agricultural Product Container

Fresh Fish Box

Packaging Materials for Home Appliances and Electronic Office Equipment

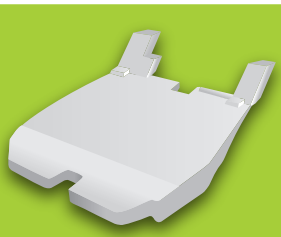
Float

Hydroponics

Cushioning Materials for Helmets

Cushion filled with Foamed Beads

Building Flooring Materials



Floor Spacer for Vehicles

EPS Building Materials
(External Insulation)

EPS Building Materials
(Filling Insulation)

Road Construction Materials
(EPS Civil Engineering Construction Method /GEO FOAM)

Application Products

Agriculture and Fisheries Container Field

Keeping Freshness

From around 1966, processing EPS Fish Box began to be used for dried horse mackerel and some other fish, which created a new market for EPS. Prior, wooden containers were used in the field of fresh fish containers. However, due to soaring prices of wood and changes in distribution methods, perforated EPS fish box began to be used as fresh fish boxes for bonito and sardines from around 1967. Later, fish box with a lid was developed. As a result, a revolutionary distribution method emerged in which fresh fish, seawater, and ice are place in a container and shipped to their destination keeping the fish perfectly preserved and fresh. This demonstrates the power of EPS containers with their temperature preservation properties. Demand has expanded rapidly due to its ability to preserve temperature and its durability. Another factor in its success is the added value in its anti-leaking property, which has received positive evaluation in the market. With the demand in agriculture products rising, EPS addresses the needs in transportation as represented, for example, in apple box shipping. The subsequent increase in domestic demand for imported vegetables has led to the expansion of demand for agricultural containers. In recent years, EPS containers have also contributed to the overseas export of Japanese agricultural and marine products. This container field is the largest in demand, accounting for more than half of the EPS market in Japan.

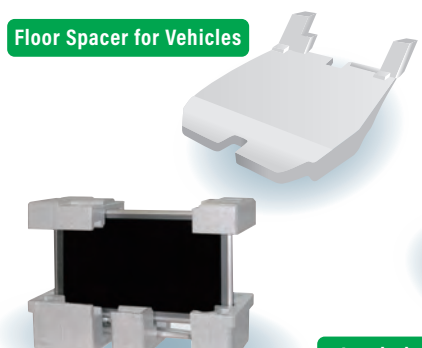
Containers for Agricultural and Fishery Products

Application Products

Cushioning Materials Field and Automotive parts. And other parts

Shock Absorbency | Insulation | Lightweight | Processability

Until 1977, cushioning materials were the highest in demand in the field of EPS, however after 1978, the fisheries field rose to the top. The severity of the situation continues due to the shift home appliance manufacturer outsourcing. The shift from CRT TVs to flat-screen TVs, competition with cushioning materials, and packaging materials made of other materials. In addition to shock absorbency and insulation, the characteristics of EPS such as it being lightweight and durable, matched market needs in the material field which became a reason that lead to increase in demand.



Floor Spacer for Vehicles

Cushioning Materials for TV

Insulation for EcoCute

*EcoCute is copyrighted by The Kansai Electric Power Co., Inc.

Building Materials and Civil Engineering Fields

Building Materials Field (EPS Insulation Materials)

EPS 断熱建材

Long Term Insulation

Material with little deterioration of thermal insulation performance for a long period of time.

Safety

Does not contain either Freon, formaldehyde, or asbestos.

Flammability

EPS building materials use raw materials with flame retardants added and have extinguishing properties when fire source is removed.

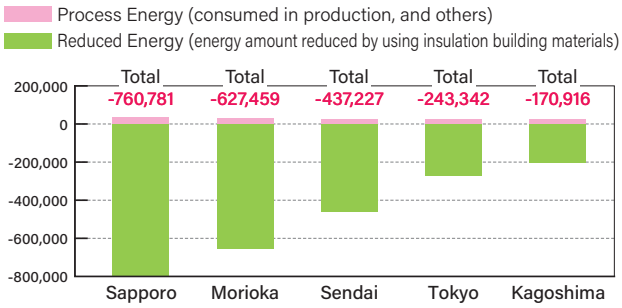
AR Please check out the combustion experiment video.

EPS is used the most for building materials in the world. It is usually used as a thermal insulating material. With a track record of more than 60 years in Japan, the demand for EPS building materials is expanding due to the support system for strengthening the thermal insulation performance of houses. Compared to other materials, starting out in a flat-board form, it has the advantage of being able to contour to curved surfaces and irregular shapes. In recent years, there has been an increase in demand for long-term performance retention of thermal insulating materials. EPS building materials do not deteriorate for long periods of time which makes this one of their strongest features.

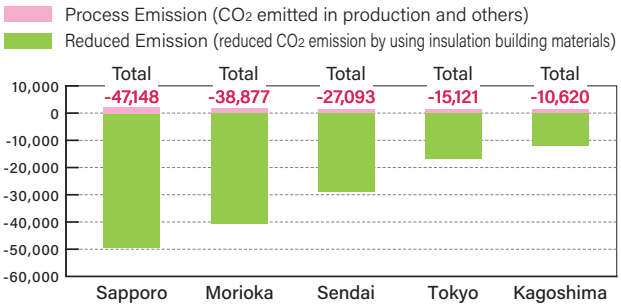
CO2 Reduction Effect Produced by EPS Thermal Insulating Material

When thermal insulating material is used for 30 years in an individual detached house, the energy reduction amount per unit (In Sapporo) is 760,781MJ. The CO_2 emission reduction amount is 47,148kg-CO_2, compared to an individual detached house that does not use heat insulating material (non-insulating house). By using EPS building materials, it is possible to reduce CO_2 emissions by 1,571 kg-CO_2 per household per year.

Energy Reduction (individual detached house)
(MJ / per house for 30 years total)



CO_2 Reduction (individual detached house)
(kg-CO_2 / per house for 30 years total)

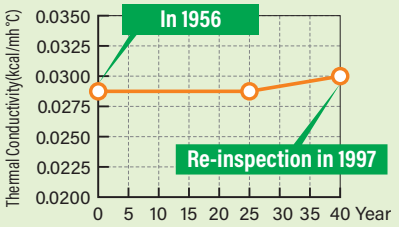


●データ出典／断熱部材のLCCO₂評価・算出法の標準化調査　独立行政法人新エネルギー・産業技術総合開発機構（平成20年3月成果報告書）

In Antarctica: EPS had been used for a long time as a Thermal Insulating Material for Showa Station

EPS was used as a thermal insulating material for Showa Station, which was built by the 1957 Japanese Antarctic Research Expedition. This protected the members in the Antarctic with a minimum temperature of -50 degrees Celsius (-58 degrees Fahrenheit). A survey of EPS building materials showed that they withstood 40 years of wind and snow. This has confirmed that the insulation performance has hardly deteriorated compared to the beginning of construction by an architectural institute.

Picture of Construction of the 1st Japanese Antarctic Research Expedition Showa Station



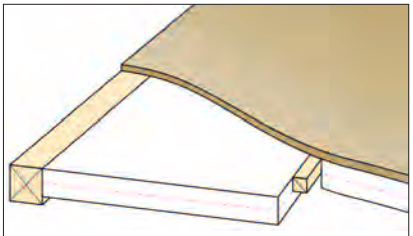
Changes in Thermal Conductivity of EPS Insulation Over Time
出典:「建築雑誌」vol.112 No.1411 1997年9月号

* Detailed data on long-term thermal insulation performance is available on the JEPSA website.

EPS Insulation Building Materials: Used in Various Situations in Daily Life


Roof tile Base Materials (For Wooden Buildings)


Filling Insulation


New EPS Floor Insulation Building Method
Obtained Housing Type Performance Certification


Hall Floor (Creation of Steps)


External Insulation


Insulated Floor Base Material


Pipe Cover (Piping Insulation)


Mall (Used in Core Material)


Wall Greening System

Civil Engineering Field

The EPS construction method, which uses EPS blocks for civil engineering, was introduced from Norway in 1985, and its track record has been steadily increasing. It is a groundbreaking construction material that breaks the conventional wisdom of civil engineering work by effectively utilizing a combination of lightness, structural support, water-resistance, and compression resistance. It has been highly effective in Japan, which has limited land area, with uses such as embankment on soft ground, widening, and backfilling of retaining walls.

Lightweight

Density of EPS is roughly 1/100 compared to soil, which is exceptionally light. It will reduce the load on the soft ground.

Compressive Resistance

The allowable compressive stress of EPS is a value of 2 to 9 t/m^3 depending on the density and it has sufficient strength as an embankment material.

Workability and Processability

Because it is lightweight, it can be transported and installed manually. No need for large construction machinery. In addition, it is easy to cut according to the terrain of the site.


Construction example that was adopted as a load relief construction method due to embankment load on soft ground and suppressed the pull-in settlement of neighboring buildings


Examples of road embankment and widening work. There are a lot of past records.

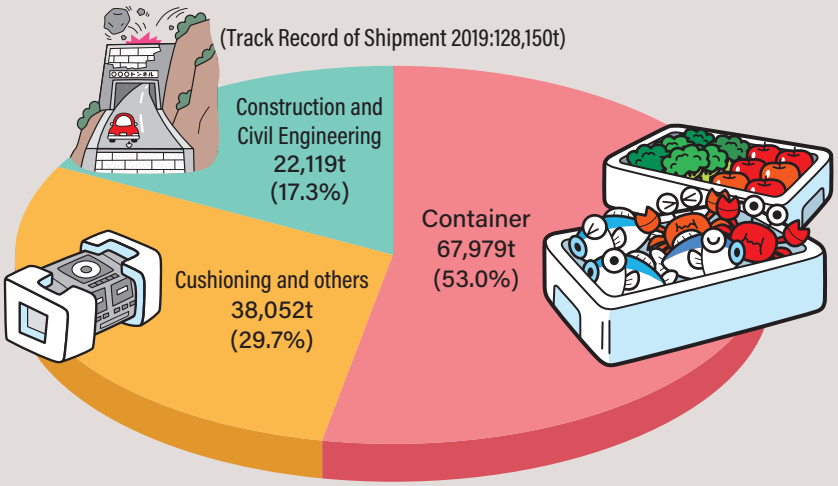

EPS blocks stacked on top of the rock shade to reduce the impact of falling rocks

EPS Has a High Effective Utilization Rate for Various Applications

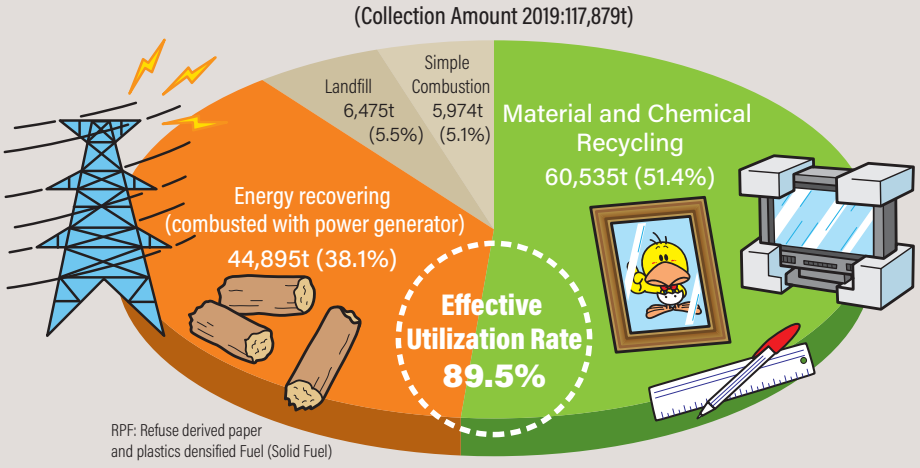
Excellent Recyclability

Due to the characteristics of the product, EPS is used in a wide range of applications in daily life, such as distribution containers for fresh food, packaging materials for home appliances, electronic office equipment, and heat insulating materials for buildings. In addition, used EPS is effectively repurposed in various ways, maintaining a high effective utilization rate of about 90% (Effective utilization rate in 2019; 89.5%). Among plastics, it is the top of its class in effective utilization rate along with PET bottles. We will continue to develop activities that will be maintained and expanded in the future. We will actively participate in the Ministry of the Environment's "Resource Circulation Strategy for Plastic" and "Action Plan on Marine Plastic Litter". We would like to achieve our ideal goal is to have "100% of used EPS recycled and repurposed".

Shipment Volume of EPS by Application



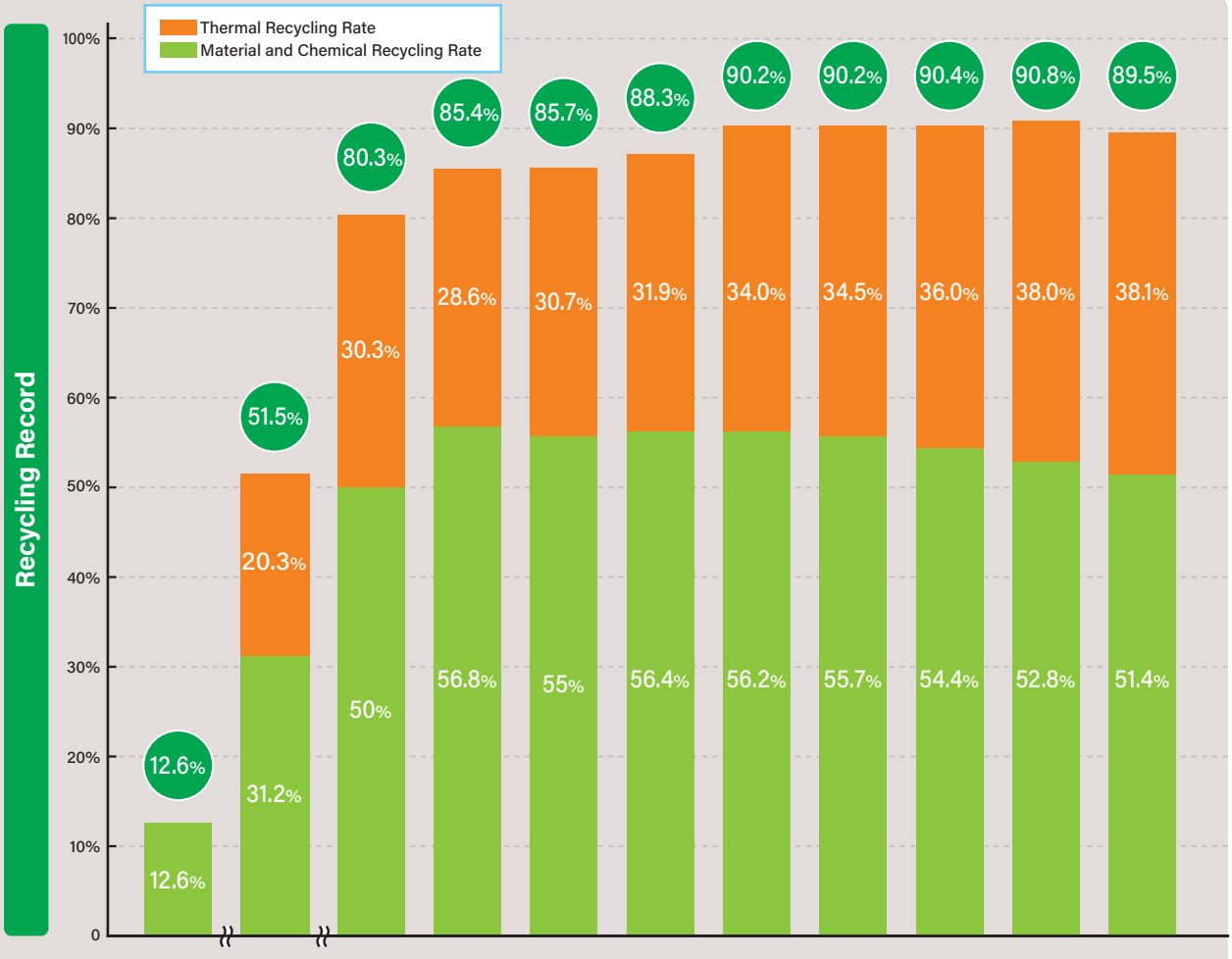
Recycling, Energy recovering and disposals of EPS



* There is a % discrepancy due to rounding.

We Are Steadily Increasing Our Recycling Record

- Since 1998, the thermal recycling (energy recovering) rate has been added to the recycling rate.
- Since 2011, the method of estimating the thermal recycling rate has changed.



		1991	1998	2007	2009	2011	2013	2015	2016	2017	2018	2019
Shipment Amount		237,000t	213,000t	182,000t	151,000t	149,500t	139,300t	140,000t	135,270t	132,970t	130,183t	128,150t
Collection Amount		171,000t	182,000t	165,000t	141,000t	141,900t	128,700t	127,400t	124,850t	122,940t	120,601t	117,879t
Material and Chemical Recycling	Ingot	12,300t	36,000t	59,800t	59,600t	60,200t	57,700t	58,950t	57,290t	54,600t	52,324t	49,746t
	Pellet	4,000t	10,900t	16,200t	14,800t	11,500t	8,600t	6,450t	6,680t	6,040t	5,629t	4,520t
	Crushed Foam Products	5,000t	7,300t	2,200t	1,300t	900t	800t	1,320t	950t	1,270t	738t	1,489t
	Others	200t	2,600t	750t	600t	1,400t	1,550t	930t	710t	1,130t	1,021t	1,013t
	Chemical Recycling	—	—	3,550t	3,800t	4,000t	3,950t	3,950t	3,930t	3,880t	3,972t	3,767t
	Sub Total	21,500t	56,800t	82,500t	80,100t	78,000t	72,600t	71,600t	69,560t	66,920t	63,684t	60,535t
Thermal Recycling		—	37,000t	50,000t	40,300t	43,600t	41,000t	43,300t	43,110t	44,260t	45,867t	44,895t
Total		**21,500t**	**93,800t**	**132,500t**	**120,400t**	**121,600t**	**113,600t**	**114,900t**	**112,670t**	**111,180t**	**109,551t**	**105,430t**

Toward the Realization of a "Sustainable Society"

JEPSA Would Like to Achieve Our Ideal Goal of Having "100% of Used EPS Recycled and Repurposed".

We are working in collaboration with all stakeholders.

EPSY PLAZA

Most of JEPSA's member companies have installed recycling equipment such as volume reduction machines in their factories and are working to recycle used EPS. These are called EPSY PLAZA. There are 132 locations nationwide (as of June 2020). Some have obtained permission of Waste Management Law and are supporting the recycling of used EPS (48 locations nationwide).

Basic Conditions of Use

1. Use the plaza having permission of Waste Management Law
2. Bring in using a plastic bag or OPS tape specified by the association
3. Purchase designated bags and tapes from the EPSY PLAZA

How to Contact

1. Contact JEPSA
2. After confirming the demands, the instructions are given by the nearby PLAZA
3. Please check the detailed conditions at the PLAZA

EPSY PLAZA Operating Nationwide

HOKKAIDO AREA	○ Zenibako	● Fukushima Ono	● Maebashi	○ Kai Kosai	○ Yaizu	○ Hokusei	○ Yamazaki	● Okayama	○ Karatsu	● Kadogawa
○ Chitose	TOHOKU AREA	KANTO KOSHINETU AREA	○ Ota	○ Yamanashi Mukawa	○ Enshu Mori	○ Owase	○ Wadayama	● Mihara	○ Saga Chiyoda	● Miyazaki
● Haboro	○ Aomori Shimoda	○ Katsuta	○ Gunma Omama	● Komoro	CHUKYO AREA	○ Mie Taiki	○ Kobe	● Kita Hiroshima	● Iki	● Kokubu
● Shiranuka	○ Oga	○ Tsukuba	○ Gunma Akahori	○ Suzaka	○ Chita	KINKI HOKURIKU AREA	○ Yashiro	● Hirosima	○ Isahaya	○ Kagoshima Shibushi
○ Tomakomai	○ Morioka	○ Ami	● Chiba Otaki	○ Minamiminowa	○ Fuso	● Takaoka	● Hirakata	● Hofu	○ Nagasaki Shikamachi	○ Kumamoto
● Eniwa	○ Osako	● Sakai	○ Sakura	○ Iida	○ Inuyama	● Namerikawa	○ Settsu	○ Naruto	● Minamata Shinei	○ Yamaga
○ Hokkaido Abira	○ Hanamaki	○ Ibaraki Kitaura	○ Narita	○ Sekisui Iida	○ Toyohashi	● Hakui	● Tenri	● Ainan	● Saiki	● Ryukyu
● Hokkaido Esashi	○ Kashimadai	○ Sashima Sakai	○ Oume	SHIZUOKA AREA	○ Aichi Mito	○ Ishikawa Terai	○ Yamato Takada	● Ozu		
○ Nemuro	○ Sendaikita	○ Ashikaga	○ Chigasaki	○ Izu	● Aichi Kinuura	● Fukui	○ Arita	● Tosa Yamada		
○ Kushiro	● Miyagi Semine	● Oyama	● Mitsuke	○ Shizuoka Kyowa	● Gifu Ikeda	○ Nagahama	CHUGOKU SHIKOKU AREA	KYUSHU OKINAWA AREA		
● Mori	● Yamagata	○ Oyama Daiya	○ No	● Yoshida Matsuura	○ Mino	○ Gokasho	● Sakaiminato	● Buzen		
○ Ishikari	○ Yonezawa	○ Kanuma	○ Nigata Seiro	○ Yaizu Koike	○ Nakatsugawa	○ Kusatsu	○ Ketaka	○ Fukuoka		
● Monbetsu	○ Dewa	○ Nasu	○ Murakami	● Oigawa Ihara	○ Yoro	○ Kosei	○ Yazu	● Fukuoka Onishi		
○ Shibetsu	● Sukagawa	○ Nogi	○ Ojiya	● Gotenba	○ Inabe	● Tatsuno	● Akaiwa	● Amagi		

● EPSY PLAZA having permission of Waste Management Law

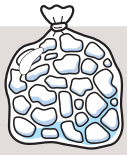
○ EPSY PLAZA

The Source of Recycled EPS is Mainly Industrial Waste

Most EPS finishes its mission in wholesale markets, supermarkets, department stores, restaurants, electronics stores, manufacturers' factories, and more. The source of recycled EPS is mainly these business' wastes. It is important that waste generators and recycling manufacturers proceed to contact and cooperate smoothly.

* Permission is also required for collection and transportation:

How do you Handle Used EPS at Home?

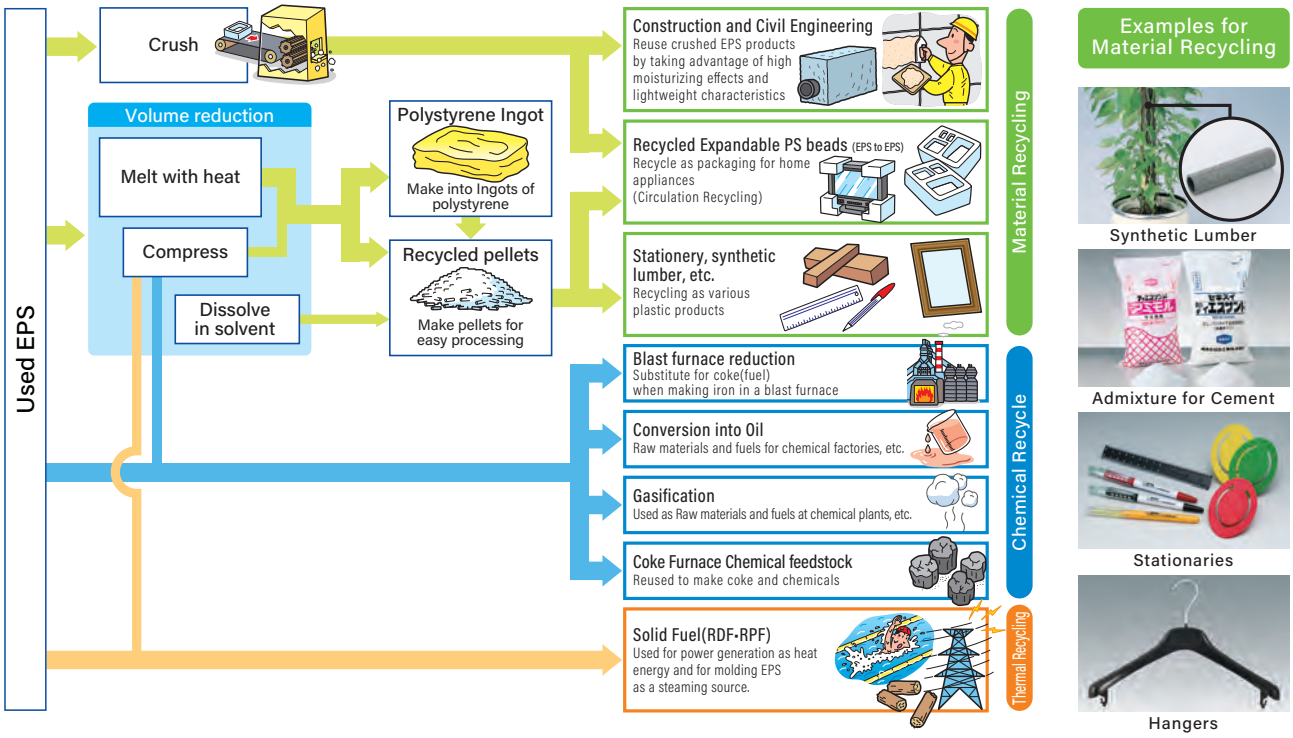


The packaging materials for home appliances that have been installed in each household are taken back by the dealers and sent to EPS recycling manufacturers. Other than this, very little EPS remains in the home. If it is thrown away at your household, please follow the separate collection standards set by each local government. (Because it is classified according to the circumstances of the local government such as combustible, non-combustible, resources, etc., please check with each local government.)

By Recycling Used EPS, It Can Work Again in Our Daily Life.

EPS is Recycled in 3 Ways.

Material Recycling	It is recycled as raw materials to make plastic products.
Chemical Recycling (Material recycling in a broad sense)	By applying heat to EPS, it can be transformed into oil and gas and then recycled and reused.
Thermal Recycling (Energy Recovering)	By burning it, high heat energy is generated and reused for power generation.



Examples for Material Recycling

Synthetic Lumber

Admixture for Cement

Stationaries

Hangers

We Offer a Grant for the Installation of Recycling Facilities in the Wholesale Market

In the wholesale market, where a large amount of EPS is used as containers for fresh fish and agricultural products, etc., we have introduced recycling equipment such as volume reduction machines* to efficiently recycle on-site. JEPSA cooperates with them by subsidizing a part of the equipment installation cost when certain conditions are met.

*Machines that reduce the volume of EPS which makes it easier to recycle by heat, solvent, compression, etc.

In 2019, we offered a grant for the installation of recycling facilities at 6 wholesale markets:

- Osaka Municipal Central Wholesale Markets
- Gifu City Central Wholesale Market
- Nagasaki Prefecture Central Wholesale Market
- Fukuoka City Central Wholesale Market
- TOKYO Metropolitan Central Wholesale Market in Ota
- Takasaki City Comprehensive Local Wholesale Market

Currently, the total number of partnerships with wholesale markets nationwide has reached 147.

Collaboration with Stakeholders

AR
Please check out our declaration


プラスチック海洋ごみ問題の解決に向けた宣言書

私たちは、私たちのプラスチック製品が製造工場から流出して海洋ごみにならないように努力する等、プラスチック海洋ごみの低減に努めます。

2019年1月16日

企業・団体名：
代表者役職：
署名：

<ご担当者連絡先>

Declaration for Solving Marine Plastic Litter Problem

In order to resolve the global problem of microplastics in the ocean, the "Act to Partially Amend the Coastal Debris Disposal Promotion Law", was enacted in Japan. The " Resource Circulation Strategy for Plastic" was compiled in May prior to the G20 Osaka Summit, which was held in June 2019. In the industrial world, the "Japan Initiative for Marine Environment" (JaIME) has been established and has begun activities. Concerning the Japan Plastics Industry Federation, our organization voluntarily submitted the declaration (as seen on the right) to promote efforts that appeal to the public.

●Resource Circulation Strategy for Plastic <Ministry of the Environment; (May 31st, 2019)>

In the plastic industry, the Japan Plastics Industry Federation(JPIF) will play a central role in the Resource Circulation Strategy for Plastic formulated in May, aiming for 100% collection and effective utilization of used EPS along with PET bottles and white PSP trays.

◇ Participation in PS-WG (Polystyrene Working Group) of JPIF

A working group study by polystyrene-related organizations and companies for the Plastic Resources and Environment Committee has started. We are discussing, (1) consideration of 100% collection, (2) 100% effective use, (3) public relations and education regarding 100% of collection and countermeasures against the trend of banning single-use plastics.

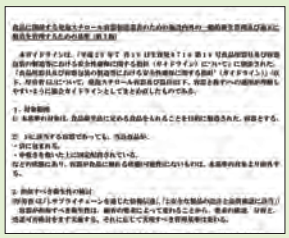
◇ Plastic Packaging Recycling Council

"Resource Recycling of Plastic Packaging 2030 Declaration" was announced in May. We play a part in efforts to make effective use of 100% resources with 3R + Renewable (sustainable resources) for packaging containers. We will promote the spread of information in cooperation and collaboration with each related organization and strive to deepen a smart relationship with plastics, such as plastic containers and packaging.

●Action Plan on Marine Plastic Litter <Ministry of the Environment: May 31st, 2019>

◇ Fisheries Agency / Ministry of the Environment ･･･"Related to Fishery Litter Treatment"

JEPSA (Executive Director) participated in the Fisheries Agency's "Fishery Waste Treatment Plan Development Guideline Review Council" and the Ministry of the Environment's "Fishery Waste Treatment Guideline Revision Committee" as members.



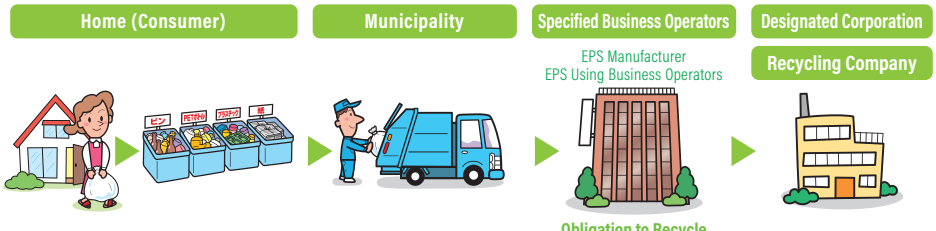
■ Response to the revision of the Food Sanitation Act (food containers and packaging) (enforcement: June, 2020)

Regarding the "Guidelines for ensuring safety in the manufacture of food utensils and containers and packaging, No. 0710, July 10, 2017", the association guidelines to make it easier to understand the application of EPS containers and utensils. JEPSA has drawn up guidelines concerning EPS safety and posted these on the JEPSA website. The guidelines are also posted on the Ministry of Health, Labor and Welfare website. JEPSA was registered fourth in the plastic industry.

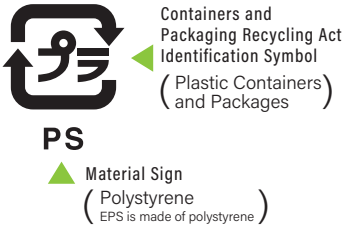
Containers and Packaging Recycling Law

Used EPS from homes is subject to the Containers and Packaging Recycling Law. By sorting and discarding it, it is collected and recycled as recyclable plastic waste. Specific business operators bear the cost.

Containers and Packaging Recycling Law Procedures



EPS container is marked with a "Plastics Symbol (プラマーク)" to identify it as "plastic containers and packages" subject to the Containers and Packaging Recycling Act.



We Are Developing Various Public Relations and Educational Activities

JEPSA is Focusing on Environmental Education

We are focusing on conducting hands-on environment learning for elementary, middle, and high school students. In a two-hours course, we will explain in an easy-to-understand manner about plastics in general to the focus on EPS. This entails starting from production methods to environmental problems, using textbooks and product samples with experiments and visuals. It is a popular experiential learning program.

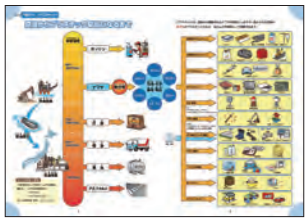
The history of EPS is explained with DVDs for easy understanding.

Students can learn through seeing the expansion of the EPS raw material.

Students have fun learning the characteristics of EPS through experiments.

Scene from environmental learning

With the large number of elementary, middle, and high school students visiting Tokyo for school trips and social tours, the number of schools and groups that can come every year has increased. JEPSA is attentive to science education and is involved in the compilation of "Let's Check Plastic", published by Dainippon Tosho Inc. with the Japan Plastic Industry Federation and the Vinyl Environment Council. This is especially supported in middle school science education. The booklet (to the right) was distributed to middle school science classes at the end of 2019 fiscal year. (If you are interested, please contact JEPSA.)



We exhibit at various exhibitions and conduct environmental learning and factory tours which are conducted by JEPSA members.

"Eco-Pro" has the history of hosting 21 exhibitions. JEPSA has exhibited here for 15 consecutive times. These exhibitions host experiments and quiz rallies where children have greatly enjoyed learning new things, such as information about plastics and innovation. In addition, JEPSA member companies participate and sponsor local environmental fairs, etc., and promote the appeal of EPS, such as its effectiveness and characteristics, nationwide. At Eco-Pro, we will disseminate the appeal through the EPS performance of "EPS Ambassador character, Dekita-kun, who has been working with the association since 2013 as an experiment stage performer.

Eco-Pro: Ambassador Performance

Eco-Pro: Experiment Stage

Local Event

Scene from Factory Tour

"STOP! Global Warming" Polar Bear Campaign

Starting at the Toyako Summit in 2008, the Polar Bear campaign held an event for its 12th time that presented fish in an EPS container to support polar bears, which is an endangered species due to global warming. Following the present in 2018 at Moscow Zoo, the 2019 Polar Bear Campaign was held at the Nikolaev Zoo in Ukraine.

Cooperation with EPS Manufacturer Associations around the World on Various EPS Projects

With the shift from the conventional linear economy to the circular economy (CE) and the globalization of supply chain management (SCM), further deep cooperation is required in information exchange with each country in global. It has been becoming increasingly important to implement timely cooperation in response to trends such as decreasing plastic use, reduction of EPS containers, and packaging materials originating from Europe and the United States. Originally, the International Expanded Polystyrene Alliance (INEPSA) started with the framework of promoting recycling through international cooperation, however nowadays it is necessary to cooperate in various projects.

The International Expanded Polystyrene Alliance (INEPSA)

EPS containers and packaging materials are distributed all over the world with imported / exported products and EPS finishes its journey in the country of destination. We have started efforts to solve environmental problems by processing and disposing of used EPS in the country of consumption. In 1992, the "International Recycling Agreement" was signed among Japan, the United States of America, Germany, and Austria with the aim of "recycling imported EPS packaging materials in the same way as domestically produced EPS packaging materials." The slogan is "Regardless of Country of Origin" and it is currently expanding to 31 countries.

Countries Apart of the International Recycling Agreement

Japan, the United States of America, Germany, Austria, France, Italy, Sweden, Belgium, Netherlands, Denmark, Spain, Portugal, United Kingdom, Ireland, Finland, Canada, Brazil, Uruguay, Chinese Hong Kong, China, South Korea, Chinese Taipei, Philippines, Malaysia, Indonesia, Thailand, India, Australia, New Zealand, and South Africa.

After that, EPS industry groups in the United States, Europe, and Asia formed "INEPSA" in 1998 to develop unified information provision activities of EPS on a global scale.

Establishment of EPS regional organization "AMEPS" (Asian Manufacturers of Expanded Polystyrene) in Asia

"AMEPS" was established in 1995 and holds regular general meetings to solve various issues in Asia to exchange information.

AMEPS Member Organization

	Organization Name	Country Name
1	**EPSRAI**	India
2	**JEPSA**	Japan
3	**KPRC**	Korea
4	**EPSA**	Australia
5	**PPCP**	Philippines
6	**CTEPSRA**	Chinese Taipei
7	**TPFRIA**	Thailand
8	**CPPIAEPS**	China
9	**PNZI**	New Zealand
10	**INAEPSA**	Indonesia
11	**UASM**	Ukraine
12	**APPP**	Russia

Associate Member Country : Malaysia, Singapore, Chinese Hong Kong

At the 2019 AMEPS meeting, the Russian EPS Association (APPP) was newly approved to join AMEPS, which has become 12 separate regional organizations. At the subsequent Technical Forum, the European Architectural Institute, and other companies from the industry gave presentations where they exchanged information.

INEPSA — **International EPS Alliance** https://epsrecycling.org/

- **EPS-IA** — **USA** Expanded Polystyrene Industry Alliance http://www.epsindustry.org/
- **EUMEPS** — **EUROPE** European Manufacturersof Expanded Polystyrene https://eumeps.org/
- **AMEPS** — **ASIA** Asian Manufacturersof Expanded Polystyrene https://ameps.net/
- **ASAPEX** — **South America** Asociacion sudamericana de Poliestireno Expandido

History of Japan Expanded Polystyrene Association (History of JEPSA)

History of the JEPSA

1965
- Establishment of Japan Foam Styrene Industry Association (an organization of EPS molding manufacturers)

1971
- Began collecting EPS waste

Japan Foam Styrene Industry Association and the EPS raw material manufacturer have established the Foam Polystyrene Waste Countermeasures Council and started collecting EPS waste from the home appliances sector in both the East and West districts of Tokyo and Osaka.

1972
- Establishment of Expandable Polystyrene Industry Association (Organization of raw EPS material makers)

1976
- Started Subsidies with Wholesale Markets

Started as a partial subsidy for EPS waste treatment equipment installation in the wholesale market.

JEPSRA : Japan Expanded Polystyrene Recycling Association

1991 Establishment of the Japan Expanded Polystyrene Recycling Association
- Establishment of JEPSRA

Japan Foam Styrene Industry Association consisting of 173 companies and Expandable Polystyrene Industry Association have funded the establishment of Japan Expanded Polystyrene Recycling Association (JEPSRA)
- Primary Recycling Target was set

Set a goal to achieve 25% of material recycled in 1995

1992
- Signed an international recycling agreement

Signed "International Recycling Agreement" among Japan, the United States of America, Germany, and Austria.

1993
- EPSY PLAZA 200 Plan

Announced the "EPSY Plaza 200 Plan" in which all members of the association worked on increasing recycling.

1994
- Concluded a Memorandum of Understanding with Home Appliance Manufacturers to Build a Recycling Cooperation System

Concluded a memorandum of understanding with Matsushita Electric Industrial, Mitsubishi Heavy Industries, Sanyo Electric, and Sony.

1995
- Establishment of AMEPS (Asian Manufacturers of Expanded Polystyrene)

Established AMEPS to promote recycling in the Asian region.
- Set Secondary Recycling Targets

Achieved primary target of 25% for the primary recycling target. Set a secondary target as achieving 35% of material recycled in 2000.

1996
- The Location of EPSY PLAZA exceeded 100

1997
- Achieved Material Recycling Rate by 30%
- Establishment of EPS Building Materials Promotion Council(Department of Insulation from Japan Foam Styrene Industry Association and Expandable Polystyrene Industry Association).

1998
- Establishment of INEPSA (International Expanded Polystyrene Alliance)
- Started counting thermal recycling in the recycling rate

1999
- Announced Locations of EPSY PLAZA

2000
- The Containers and Packaging Recycling Law was Enacted

Enforcement of the Containers and Packaging Recycling Law in April subjected to EPS for home disposal.

2001
- Set EPS Day on Marine Day
- Held JEPSRA 10th anniversary event
- Set Third Recycling Target

2002
- Held 1st Technology Presentation

Held a seminar to make JEPSRA's recycling technology widely known to the public.
- EPS Insulation Material and Framework Combined EPS Insulation Material Listed on Procurement Item Under the Green Purchasing Law in 2002

2003
- Open Call for 1st EPS Recycling Technology and Usage Development (8 Adopted)
- Held 2nd Technology Presentation

2004
- Open Call for 2nd EPS Recycling Technology and Usage Development (6 Adopted)
- Held 3rd Technology Presentation
- Held AMEPS 10th Anniversary in Sapporo

2005
- Held EPS Day 5th Anniversary Campaign
  - EPS Day was approved by the Japan Anniversary Association
- Open Call for 3rd EPS Recycling Technology and Usage Development (5 Adopted)
- Held 4th Technology Presentation
- Set Fourth Recycling Target

Achieving 75% of total recycling rate in 2010.

2006
- JEPSRA 15th Anniversary
- Open Call for 4th EPS Recycling Technology and Usage Development (5 Adopted)
- Held 5th Technology Presentation
- Began Supporting Ocean Cleaning Activities
- EPS Insulation Became Regulated as Non-Freon-Building Material Type A in JIS A 9511 2006R

2007
- Open Call for 5th EPS Recycling Technology and Usage Development (5 Adopted)
- Held 6th Technology Presentation
- Achieved the Fourth Recycling Target Advance of the Schedule by Reaching 80.9% of Recycling Rate

2008
- Conducted Polar Bear Campaign on EPS Day
- Open Call for 6th EPS Recycling Technology and Usage Development (5 Adopted)
- Held 7th Technology Presentation
- Published JEPSRA NEWS Vol.50 Anniversary Edition

2009
- Open Call for 7th EPS Recycling Technology and Usage Development (3 Adopted)

JEPSA : Japan Expanded Polystyrene Association

2010 Establishment of JEPSA

Japan Expanded Polystyrene Association established in 1991. Started as JEPSA by incorporating the business activities of Expandable Polystyrene Industry Association and EPS Building Materials Promotion Council.

2011
- Donated EPS Boards as Relief Supplies for Great East Japan Earthquake
- Conducted LED advertisement in East Japan Shinkansen
- Conducted Energy Saving Idea Award
- Published EPS Insulation Building Materials Guidebook
- Held 1st JEPSA Forum

2012
- Conducted EPS Idea Award

2013
- Conducted EPS Idea Award
- Appointed Happo-kun as EPS Ambassador

2014
- Renewal of JEPSA website
- Held AMEPS 20th Anniversary
- Exhibited in Eco-Products 2014 (10 Years Consecutively)

2015
- Exhibited in "Eco Kurashiko Fair" organized by Kawasaki Frontale
- Launched JEPSA NEWS Web Edition
- Conducted EPS Idea Award
- Transition from Recycling Equipment Lease System to Subsidy System

2016
- Exhibited at ECO Science Show Held at Fukui Nuclear Centre "At Home"
- Donated Reconstruction Support Supplies for Kumamoto Great Earthquake in 2016
- Exhibited First Time in "ARCHITECTURE + COSTRUCTION MATERIAL"
- Achieved 90% in EPS Recycling Rate
- Organized"Styrenepic" for the First Time in Kinki Hokuriku Area

2017
- Trademark Registration of "Styrenepic"
- Exhibited First Time in "AGRI WORLD"
- Organized 1st "Styrenepic" National Convention in Shiga
- Polar Bear Campaign 10th Anniversary Presented a Letter of Appreciation to Continuing Participating Facilities

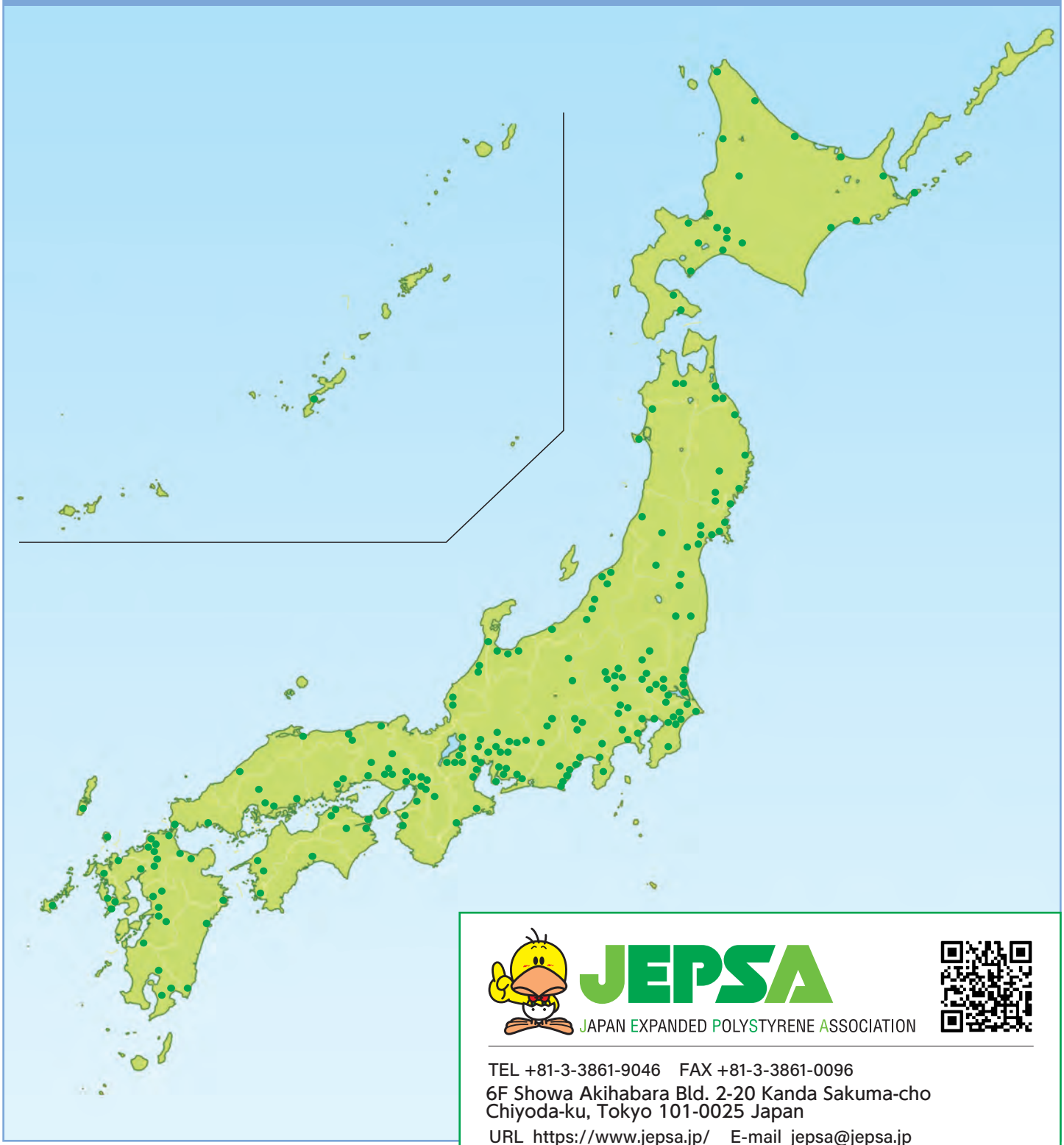
2018
- Exhibited for the First Time in 22 Years at "TOKYO PACK"
- Organized "Styrenepic" National Convention in Nichinan
- Donated Reconstruction Support Supplies for Hokkaido Eastern Iburi Earthquake in 2018

2019
- Held the First Opinion Exchange Meeting with the Minister of the Environment
- Exhibited in Eco-Pro 2019 for 15 Years Consecutively
- Submitted a Declaration for Solving the Marine Plastic Litter problem

- ··· JEPSRA : Japan Expanded Polystyrene Recycling Association
- ··· EPS Building Materials Promotion Council
- ··· JEPSA : Japan Expanded Polystyrene Association

JEPSA Members – Location

*Japan Foam Styrene Industrial Association



JEPSA

JAPAN EXPANDED POLYSTYRENE ASSOCIATION

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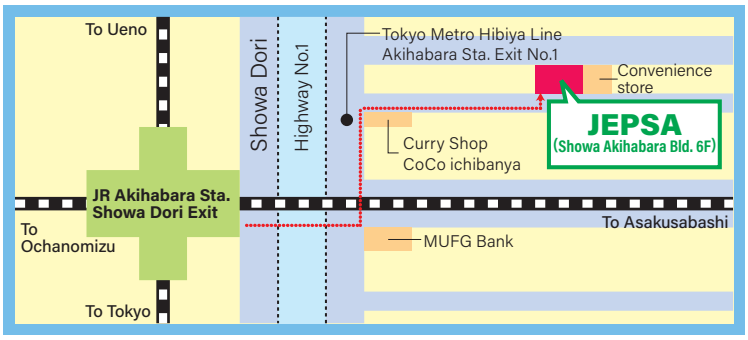
Chiyoda-ku, Tokyo 101-0025 Japan

URL https://www.jepsa.jp/ E-mail jepsa@jepsa.jp



Links for international EPS associations

INEPSA EPS-IA EUMEPS AMEPS