
CERTIFICATE OF APPROVAL

No. ME0021

This is to certify that the referenced products of

Sat Insulation Materials Industry LLC

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have been assessed against the requirements of the *warringtonfire – mideast certification scheme* and are approved for use within the scope of any test and/or assessment report(s) referenced.

SAT PIR Ducting Panel

The product, a flame retardant grade polyisocyanurate foam insulation board having two identical faces of lacquered, decoratively embossed aluminium foil is fully described in the test reports listed below, and in Annex 1 to this Certificate of Approval.

This Approval has been prepared from test data summarised below and derived from the test reports referenced below. Full details of the product, justification for the conclusions given, along with validity statements are given in those reports.

Test Evidence

WF Report No: 160908	BS 476: Part 6: 1989	Fire propagation index, I = 6.0 subindex, i_1 = 3.1 subindex, i_2 = 2.0 subindex, i_3 = 0.9
WF Report No: 151073	BS 476: Part 6: 1989	Fire propagation index, I = 11.0 subindex, i_1 = 4.7 subindex, i_2 = 5.4 subindex, i_3 = 0.9
WF Report No: 160907	BS 476: Part 7: 1997	Class 1 surface spread of flame
WF Report No: 151068	BS 476: Part 7: 1997	Class 1 surface spread of flame

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Test Evidence

WF Report No: 150894	EN 13501-1: 2001	European Classification: C – s3, d0					
WF Report No: 160909	IMO Resolution MSC.61(67) Part 2, Annex 1.	GAS		Limit (ppm)	Reading (ppm)		
					Condition 1	Condition 2	Condition 3
		Carbon Monoxide	CO	1450	46	21	140
		Hydrochloric Acid	HCl	600	ND	ND	1
		Hydrogen Bromide	HBr	600	ND	ND	ND
		Hydrogen Fluoride	HF	600	ND	ND	ND
		Hydrogen Cyanide	HCN	140	ND	ND	4
		Nitrous Fumes	NOx	350	19	ND	ND
		Sulphur Dioxide	SO2	120	ND	ND	ND
Averaged Specific Optical Density			200	21	4	97	

SAT PIR Ducting Panel

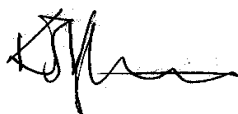
The flame retardant grade polyisocyanurate foam insulation board, has been appraised as having a Class 0 performance when fire tested and assessed by warringtonfire to BS 476: Part 6: 1989 'Method of test for fire propagation of products' and BS 476: Part 7: 1997 'Surface spread of flame test for materials' as defined in paragraph A13(b) of Approved Document B, 'Fire Safety', to the Building Regulations 2006.

SAT PIR Ducting Panel is classified 'C – s3, d0' in accordance with EN 13501-1: 2002 'Fire classification of construction products and building elements' when test in accordance with EN 13823: 2002 'Building products excluding floorings exposed to the thermal attack by a single burning item' and EN ISO 11925-2: 2002 'Ignitability of building products subjected to direct impingement of flame' as defined in paragraph A7 of Approved Document B, 'Fire Safety', to the Building Regulations 2006.

The product was also tested in accordance IMO Resolution MSC.61(67) Part 2, Annex 1. The Resolution details a classification system based on the maximum specific optical density of smoke occurring during the test, averaged over three replicate tests, carried out in each of three test conditions. In addition, the Resolution specifies limits for 7 toxic gases which must not be exceeded in any of the three test conditions. The product achieved the criteria for smoke generation and toxicity for bulkhead, wall and ceiling linings as specified in the Resolution for IMO applications.

Certification is awarded on the basis of initial type testing to BS 476: Part 6 & BS 476: Part 7, EN 13823 & EN ISO 11925-2, and IMO Resolution MSC.61(67) Part 2, Annex 1 as appropriate, initial inspection and ongoing surveillance of factory production control, and ongoing compliance with the scheme requirements including labelling of the product as specified. The currency of the certification may be verified at www.warringtonfire.net/mideast.

Signed for and on behalf of Warrington Certification



Sir Ken Knight
Chairman - Management Council

Issued: 14th December 2007
Valid to: 13th December 2012

Annex 1

General description		A flame retardant grade polyisocyanurate foam insulation board having two identical faces of lacquered, decoratively embossed aluminium foil
Product reference of composite		"SAT DUCT PANEL PIR"
Name of manufacturer of composite		SAT Ins Materials Industry LLC
Overall thickness of composite		21 mm
Density		45kg/m ³
Typical panel size		1.2m x 4m
Component configuration		1 – Lacquer 2 – Foil facing (decoratively embossed) 3 – Lacquer 4 – Polyisocyanurate foam insulation board 5 – Lacquer 6 – Foil facing (decoratively embossed) 7 – Lacquer
Lacquer (components 1 and 7)	Generic type	Epoxy modified lacquer
	Product reference	<u>See Note 1 below</u>
	Name of manufacturer	<u>See Note 1 below</u>
	Colour	"Pink"
	Number of coats	One
	Application rate	5g/m ²
	Application method	Vertical line coating
	Specific gravity	1.2
	Flame retardant details	<u>See Note 2 below</u>
Curing process		Oven dried at a temperature of 120°C for a duration of 180 seconds
Foil facing (components 2 and 6)	Generic type	A decoratively embossed aluminium foil facing incorporating non-embossed areas that formed the letter "S". This letter was distributed at regular intervals over the surface of the facing.
	Product reference	<u>See Note 1 below</u>
	Name of manufacturer	<u>See Note 1 below</u>
	Colour	"Silver"
	Weight per unit area	220g/m ²
	Thickness	80 microns
	Composition details	100% aluminium foil
Flame retardant details		The product is inherently flame retardant
Lacquer (components 3 and 5)	Generic type	Polyester epoxy lacquer
	Product reference	<u>See Note 1 below</u>
	Name of manufacturer	<u>See Note 1 below</u>
	Colour	"Clear"
	Number of coats	One
	Application rate	3.0g/m ²
	Application method	Vertical line coating
	Specific gravity	1.2
Flame retardant details		<u>See Note 2 below</u>
Curing process		Oven at a temperature of 120°C for a duration of 180 seconds
Adhesion of lacquered foil facings to foam insulation board		The facings are thermally bonded to the foam insulation board during the manufacturing process
Foam insulation board (component 2)	Generic type	Chlorofluorocarbon (CFC) & halogen free, flame retardant grade polyisocyanurate
	Product reference	"PIR"
	Name of manufacturer	SAT Insulation Materials Industry LLC
	Thickness	21mm
	Density	45kg/m ³
	Colour	"Yellow"
	Generic type of flame retardant	Phosphorus
	Trade name of flame retardant	<u>See Note 1 below</u>
Amount of flame retardant		<u>See Note 1 below</u>
Brief description of manufacturing process		Continuous dispensing foam lamination. The sponsor did not provide any further information relating to the manufacturing process

Note 1 - The sponsor of the test has provided this information but at the specific request of the sponsor, these details have been omitted from the report and are instead held on the confidential file relating to this investigation

Note 2 - The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the product / component