



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 Ltd
Address	Mill Lane Rainford St Helens Merseyside WA11 8LP United Kingdom (UK)
Type	A-30 BULKHEAD
Description	Fire Resisting 'A' Class Aluminium Bulkhead – Type: "FyreWrap LT Blanket" - Restricted Application
Specified Standard	IMO Res. MSC.307(88) – (2010 FTP Code) Annex 1 Part 3

The attached Design Appraisal Document forms 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.

Date of issue 27 June 2019 Expiry date 26 June 2024

Certificate No. SAS F190103

Signed

Sheet No 1 of 3

Name

J. M. Evans
Surveyor to Lloyd's Register EMEA
A Member of the Lloyd's Register Group

Note:

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 of any modification or changes to the equipment in order to obtain a valid Certificate.

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.



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DESIGN APPRAISAL DOCUMENT

Date	Quote this reference on all future communications
11 July 2019	UKITSO/FIRE/TA/JE/WP35813051

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F190103

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Warringtonfire, Holmesfield Road, Warrington, WA1 2DS, United Kingdom, Fire Test Report No. 403614 dated 5th March 2019.

CONDITIONS OF CERTIFICATION

1. Restricted Application: For applications with the fire risk on the stiffened insulated side only
2. A-30 bulkhead consisting of: 4mm thick aluminium plate with 9mm thick aluminium stiffeners insulated on stiffened side with one horizontal layer of (55mm thick, density 70 kg/m³) AES wool insulation type 'FyreWrap LT Blanket' manufactured by Unifrax Ltd, fitted to plate and around stiffeners
3. Insulation retained to the panels and stiffeners with 3mm diameter aluminium pins and washers, fitted at a maximum spacing of 300mm centres
4. Restricted Application: Minimum aluminium bulkhead plate thickness and stiffener dimensions specified in 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 a 4mm aluminium bulkhead and the 200 °C criteria was not exceeded for 30 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), subject to final approval by the Plan Approval Authority for the specific ship/project on a case-by-case basis
5. The core temperature of aluminium alloy shall not rise above a maximum 200°C limit above ambient temperature for 60 minute duration of test (SOLAS Chapter II-2 Regulation 11)
6. Composition, application and installation of sub components to be maintained in production and use in accordance with originally tested composition formula and method of application and installation, and manufacturer's instructions
7. 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

PLACE OF PRODUCTION

Unifrax Ltd 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)
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Jessica Evans
Senior Specialist
Statutory Fire & Safety
Marine Technology and Engineering Services
Global Technology Centre
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).