Torggler

Polyurethane Foams

FIRE RESISTANT

Polyurethane foam with high resistance to fire.

- Fire resistance up to EI 120
- Up to 30 linear meters of performance
- Ideal for applications subject to fire regulations
- Ideal for mounting electrical junction boxes/plants

IN COMPLIANCE WITH B1 DIN 4102 · GEV-EMICODE EC 1 PLUS very low emission · IN COMPLIANCE WITH EI 120 EN 13501-2

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.

FEATURES

Fire Resistant is a single-component polyurethane foam in an aerosol canister. As the product is dispensed it produces a foam which reacting with the humidity in the air, increases in volume, gradually hardens and loses its initial tackiness. A grey, semi-rigid, waterproof and adhesive foam is produced. Its special formula provides the hardened foam with high resistance to fire. The hardened foam may be cut, holed, sanded, painted and plastered. It adheres firmly to wood, concrete, tile, asbestos cement, metal, glass and various plastics with the exception of

polyethylene, Teflon and silicon. It also has high resistance to water, detergents, micro- organisms and chemical agents. Its uniform cellular structure and dimensional stability and the mechanical properties of the hardened foam make Fire Resistant ideal for gluing, securing, isolating, sealing and plugging when high resistance to fire is required. Using Fire Resistant, you can obtain joints with fire resistance up to REI 120, without the use of additional material such as rock wool on walls right down to a minimum thickness of 10 cm. The product is certified as EC 1 Plus by GEV in terms of very low emissions of volatile organic substances.
This has been proven in tests performed by CSI, Bollate (MI), an accredited testing agency authorised by the Civil Protection Directorate of the Italian Interior Ministry. CSI performed fire resistance tests in accordance with the standards EN 1366-4 and EN 1363-1. These tests showed that joints foamed with Fire Resistant as described in the table below prevent the passage of flames, fire and gas and guarantee thermal insulation for up to 120 minutes. The joints tested had the following geometries (see the Official Classification Test Reports No. CSI1760RF and No. CSI1761RF of 05/07/12). The wall was made with aerated, autoclaved concrete with a density of 500 kg/m^3.

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

Fire Resistant was also successfully tested in a horizontal construction (horizontal oven) as per EN 1366-4 standard and can therefore also be used for the joint between wall and ceiling (Orientation D as per EN 1366-4, Table 1). The values achieved for this application are shown in the table below. The floor base was made with aerated, autoclaved reinforced concrete with a density of 500 kg/m^3.

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 3 cm wide joint fully foamed with Fire Resistant complies with the B1 requirements of DIN 4102 – part 1. Reaction to fire testing in compliance with UNI EN 13501-1 and performed on joints with dimensions 1500x50x75 and 50x1000x75 mm (length x width x depth) at the ITB Fire Behaviour Laboratory in Warsaw, resulted in B-s2,d0 classification (EN 13501-1). The Official Classification Test Reports no. CSI1760RF and no. CSI1761RF of 05/07/12 (EI 120 issued by CSI, Bollate, Milan, Italy), no. 230004666 (B1 issued by MPA NRW, Erwitte, Germany) and no. NP-700/P/08/BP (reaction to fire classification as per EN 13501-1), are available on request. The Italian Interior Ministry Circular N° 91 of 14/09/61 (the standard previously used for fire resistance tests in Italy) states that Fire Resistant as described in the table below and as certified in CSI1129RF of 01/06/04 can be used to obtain joints which are fire resistant up to class REI 180.

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.

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

The yield of the foam is highly dependent on the temperatures of both the aerosol and the surface. At low temperatures, both the pressure at which the fresh material comes out and the yield of hardened foam are reduced. For easy extrusion of the material and a high yield, use at an aerosol temperature of 20 °C. At higher temperatures it can be difficult to dose the product correctly, as the increased pressure inside the can makes it less easy to control the release of material from the valve.

TECHNICAL SPECIFICATIONS

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

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

Store in an upright position in a fresh area. Do not store in a horizontal position as this would lead to the rapid formation of encrustations beneath the valve, which would compromise the extrusion of the foam definitively. Fire Resistant remains stable for at least 12 months if stored in an upright position in a fresh and dry area (at temperatures below 25 °C).

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 26.01.2021.