

# Ushio Matex Co., Ltd.



Noncombustibility certification from MLIT: Ultra-lightweight, water-resistant insulating material demonstrating unique performance potential for offshore wind power generation project maintenance and management

Category Wind Turbine Manufacturing ➤ Thermal Insulation Materials for Heat Source Equipment



## BARI-SHIELD: A styrene foam board offering a combination of high flame resistance and good thermal insulation

**BARI-SHIELD is a new material adding noncombustibility to styrene foam while maintaining its original properties of good thermal insulation, water resistance, and light weight.** The raw material is expanded polystyrene (EPS), a bead-type form of styrene foam, which has been used for heat insulation at the Shōwa Station in Antarctica, attesting to its ability to maintain its insulation performance for over 40 years. Coating the material with a flame retardant led to its acquisition of noncombustibility certification from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT). Even in the event of a fire, the material could impede and delay the spread of the fire. Another advantage of the material is its ability to be formed into a diverse range of products by

processing it into boards involving processes such as shaping it into variant forms using dedicated molds, cutting it, slicing it, and polishing it.

Based on these unique features, **Ushio Matex expects to use the material as insulation for heat source equipment used in offshore wind power generation, including power supply panels and control panels, as well as device bodies.** With its abilities to extend the service life of the heat source equipment, reduce heat loads, help prevent damaging fires and reduce penetrative heat loads due to the radiant heat reflection effects of the aluminum applied to the surface, the material is also expected to help prevent condensation from forming.

- Standard molded block size: 960 (W) x 1,870 (D) x plate thickness of 600; (width and depth are modifiable) • Thermal conductivity: 0.038 W/mK (initial)
- Ambient temperature range: -30°C to +80°C • Noncombustibility certification: (BARI-SHIELD as core material) 5-500-mm board thickness, with 30-μ aluminum foil on front and back surfaces (\*Consultation required for thicknesses above 100 mm), MLIT cert. no. NM-5370; (BARI-SHIELD for ceilings) 9-40-mm board thickness, with 50-μ aluminum foil laminated with decorative paper on surface, MLIT cert. no. NM-4712

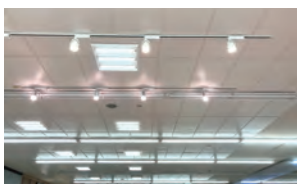
### Adoption Record

#### Insulating control panels with BARI-SHIELD to reduce air conditioning loads



Air conditioning is increasingly being used in control panels located outdoors or in sites with poor ambient conditions, requiring the use of insulating materials to reduce air conditioning loads. Installing 10-mm BARI-SHIELD insulation inside a control panel could cut the air conditioning load roughly in half, for instance. In the event of a fire due to sparking or excessive heat generated inside the panel, the material could hinder and delay the spread of the fire.

#### Installing BARI-SHIELD on supermarket ceilings to prevent condensation from forming



The light weight, flame resistance, and excellent heat insulation of BARI-SHIELD also makes it suitable as a ceiling material. The material is seeing expanded uses, including installation on supermarket ceilings to prevent condensation or mold from forming, in addition to humid indoor swimming pools, bathing facilities, and food processing plants, its use is expanding to prevent condensation and mold on supermarket ceilings. It is expected to maintain long-term performance as it exhibits little deterioration due to water or moisture absorption.

### Main Equipment and Machinery

- Cutting Process: Capable of cutting from standard molded blocks (W960 x D1870 x thickness 600mm). Suitable for cases with a low number of produced items, such as molds.
- Custom Molding: Custom molds are manufactured to meet client needs, ideal for high-volume production of identical items.
- Board Processing: Standard molded blocks are sliced, polished, and processed into boards. Thickness can be adjusted in 1mm increments, with a polishing thickness accuracy of ±0.5mm. Can laminate with single-sided decorative paper or aluminum foil for enhanced aesthetics and thermal efficiency. Non-combustible materials certified by the Ministry of Land, Infrastructure, Transport, and Tourism.

### Company Information

Business: Development, manufacturing, sales, and installation of non-combustible expanded polystyrene "Varishield". Location: 5-3 Creative Hills, Imabari, Ehime Prefecture, 794-0069 Established: July 2019 Capital: 10 million yen Employees: 11 (as of November 2024) Representative: President Makoto Takeuchi Tel: 0898-33-7660 Offices: Ehime, Tokyo, Osaka Metropolitan Area Contact: Kaori Ohara Tel: 03-3500-5060 Email: k.ohara@ushiomtx.co.jp URL: <http://ushiomtx.co.jp>