



FACTUAL CERTIFICATE

Office: **GURUGRAM**

Date: **10 Mar 2022**

This Certificate is issued to **FIRE MASTER TECHNICS BV ,OOSTMALSEBAAN 16 BRECHT 2960 BELGIUM**, to certify that the undersigned Surveyor to Lloyd's Register Marine & Inspection Services India LLP did attend their Faridabad works on the aforementioned date for the purpose of witnessing tests on Foam Concentrate according to IMO MSC Circ. 1312. Details are hereunder.

Designation of Foam Concentrate : **Aqueous Film Forming Foam Concentrate (AFFF) & Fluoro Protein Foam Concentrate (FP)**

Type of Foam Concentrate : **AFFF- 3 % & FP – 3 %**

Sample : **20L Jerry Can of each type**

Manufactured by : **Fire Master Technics BV,
Oostmalsebaan 16 Brecht 2960 Belgium**

Batch Number / Details : **AFFF/5353-21 for AFFF & FP/3081-21 for FP**

Date of Chemical Test : **06th MAR 2022**

Date of Fire Test : **08th MAR 2022**

Total Results-

The Foam concentrate denoted AFFF-3 % against aforementioned batches fulfils the requirements stated in the IMO MSC Circ. 1312, when tested with admixture of low expansion foam.

Enclosures- Annexure-I (for AFFF) & II (for FP)

Test conditions and Test Results.



ABHINAV PANDEY

Surveyor to Lloyd's Register Marine & Inspection Services India LLP

a member of the Lloyd's Register group.

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**ANNEXURE-I**

Certificate No. NWD2100192

TEST CONDITION AND RESULTS**A. Physical Properties-**

The physical properties were witnessed on AFFF/5353-21 at manufacturer's lab works.

Parameters	Results	Requirements	Remarks
pH- Value at 20 °C.	7.73	6 to 9.5	Satisfactory
Specific Gravity	1.02	--	--do--
Viscosity	07.26 mm ² /s	200 mm ² /s	--do--
Spreading Coefficient with fresh water	4.7	> 0	--do--
Sedimentation	0.02 %	0.25 % max	--do--

B. Expansion and Drainage Time with sea water**Test Conditions:**

Ambient temperature: 21°C b) Foam Solution 20°C c) Fuel Temperature 20°C d) Wind Speed- 1 M/s.

Parameters	Results	Remarks
Expansion Ratio	8.95	Satisfactory-Low Expansion
25 % Drainage Time	03:20 Minutes	Satisfactory

C. Fire Performance Test as per Clause 3.9 of IMO MSC.1/Circ. 1312 with sea water

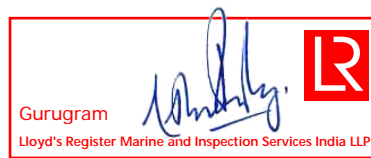
Parameters	AFFF-3 % with fuel Heptane	Requirement	Remarks
Pre burn Time	60 Sec.	60 Sec.	Satisfactory
Fire Extinction time	01 :32 Minutes.	within 05 Min.	
25 % Burnback	Above 15 minutes	17 Minutes	

Comments to the Fire test results.

Based on observed value during fire test, sample confirms to meets the IMO MSC Circ. 1312 requirements.

Note-

Verified suitability and reviewed calibration certificate of measuring instruments used during inspection and testing and found satisfactory.



**ANNEXURE-II**

Certificate No. NWD2100192

TEST CONDITION AND RESULTS**A. Physical Properties-**

The physical properties were witnessed on FP/3081-21 at manufacturer's lab works.

Parameters	Results	Requirements	Remarks
pH- Value at 20 °C.	7.36	6 to 9.5	SATISFACTORY
Specific Gravity	1.14	--	
Viscosity	20.2 mm ² /s	200 mm ² /s	
Spreading Coefficient with fresh water	3.0	> 0	
Sedimentation	0.12 %	0.25 % max	

B. Expansion and Drainage Time with sea water**Test Conditions:**

Ambient temperature: 20°C b) Foam Solution 19°C c) Fuel Temperature 20°C d) Wind Speed- 1 M/s.

Parameters	Results	Remarks
Expansion Ratio	8.30	Satisfactory-Low Expansion
25 % Drainage Time	03:07 Minutes	Satisfactory

C. Fire Performance Test as per Clause 3.9 of IMO MSC.1/Circ. 1312 with sea water

Parameters	FP-3 % with fuel Heptane	Requirement	Remarks
Pre burn Time	60 Sec.	60 Sec.	Satisfactory
Fire Extinction time	01 :15 Minutes.	within 05 Min.	
25 % Burnback	Above 15 minutes	18 Minutes	

Comments to the Fire test results.

Based on observed value during fire test, sample confirms to meets the IMO MSC Circ. 1312 requirements.

Note-

Verified suitability and reviewed calibration certificate of measuring instruments used during inspection and testing and found satisfactory.