

Certificate Of Fire Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Unifrax Limited
Address	Mill Lane, Rainford, St. Helens, Merseyside, WA11 8LP, United Kingdom (UK)
Type	A-60 Bulkhead
Description	Fire Resisting 'A' Class Aluminium Bulkhead – Type: "A60 Aluminium Bulkhead FyreWrap LT Blanket 70" 4mm thick aluminium bulkhead insulated on both side with Alkaline Earth Silicate (AES) wool insulation (55mm thick and 70kg/m3 density)
Trade Name	"A60 Aluminium Bulkhead FyreWrap LT Blanket 70"
Specified Standard	IMO Res. MSC.307(88) – (2010 FTP Code), Annex 1, Part 3 IMO MSC.1/Circ.1435

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document and its supplementary Type Approval Terms and Conditions form part of this Certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Ratheesh Rajagopal

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EMEA
A member of the Lloyd's Register group

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DESIGN APPRAISAL DOCUMENT

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR22169622SF

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

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This Certificate is a Renewal of Certificate Number SAS F170132

APPROVAL DOCUMENTATION

TEST REPORTS

Far East Fire Testing Centre (FEFTC), 511 Chuhua Zhi Lu, Shanghai Chemical Industry Park, Fengxian Sub-Zone, Shanghai, China; Fire Test Report No. FT16456, dated 21 December 2016

CONDITIONS OF CERTIFICATION

1. When used in conjunction with an approved A Class aluminium bulkhead.
2. Minimum aluminium bulkhead plate thickness and stiffener dimensions specified in 2010 FTP Code; 6.0 ± 0.5 mm and $(100 \pm 5) \times (75 \pm 5) \times (9 \pm 1)$ mm respectively. The insulation system was tested on 4mm thick aluminium plate and stiffener 100mm x 75mm x 9mm bulkhead and the 2000 C criteria was not exceeded for 60 minutes, therefore it could be considered for use on aluminium bulkheads of thickness 4mm or greater (for the fire rating/duration achieved in the tests), as permitted by 2010 FTP Code Annex 1 Part 3 Appendix 1 Paragraph 1.11, subject to final approval by the Plan Approval Authority for the specific ship/project on a case-by-case basis.
3. 'A-60 Aluminium Bulkhead FyreWrap LT Blanket 70' A-60 Class bulkhead consisting of: 4mm thick aluminium bulkhead plate insulated with one layer of (55mm thick, density 70 kg/m^3) 'FyreWrap LT Blanket' Alkaline Earth Silicate (AES) wool insulation fitted on to the aluminium bulkhead plate and stiffeners, and one layer of (55mm thick, density 70 kg/m^3) 'FyreWrap LT Blanket' Alkaline Earth Silicate (AES) wool insulation fitted on to the aluminium bulkhead plate on the flat side. Total thickness of bulkhead is 114mm.
4. Insulation retained to the aluminium bulkhead plate and stiffeners with 3mm diameter steel pins and 38mm diameter steel washers on both side: spaced at maximum centres of 300mm horizontally, 200mm vertically on the bulkhead layer of insulation; a maximum distance of 100mm from insulation joints; a maximum of 150mm from vertical edge boundaries; a maximum of 100mm from both the floor edge boundaries and ceiling edge boundaries.
5. Maximum width of insulation blankets following installation: 600mm.
6. Insulation fixing method should be same as tested arrangement in all cases.
7. The Core temperature of aluminium alloy shall not rise above a maximum 2000 C limit above ambient temperature for 60-minute duration of test (SOLAS Chapter II-2 Regulation 11).

DESIGN APPRAISAL DOCUMENT

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8. Composition, application and installation of subcomponents, including adhesives, seals and any fire retardants, to be maintained in production and use in accordance with originally tested composition formula and method of application and installation, and manufacturer's instructions.
9. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.
10. The certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products, whether manufactured by themselves or their licensee manufacturers, if agreed by Lloyd's Register, are fully compliant with the relevant statutory regulations and Lloyd's Register Class rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties.

PLACE OF PRODUCTION

Unifrax Limited

Mill Lane, Rainford,
St Helens
Merseyside, WA11 8LP
United Kingdom (UK)

Unifrax France

17 Rue Antoine Durafour
BP2,
42420 Lorette
France

Unifrax I LLC

54401 Smilax Road
New Carlisle,
Indiana 46552
United States of America (USA)



Ratheesh Rajagopal
Specialist
Fire & Safety, Statutory Discipline Team
UK&I Technical Support Office, Marine & Offshore
Lloyd's Register EMEA

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).