Brand-new Elastopir™ passes rigorous fire resistance tests
Elastopir meets the future fire requirements

Over the last few decades metal-faced composite panels with insulated cores have become increasingly popular. During that time, PU has been the predominant insulating material of choice. This is due to its outstanding mechanical properties, its competitive price, as well as the ease and speed of production and installation.

New Generation – Elastopir

As the demands to improve the fire performance of composite panels has grown and the requirements become ever more stringent, Elastogran has developed a new generation of PU rigid foam systems designed to meet those needs.

Elastopir systems based on Polyisocyanurate (PIR) have demonstrated that they meet the requirements of established fire tests including the EN 13501-2 and LPS 1181.

Elastopir: a brand name for improved burning behaviour

PIR structures are formed in the presence of special PIR-catalysts. The decomposition temperature of a PIR structure is significantly higher when compared to PU (260°C versus 220°C), resulting in improved burning behaviour.

Elastopir rigid foam systems are processed at an isocyanate index, which exceeds the defined threshold value of 180 for PIR foams.

Elastopir: Subject of attention

Independent test institutes in the cities of Dresden and Munich evaluated the long-term properties of Elastopir. Assessments indicate that the mechanical and thermal properties of Elastopir composite panels are comparative too or better than those exhibited by PU.

Elastopir: production parameters

Mandatory processing equipment modifications are necessary in order to produce PIR panels continuously:

- double-belt temperature of at least 60°C
- one additional PIR-catalyst
- application of adhesion promoter, applied to the lower facing in order to provide sufficient adhesion between foam and facing material.

Composite panels manufactured with Elastopir rigid foam resist fire when tested in accordance with EN 13501-2, both 30 and 60 minute pass criteria achieved.

Glowing facts about Elastopir

Composite panels manufactured with pentane-blown Elastopir rigid foam have successfully achieved both 30 and 60 minutes fire resistance when tested in accordance with EN 13501-2. In addition, HFC blown Elastopir panels have passed the demanding criteria detailed in the LPS 1181 test. In both circumstances a specially designed joint configuration was utilised.

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Elastopir PIR passes LPC 1181 test

Flashover, flame spread and flame penetration are evaluated during this test, damage to the composite panel is assessed after the test.

Long-term properties of Elastopir

Long-term studies* at IMA Dresden and FIW München have shown:

- Closed cell content, water absorption and mechanical properties are comparable to those of PU foams
- Very good creep properties and fatigue strength at the sandwich shear beam
- Transverse tensile strength at 80°C is approximately 70% of the initial value
- DUR 1 test according to prEn 14509 has been passed (transverse tensile strength after 24 weeks in a heat chamber)
- Lambda value compared to PU pentane improved by approx. 1 mW/(m·K). (FIW)

Additional benefit through a further increase in energy savings.

* certified insulating strengths according to DIBt provisions.

Elastogran GmbH
European Business Management
Rigid Foam
PO box 1140
49440 Lemförde
Germany
Email: hartschaum@elastogran.de
Website: www.elastogran.com

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