# **ContraFlame®**

### MS200 underdeck and bulkhead isulation

A lightweight, close cell, solid thermal insulation foam and GRP or epoxy laminate system designed to protect, thermally insulate and provide A rated fire protection while mitigate risk of corrosion under insulation of offshore facilities underdeck and bulkheads. The system weight reduction, robustness and unparalleled design life (+25 years) coupled with a single point of responsibility on the supply and site installations make ContraFlame® MS200 superior to current mineral wool/SS solutions.

#### **Product construction**

ContraFlame® MS200 system is based on a unique syntactic phenolic foam and phenolic or epoxy glass reinforced laminate. Pre-formed MS200 panels (nominal lm x lm) at a range of thickness 25-100mm are bonded to the underdeck and followed by the application of GRP laminate. The complete installation is seamless and jointless.

#### 1. ContraFlame® MS200 foam

Nominal density: 65 kg·m<sup>-3</sup> Thickness: 25mm to 100mm Thermal conductivity: 0.029 W·m<sup>-1</sup>·K<sup>-1</sup>

#### **2. ContraFlame® D2004 GRP laminate** Nominal density: 1300 kg·m<sup>-3</sup>

Nominal thickness: 2mm Nominal thickness: 2mm



#### **Typical applications**

- Oil and gas platforms (new build or operational)
- Wind converter platform (new build or operational)
- Offshore modules
- Internal partitioning.

#### System properties

Property	Test method	Results
Density	ISO 845	65 kg·m <sup>-3</sup>
Thermal conductivity	ASTM C 518	0.029 W·m <sup>-1</sup> ·K <sup>-1</sup>
Blast resistance	FEA	1 bar

## Performance and properties

#### Thermal and weight performance

System performance BS EN ISO 12241:2008 and ASTM C518

Thickness (mm)	R – Value (m²K/W)	U Value (W/m²K)	Panel weight (kg/m²)	Total system weight - panel and laminate (kg/m²)
50	1.72	0.58	3.3	6.9
70	2.41	0.41	4.6	8.2
100	3.45	0.29	6.5	10.1
D2004 laminate	0.0083	120	3.6	

#### Combustibility

Component	Test method	Results
MS200	Determination of burning behaviour by oxygen index <b>BS ISO 4589-2:1999</b>	The material shows an oxygen index of <b>30.5%</b>
D2004	Determination of burning behaviour by oxygen index <b>BS ISO 4589-2:1999</b>	The material shows an oxygen index of <b>50%</b>
Blast resistance	FEA	1 bar

#### Surface spread of flame

Component	Test method	Results
MS200	Test for surface spread of flame BS ISO 476-7:1997	Classified as Class 1
D2004	Test for surface spread of flame BS ISO 476-7:1997	Classified as Class 1

#### Flammability

Component	Test method	Results
D2004 laminate	IMO MSC 307 Parts 2,5	SOLAS 1974 compliance
Flaming droplets	IMO MSC 307(88) Annex 1: Part 5: 2010	None

#### Fire resistance test

A' Class mild steel deck fire resistance test in accordance with IMO MSC 307(88) Annex 1, Part 3, MS200 at 100mm, deck plate 4.5mm

Duration (min)	Average temp rise (°C)
30	0
60	18
90	20
120	64
180	125

#### Acoustic performance - sound reduction index in accordance with BS EN 150 10140-2:2020

(8mm steel plate covered with total 70mm and 100mm MS200 including D2004 laminate)

Sound reduction index (dB)
70mm Rw (C;C <sub>tr</sub> ) = 45 (1-:1) dB
100mm Rw (C;C <sub>tr</sub> ) = 46 (-2;-6) dB

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