



Project: Fire Extinguishing Media to EN 1558-3 & EN 1568-4 Specifications

Client: Dafo Fomtec AB
Tyreso,
Sweden

Office: Liverpool

Clients Order Number: -

Date: 30 June 2005

Order Status: Complete

Inspection Dates

First: 16 May 2005

Final: 22 June 2005

This certificate is issued to Dafo Fomtec AB, to certify that at their request, the undersigned Surveyor to this Society did select samples of FOMTEC FFFP/ARC 3x3 (Newtonian), for the purpose of confirming that the properties were within the technical specifications and were in accordance with EN 1568-3 and EN 1568-4.

The necessary tests were witnessed by the Surveyor and the results obtained were all within the limits given in the manufacturer's specification, and the requirements of EN 1568-3 and EN 1568-4

Tolerance to freezing and thawing (Annex E)

No stratification or non-homogeneity could be detected in the sample.

Sediment (Annex C)

Before ageing of the sample = 0.1%

After ageing of the sample = 0.1%
(24 hours at 60 C)

Viscosity at 20 C = 13.7 m.Pa.s (Brookfield)

pH of the concentrate at 20 C = 7.3

Surface Tension, Interfacial Tension and Spreading Coefficient (Annex F)

	Surface Tension Dynes/cm	Interfacial Tension Dynes/cm	Spreading Coefficient Dynes/cm
Before conditioning:	18.5	6.2	+0.3
After Conditioning at -30 C for 24 hours followed by 48 hours at 20 C (four cycles)			
Top Sample:	18.0	6.6	+0.4
Bottom Sample:	18.0	6.8	+0.2
After Conditioning at 60 C for 7 days followed by 2 days at 20 °C			
Top Sample:	18.0	6.8	+0.2
Bottom Sample:	18.2	6.6	+0.2

Expansion and Drainage (Annex G)

	Using Fresh Water		Using Sea Water	
Before conditioning of the sample				
Expansion at 3%:	5.70		5.61	
25% Drainage Time:	1'41"		1'57"	
50% Drainage Time:	3'54"		4'18"	
After conditioning of the sample (Annex E)	Top	Bottom	Top	Bottom
Expansion at 3%:	6.12	6.00	6.00	5.95
25% Drainage Time:	2'00"	2'02"	2'00"	2'00"
50% Drainage Time:	4'09"	4'10"	4'20"	4'21"

Fire Tests (Annex H)

A) Application (Forceful) in accordance with EN 1568-3

Fire tests carried out in accordance with Annex H1 and H3 using Fresh Water and Sea Water

Preburn Time 60 seconds
Foam Application 180 seconds
Wait after foam application 300 seconds
Fire Tray 144B (4.54 m²)
Fuel Commercial Heptane on water bed
Foam Concentration 3%

	Fresh Water	Sea Water	Sea Water
90% Control	47"	47"	60"
99% Control	60"	66"	75"
100% Extinction	110"	121"	129"
25% Burnback Time	10'15"	16'10"	15'35"
Air Temp (°C)	20	20	20
Water Temp (°C)	16.5	17	16.5
Fuel Temp (°C)	19	20	19
Foam Temp(°C)	16.5	16.5	17
Wind Speed (m/sec)	< 2.0	< 2.0	< 2.0

B) Application in accordance with EN 1568-4 (Annex H)

Preburn Time 120 seconds
Foam Application 180 seconds
Wait after foam application 300 seconds
Fire Tray 55B (1.73 m²)
Fuel Acetone
Foam Concentration 3%

	Fresh Water	Sea Water	Sea Water
90% Control	22"	24"	35"
99% Control	35"	60"	54"
100% Extinction	88"	151"	141"
25% Burnback Time	18'23"	18'10"	18'42"
Air Temp (°C)	20	20	20
Water Temp (°C)	17	17	16.5
Fuel Temp (°C)	20	20	20
Foam Temp(°C)	16.5	16.5	17.0
Wind Speed (m/sec)	< 2.0	< 2.0	< 2.0

From the above test results it is confirmed the FOMTEC FFFP/ARC 3x3 (Newtonian) is a film forming foam concentrate suitable for use with fresh and sea water. FOMTEC FFFP/ARC 3x3 (Newtonian) has tolerance to freezing and thawing (Annex E). The product is suitable for storage above -30. The fire extinguishing performance class is 1 and the burnback resistance level is A using fresh and sea water used at 3% concentration for Hydrocarbon fuel. The fire extinguishing performance class is 1 and the burnback resistance level is A using fresh and sea water used at 3% concentration for Polar Solvent fuel.

Performance level achieved:

Extinguishing Class 1 for Hydrocarbon and Polar Solvent Fuel
Burnback Resistance level is A for Hydrocarbon Fuel with fresh and sea water
Burnback Resistance level is A for Polar Solvent Fuel with fresh and sea water

The image shows a red rectangular stamp. On the left, there is a handwritten signature in black ink that reads 'M. Williams'. To the right of the signature, the text 'Lloyd's Register EMEA' is printed in red at the top, and 'Liverpool Office' is printed in red at the bottom. To the right of the signature, there is a smaller red logo for 'Lloyd's Register'.

M. Williams
Surveyor to Lloyd's Register EMEA

A member of the Lloyd's Register Group