



## NEW PIR-PENTANE PANEL MEETS LPCB FIRE RESISTANCE STANDARDS

Responding to industry concerns regarding the fire performance of polyisocyanurate (PIR) core panels, Isocab, market leader in the European polyurethane insulation industry, has developed two new PIR-Pentane panel sandwich panels offering 68 minute and 37 minute fire resistance. Tests were carried out on separation and exterior walls and gave results of 37 minutes duration on the 110mm thick panel and 68 minutes on the 200mm panel, which are in accordance with European prEN 13501 part 2, the Loss Prevention Certification Board's LPS1208 and other international fire resistance standards.

Isocab's new white polyester lacquered, steelplate-faced PIR-Pentane panels are ideal for use as external and compartment walls in cold storage and food processing plants. Although the company produces Decawool mineral wool cored FR panels, it strongly recommends the PIR-Pentane panels for coldstore applications, since they are not susceptible to the vapour permeability and moisture condensation that affects stonewool. The new panels are installed in the same way as polyurethane (W) units, with comparable insulation values and purlin spans, and do not require metal strips over the joints, in line with the latest recommendations.

Pentane is an economical and environmentally-safe blowing agent used in the production of polyurethane boards, which is regarded as a future-oriented solution that has no depleting effect on the ozone layer. In developing the PIR-Pentane panels, Isocab sought to achieve a lambda value equal to a PUR panel (0.024W/mK), equivalent mechanical strength, an eco-friendly blowing agent and superior fire resistance to existing PIR sandwich constructions, all of which have been delivered in the new products.

Fire resistance tests were conducted according to the EN1363 Part 1 heating curve and panel performance fulfilled the necessary criteria for insulation, flame and smoke density, and stability, even though the tests were executed in the more demanding conditions of a separation wall. The panels met IE60 (200mm) and IE30 (110mm) classifications according to prEN 13501 Part 2, the equivalent FR60 and FR30 criteria for the British LPS1208 standard; they also comply with NEN6069 (The Netherlands) and NBN713020 (Belgium) 68 minute and 37 minute classifications as a separating function, as well as a 1 hour CF/PF (France) standard.

For installation, Isocab recommends jointing the panels with an intumescent or swelling mastic, such as Lorient, and sealing over the joints after erection with an FR silicone sealant, such as Firestop 700; this treatment means that no metal strips are required over the joints. Panels are slotted into normal steel finishing trims, then sealed with FR silicone, and any wall-to-wall and wall-to-ceiling splits are filled with 160k/m<sup>2</sup> rockwool, then similarly sealed on inner and outer joints.

Although mineral fibre sandwich panels do offer greater fire resistance, Isocab does not recommend this material for the external walls and ceilings of a coldstore, as it has a number of drawbacks compared with PIR-Pentane. The lower lambda value of mineral wool would require a panel of 340mm thickness to be used, as against a 200mm PIR-Pentane unit, and the structural stability is lower; whilst the permeable nature of stonewool allows water vapour ingress and subsequent condensation, leading to a drastic reduction in insulation values and the formation of ice crystals in and on the panels and joints. Thus, although Isocab offers both types, for this application it strongly recommends PIR-Pentane units.