



## 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** Dafo Fomtec AB

**Address** P.O. Box 683  
SE - 135 26 Tyresö  
Sweden

**Type** FOAM CONCENTRATE

**Equipment Description** Fire Extinguishing 'Type B' Synthetic Low Expansion Foam Concentrate - Types: "AFFF 1%F, 3% & 6%" for use on hydrocarbon fires

**Specified Standard** IMO MSC.1/Circular 1312


**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 7 August 2017

Expiry date 6 August 2022

Certificate No. SAS F170173

Signed 

Sheet No 1 of 3

Name S. Abraham  
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 7 August 2017	Quote this reference on all future communications SOUTSO/SFS/TA/KT/SA/WP28673804
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**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F170173**

This Design Appraisal Document forms part of the Certificate.

**APPROVAL DOCUMENTATION**

Lloyds Register Helsingborg Witness Certificates; HBG 1210047/3, HBG 1210047/4 and HBG 1210047/5, all dated 29 June 2012 for testing conducted at the Falck Nutek Test Facility, Esbjerg, Denmark.

**CONDITIONS OF CERTIFICATION**

1. Foam concentrate type "AFFF": When used in 1%, 3% and 6% maximum concentration and as-tested expansion ratios of 7:1, 7:1 and 8:1 respectively, in suitable equipment for Class B hydrocarbon fires in machinery spaces and tanker deck protection
2. The foam concentrates should be stored above their freezing temperature as per the following:

Foam Type	Foam Concentrate	Freezing Temperature (°C)	Storage Temperature Range (°C)
AFFF 1%	Synthetic Film Forming Foam	-15	-14 to 55
AFFF 3%		-5	-4 to 55
AFFF 6%		-3	-2 to 55

3. The storage container should be compatible with the foam concentrates throughout the service life of the foam
4. Periodical testing of foam concentrates for hydrocarbon fires should be carried out in accordance with Annex 4 and 5 of IMO MSC.1/Circ.1312, not more than 3 years after being supplied to the ship and after that, every year, by independent laboratories or authorised service suppliers acceptable to the Administration
5. 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



Lloyd's  
Register

## Lloyd's Register EMEA

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#### ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F170173

##### PLACES OF PRODUCTION

Dafo Fomtec AB  
Garnisonsgatan 47A  
254 66 Helsingborg  
Sweden

  
Lloyd's Register EMEA  
Lloyd's Register  
LR07/2013.12

Saji Abraham  
Senior Specialist  
Statutory Fire & Safety  
Southampton 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).*