FIRES
The Experts On Fire Safety

CLASSIFICATION OF FIRE RESISTANCE
FIRES-CR-151-14-AURE

Roof made of sandwich panels Isocop, 100 mm thick with PIR core

Reg. No. 041/S-159

The Experts on Fire Safety

CLASSIFICATION OF FIRE RESISTANCE IN ACCORDANCE WITH EN 13501-2: 2007 + A1: 2009

with direct field of application

FIRES-CR-151-14-AUPE

Name of the product: Roof made of sandwich panels Isocop, 100 mm thick with PIR core

Sponsor:
Isopan EST SRL,
Soseaua de Centura 109,
Ilfov, Popesti-Leordeni 077 160
Romania

Prepared by:
FIRES, s.r.o.
Osloboditeľov 282
059 35 Batizovce
Slovak Republic

Tested property: Fire resistance
Test method: EN 1365-2:1999
Type of test: Accredited / Notified (NB 1396)

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FIRES, s.r.o., Osloboditeľov 282, 059 35 Batizovce, Slovak Republic
tel. 00421 52 775 22 98, fax. 00421 52 788 14 12, www.fires.sk
Notified Body No. 1396, Approved Body No. SK01, Member of EGOLF

1. INTRODUCTION

This classification report defines the resistance to fire classification assigned to element Roof made of sandwich panels Isocop, 100 mm thick with PIR core in accordance with the procedures given in EN 13501-2: 2007 + A1: 2009.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Roof made of sandwich panels Isocop, 100 mm thick with PIR core, is defined as a roof with fire separating function.

2.2 PRODUCT DESCRIPTION

Product is a roof made of self-supporting double skin metal faced insulating panels Isocop, 100 mm thick with PIR core.

Dimensions

overall specimen dimension (length x width x thickness)	(5000 x 3000 x 100) mm
panel width	1000 mm
dimensions of ribs (width x height)	(56 x 40) mm
distance between ribs	250 mm

Panel core

Polyisocyanurate (PIR) foam type Isopan PIR with bulk density of 40,0 kg.m^{-3} (manufacturer: Huntsman).

Composition of the panel core (the main ingredients): Polyol and Isocyanate.

Panel covering

- interior steel sheet 0,4 mm thick, grade of metal S250 GD+Z (manufacturer: Arcelor) with polyester coat 25 µm thick, profile geometry: classic,
- exterior steel sheet 0,5 mm thick, grade of metal S250 GD+Z (manufacturer: Arcelor) with polyester coat 25 µm thick, profile geometry: classic.

Two layers of intumescent gasket with dimensions (115 x 3,3) mm (manufacturer: Esintec SpA.) are glued between panels inside the joints of panels.

The fire resistance mastic PROMASEAL®- AG (manufacturer: Promat) or other mastic of the same type or mastic with the same or lower PCS is applied inside the joints of panels on both sides.

The joints of panels are stitched on both faces with self-drilling screws (∅ 4,8 x 19) mm in spacing of 200 mm.

According to sponsor declaration same product is manufacturing in following production sites:

Isopan Est SRL, Şos. De Centură nr 109 - Popeşti Leordeni, Judeţul Ilfov – România

Isopan S.p.A, Via S.P. Morolense 03010 Patrica, Italia

Isopan S.p.A, Via Giona nr 5 - Trevenzuolo (VR), Italia

Isopan Iberica SL, 431 20 Constanti – Tarragona, Spania

Isopan Deutschland GmbH, Kreisstr. 48, Germany, 06193 Wettin-Löbejün OT Plötz

Isopan Rus, Ulitsa Aleksandrova 51, Volzhskiy, Volgogradskaya oblast, Russia.

More detailed information about product construction is shown in drawings.

2.2 PRODUCT FIXATION

The product is used as 2 – or more-span continuous beam with span of 2000 mm.

Roof panels are fixed to the loadbearing construction by steel screws M5,5-24x175, with using the washers. Position of the screws: at each panel rib.

More detailed information about product construction is shown in drawings.

3. TEST REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS

No.	Name of laboratory	Name of sponsor	Test report No.	Date of the test	Test method
[1]	FIRES, s.r.o., Batizovce, SR	Isopan EST SRL, Popesti-Leordeni 077 160 Romania	FIRES-FR-222-14-AUNE	26. 11. 2014	EN 1365-2

[1] Test specimen was conditioned according to EN 1363-1 before the fire resistance test

3.2 TEST RESULTS

No./ Test method	Parameter		Results
[1] EN 1365-2	applied load		continuous static load 30 kg.m^{-2}
	supporting construction		three steel profiles I 200, spaced 2000 mm
	temperature curve		standard temperature/time curve
	loadbearing capacity		46 minutes
	integrity	cotton pad	81 minutes
		gap gauges	81 minutes no failure
		sustained flaming	81 minutes
	thermal insulation	average temperature	51 minutes
		maximal temperature	30 minutes

[1] The test was discontinued in 84th minutes because of the specimen integrity failure

4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 REFERENCE OF CLASSIFICATION

This classification has been carried out in accordance with clause 7.3.3 of EN 13501-2: 2007 + A1: 2009.

4.2 CLASSIFICATION

The element, Roof made of sandwich panels Isocop, 100 mm thick with PIR core, is classified according to the following combinations of performance parameters and classes as appropriate.

Fire resistance classification:
R 30 [1)] / RE 30 [1)] / REI 30

[1)] EN 13501-2, paragraph 7.3.3.4 does not define classes R 45 and RE 45, but the product meets criteria of loadbearing capacity and integrity during 45 minutes

4.3 FIELD OF APPLICATION

This classification is valid according to EN 136501-2 + A1: 2009 for the following end use applications:

Panel thickness	It is allowed to increase the panel thickness (the higher thickness is to be statically considered).
Type of structure	Product is used as 2- and more-span continuous structure (it is not allowed to use the product as 1-span structure).
Loading	Maximum bending moments and maximum normal force calculated on the same base as during the fire test may not be higher than bending moments and normal force arisen at fire test [1] acc. to paragraph 3 of the document.
Slope of the roof	It shall be within a range of 0°÷ 25°.

5. LIMITATIONS

This classification document does not represent type approval or certification of the product.

The classification is valid provided that the product, field of application and standards and regulations are not changed.

Approved:

Ing. Štefan Rástocký
leader of the testing laboratory

Signed:

Bc. Dávid Šubert
technician of the testing laboratory