

Polyurethane Foams

FIRE RESISTANT

Polyurethane foam with high resistance to fire.



- Fire resistance up to EI 120
- Essential in the installation of fire doors
- Ideal for applications subject to fire regulations
- Ideal for mounting electrical junction boxes/plants



APPLICATION AREAS

Fire Resistant is used for sealing linear joints in applications subject to fire regulations (EI classification). Fire Resistant can also be used in applications where no specific fire resistance requirements covered by existing classifications are stipulated. In other words, it can be used in all those applications where a standard single-component polyurethane foam is required. Fire Resistant complies with CEI 64-8, art. 511.1 having successfully passed the 850 °C Glow Wire Test as per CEI EN 60695-2-11 (certificate available on request). It can therefore also be used for fixing electrical conductors and junction boxes.

MAXIMUM ATTAINABLE THICKNESSES

The certifications were carried out at the CSI in Bollate (MI), an institute authorised by the Ministry of the Interior, General Directorate of Civil Protection, to carry out fire resistance tests according to EN 1366-4 and EN 1363-1. When performed as shown in the table below, the linear joints of a wall foamed with Fire Resistant prevent the passage of flames, fire or gas and guarantee sufficient thermal insulation for a period of up to 120 minutes. The tested joints cover the following geometries (see official classification reports no. CSI1760RF and CSI1761RF dated 05/07/12). The test wall was made of autoclaved aerated concrete with a density of 500 kg/m³.

| Joint size | Wall thickness | Joint class |
|------------|----------------|-------------|
|------------|----------------|-------------|

| | | | | |
|-----------------|-------|--------|-------|---------|
| 1 cm vertical | 10 cm | EI 90 | E 90 | V-X-W10 |
| 2 cm vertical | 10 cm | EI 60 | E 60 | V-X-W20 |
| 3 cm vertical | 15 cm | EI 90 | E 90 | V-X-W30 |
| 4 cm vertical | 15 cm | EI 60 | E 60 | V-X-W40 |
| 5 cm vertical | 15 cm | EI 45 | E 45 | V-X-W50 |
| 1 cm horizontal | 10 cm | EI 120 | E 120 | T-X-W10 |
| 2 cm horizontal | 10 cm | EI 90 | E 90 | T-X-W20 |
| 3 cm horizontal | 15 cm | EI 120 | E 120 | T-X-W30 |
| 4 cm horizontal | 15 cm | EI 60 | E 60 | T-X-W40 |
| 5 cm horizontal | 15 cm | EI 30 | E 45 | T-X-W50 |

As it has also been tested in a horizontal construction (horizontal oven) according to EN 1366-4, Fire Resistant can also be used in a wall-to-ceiling joint (orientation D according to EN 1366-4, table 1). For this application, the values achieved are as shown in the following table. The ceiling slab was made of reinforced autoclaved aerated concrete with a density of 500 kg/m³.

| Joint size | Ceiling thickness | Joint class | | |
|------------|-------------------|-------------|------|---------|
| 4 cm | 15 cm | EI 90 | E 90 | H-X-W40 |
| 5 cm | 15 cm | EI 60 | E 60 | H-X-W50 |

A joint, fully foamed with Fire Resistant and 3 cm wide, corresponds to the B1 requirements according to DIN 4102 – Part 1. Tests for the classification of Reaction to Fire according to EN 13501-1, carried out on joints with dimensions 1500 x 50 x 75 and 50 x 1000 x 75 mm (length x width x depth) at Istituto Giordano SPA in Bellaria (RN), resulted in a B-s2,d0 classification. The official classification reports No. CSI1760RF and CSI1761RF of 05/07/12 (EI 120 issued by CSI, Bollate), No. 230004666 (B1 issued by MPA NRW, Erwitte – D) and No. 299516 (Fire Reaction Classification according to EN 13501-1), are available upon request. According to Circular No. 91 of 14/09/61 of the M.I., a regulation previously valid for fire resistance tests in Italy, by using Fire Resistant as described in the table below and reported in certificate CSI1129RF of 01/06/04, joints with fire resistance up to REI 180 can be obtained.

| Joint size | Wall thickness | Joint class | |
|-----------------|----------------|-------------|--------|
| 1 cm vertical | 24 cm | REI 180 | RE 180 |
| 2 cm vertical | 24 cm | REI 180 | RE 180 |
| 3 cm vertical | 24 cm | REI 180 | RE 180 |
| 4 cm vertical | 24 cm | REI 120 | RE 120 |
| 5 cm vertical | 24 cm | REI 120 | RE 120 |
| 3 cm horizontal | 24 cm | REI 180 | RE 180 |
| 5 cm horizontal | 24 cm | REI 180 | RE 180 |

Note: For more details about joints, see the official test certificate.

FEATURES

Fire Resistant is a single-component, grey polyurethane foam, packaged in an aerosol can. The special formulation gives the hardened product high fire resistance. It adheres tenaciously to wood, concrete, brick, fibre cement, metal, glass and various plastics with the exception of polyethylene, Teflon and silicone. Its resistance to water, detergents and microorganisms as well as chemicals is good. The hardened foam can be cut, drilled, sanded, painted, plastered. The uniform cell structure, dimensional stability and mechanical properties of the hardened foam make Fire Resistant the ideal product for bonding, fixing, insulating, sealing and plugging where

high fire resistance is required. Using Fire Resistant it is possible to create linear joints with fire resistance up to EI 120 – without the use of auxiliary materials such as rock wool or similar – and with walls as thin as 10 cm. The product is certified as EC 1 Plus by GEV in terms of very low emissions of volatile organic substances.

WARNINGS

Substrates and structures that are completely saturated with water prevent foam adhesion.

The Fire Resistant aerosol is a pressurised container. Keep away from sunlight. Do not expose to temperatures above 50 °C. Do not puncture or burn even when empty. Do not spray on a naked flame or an incandescent element. Store at a distance from any source of combustion. Do not smoke. Keep out of the reach of children. Contains diphenylmethane –4,4', diisocyanate (EEC no. 615-005-01-9). Highly flammable. Harmful by inhalation and if swallowed. Can irritate the eyes, airways and skin. Can cause an allergic reaction if inhaled or if it comes into contact with the skin. Keep away from sources of ignition. Do not inhale aerosol content. In the event of contact with the eyes rinse immediately with lots of running water and consult a doctor. In the event of contact with the skin wash with lots of running water and soap. Wear suitable protective clothing and gloves. In the event of insufficient ventilation, use appropriate breathing apparatus. In the event of an accident or malaise, consult a doctor immediately (if possible, showing him the label).

INSTRUCTIONS FOR USE

1. The surfaces must be free of oil, grease and dust. Wet the surface before application to guarantee that the fresh foam has the humidity required to form a uniform cellular structure. Do not spray water on the foam while it is hardening. The humidity in the air is sufficient to guarantee complete curing of the foam.
2. Remove the protective cap from the can and screw it onto the gun.
3. Shake the aerosol for at least 15 seconds before use and repeat this operation if you stop working at any stage.
4. Turn the aerosol upside-down so that the valve is facing down, point the gun as required and press the dispenser with your fingers. The amount of foam required to fill the cavity depends on the subsequent expansion of the foam. Under normal conditions (23 °C and 50% R.H.), the foam usually doubles its initial volume.
5. Complete hardening of the foam is reached approximately one hour after application. After that interval, any excess can be cut off with a cutter or sanded down with sandpaper.
6. If you do not use the full contents of a can, return it to its upright position and press the nozzle for a few moments. The escaping gas will clean the valve and gun.

Cleaning

Traces of uncured foam, e.g. on clothing, tools, etc., can be cleaned with cleaner for polyurethane foam. Cured foam can only be removed mechanically (scraping or sanding).

WAITING TIMES

Foam yield is strongly dependent on cylinder and substrate temperatures. At low temperatures, both the discharge pressure of fresh material from the valve and the yield of hardened foam are reduced. For smooth extrusion of the material and optimum yield, a cylinder temperature of +20 °C is recommended. At higher temperatures it may be difficult to dose the product correctly, as the increased pressure inside the cylinder makes it less easy to control the material's escape from the valve.

TECHNICAL SPECIFICATIONS

| Parameter and test method | Value |
|--|------------------------------|
| External temperature during application | +5 °C to +40 °C |
| Operating temperature | -40 °C to +120 °C |
| Surface curing (at 23 °C – 50 % R.H.) (MIT 87*) | 7 – 10 minutes |
| Cutting (curb with 20 mm diameter at 23 °C – 50% R.H.) (MIT R/08*) | approx 60 minutes |
| Density (after non-free foaming) (MIT 50*) | 19 – 24 kg/m ³ |
| Resistance to traction (MIT 96*) | approx. 12 N/cm ² |

| | |
|--|---|
| Linear dimensional variation (MIT 52*) | < 5% |
| Resistance to fire (EN 13501-2) | Up to class EI 120 (without additional material and at thicknesses as small as 10 cm) |
| Resistance to fire (Ministry Circular letter 91) | REI 180 (up to 3 cm) REI 120 (4 and 5 cm) |
| Reaction to fire (EN 13501-1) | B-s2,d0 |
| Fire behaviour (DIN 4102) | B1 |
| Resistance to UV rays | poor, tends to turn yellow |

* Torggler Internal Methods are available on request.

| | |
|----------------|-------------------------------------|
| Color | Grey |
| Application | Gun application, Manual application |
| Packaging | can |
| Packaging size | 12x750 ml |
| Pallet | 42 cardboards |

CONSUMPTION

Depending on the application and ambient conditions, one canister of Fire Resistant will be sufficient for up to 30 metres of joint for every centimetre of thickness of the hardened foam.

| Approximate consumption | | |
|-------------------------|---------------------|-----------------|
| Joint width [cm] | Wall thickness [cm] | Metres of joint |
| 1 | 10 | 30 |
| 3 | 15 | 7 |
| 5 | 20 | 3 |

STORAGE

Keep cool in an upright position. Avoid storing in a horizontal position, as this will quickly lead to the formation of fouling under the valve, which will irreparably compromise foam extrusion. Fire Resistant is stable for at least 18 months if stored upright, cool (below +25 °C), in a dry place and in the original unopened packaging. Observe the expiry date indicated on the canister.

The information contained in this document is reported on the basis of our experience and knowledge; therefore, any recommendations and suggestions made are without any guarantee and must be verified before using the product by those who intend to use it, who assume all responsibility that may result from its use since the conditions of use are not under our direct control. In case of doubt, it is always advisable to make preliminary tests and/or ask for the intervention of our technicians. Torggler reserves the right to modify, replace and/or delete the items, as well as to change the product data in this document without prior notice; in this case the indications given here may no longer be valid. Always refer to the latest version of the data sheet, available at www.torggler.com. Version 01.07.2024.