

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

Client: RKG

Certificate Number: LIV 0333645/01A1

Office: Liverpool

Client's Order Number:

Date: 17.04.03.

Order Status: Complete

Inspection Dates

First: 10.04.03.

Final: 17.04.03.

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 ARC 1X3 (AFFF/AR), for the purpose of confirming that the properties were within the technical specifications and were in accordance with EN 1568-3 and EN1568-4.

The necessary tests were witnessed by the Surveyor and the results obtained were all within the limits given in the manufacturers specification, and the requirements of EN 1568-3 and EN1568-4.

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 (24 hours at 60°C)	=	< 0.1%

Viscosity at 20°C	=	1600m.Pa.s (Brookfield)
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pH of the concentrate at 20°C	=	7.5
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Surface Tension, Interfacial Tension and spreading coefficient (Annex F)

	<u>Surface Tension</u> Dynes/cm	<u>Interfacial Tension</u> Dynes/cm	<u>Spreading Coefficient</u> Dynes/cm
Before conditioning	16.1	3.0	+5.9
After conditioning at - -30°C for 24 hrs followed by 48 hrs at 20°C (four cycles)			
Top Sample	16.2	3.2	+5.6
Bottom Sample	16.1	3.1	+5.8
After conditioning at - 60°C for 7 days followed by 2 days at 20°C			
Top Sample	16.3	3.0	+5.7
Bottom Sample	16.2	3.1	+5.7

Expansion and Drainage (Annex G)**At 1% concentration**

Before conditioning of the sample		Fresh	Sea
Expansion =		6.8	6.4
25% Drainage time =		4'00"	4'05"

After conditioning of the sample in accordance with Annex E		Fresh	Sea
Expansion =	Top	Bottom	Top
25% Drainage time =	6.1	6.4	6.2
	3'50"	4'02"	4'06"
			Bottom
			6.5
			4'10"

At 3% concentration

Before conditioning of the sample		Fresh	Sea
Expansion =		9.2	8.3
25% Drainage time =		7'40"	8'37"

After conditioning of the sample In accordance with Annex E		Fresh	Sea
Expansion =	Top	Bottom	Top
25% Drainage Time	9.0	9.3	8.2
	7'31"	7'45"	8'30"
			Bottom
			8.4
			8'40"

Fire Tests (Annex H)**A) Forceful Application 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 (4.5m ²)
Fuel	Commercial Heptane on water bed

	Fresh Water		Sea Water
90% Control	40"	39"	37"
99% Control	57"	49"	52"
100% Extinction	99"	94"	94"
25% Burnback time	13'24"	12'14"	11'34"
Air Temp (°C)	10.0		10.0 10.0
Water Temp (°C)	15.0		15.5 15.5
Fuel Temp (°C)	15.5		15.5 15.5
Foam Temp (°C)	16.0		16.0 16.0
Wind Speed (m/sec.)	<0.5		<0.5 <0.5

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

Fire Tests carried out using:-

Fresh water and Sea water

Preburn time	120 seconds
Foam application	180 seconds
Wait after foam application	300 seconds
Fire tray	55B (1.73m ²)
Fuel	Acetone
Foam Concentration	3%

	Fresh Water		Sea Water
90% Control	24"	26"	18"
99% Control	38"	32"	30"
100% Extinction	64"	51"	56"
25% Burnback time	17'45"	17'00"	16'47"
Air Temp (°C)	10.0	9.0	10.0
Water Temp (°C)	15.0	15.0	15.0
Fuel Temp (°C)	15.5	15.5	15.5
Foam Temp (°C)	15.8	15.8	15.8
Wind Speed (m/sec.)	Nil	<0.5	<0.5

From the above test results it is confirmed that Fomtec ARC 1X3 (AFFF/AR) is a film forming foam concentrate suitable for use at 1% concentration with use on hydrocarbon fuel and 3% concentration with use on polar fuel with fresh and sea water. Fomtec ARC (AFFF/AR) has tolerance to freezing and thawing (Annex E). The product is suitable for storage above -30°C. The fire extinguishing performance class is 1 and the burnback resistance level is A using fresh water and sea water for Hydrocarbon fuel and Polar solvent fuel.

Performance level achieved:

Extinguishment class 1 for Hydrocarbon & Polar fuel

Burnback resistance level A for Hydrocarbon & Polar fuel.



M. Williams

Surveyor to Lloyd's Register