



# Test Report - Fire Extinguishing Media to EN 1568-3:2008 Specification

Office: **Helsingborg**

Date: **02 April 2013**

This certificate is issued to **DAFO Fomtec AB, Helsingborg, Sweden**

to certify that at their request the undersigned Surveyor to this society did attend their premises at Garnisonsgatan 47A and the test site of "Falck Nutek" Esbjerg, Denmark for the purpose of selecting samples of FOMTEC ARC 3x3 to confirm that the properties were in accordance with the requirements of EN 1568-3: 2008 and EN 1568-4 2008.

The necessary tests were witnessed and the results obtained were all within the limits given in EN 1568-3:2008 and EN 1568-4 2008.

## Report:

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 = < 0.25%  
 After ageing of the sample (24 hours at 60 °C) = < 0.25%

Viscosity at 20 °C = 2450 mPa.s

pH of the concentrate at 20 °C = 7.1

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

	Surface Tension (mN/m)	Interfacial Tension (mN/m)	Spreading Coefficient (mN/m)
<b>Fresh Water</b>			
Before Conditioning	18,5	18,9	18,4
After Conditioning Top Sample	2,2	2,5	2,5
After Conditioning Bottom Sample	4,3	3,6	4,1
<b>Sea Water</b>			
Before Aging	19,0	19,0	19,0
After Conditioning Top Sample	1,5	1,5	1,5
After Conditioning Bottom Sample	4,5	4,5	4,5

## Expansion and Drainage (Annex G)

	Expansion	Drainage Time
<b>Fresh Water</b>		
Before Conditioning	6,7	10:40
After Conditioning Top Sample	6,7	9:55
After Conditioning Bottom Sample	6,7	9:25
<b>Sea Water</b>		
Before Conditioning	5,4	10:20
After Conditioning Top Sample	5,4	9:00
After Conditioning Bottom Sample	5,6	9:15

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**Fire Tests (Annex H)**

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

Air Temperature: 15 °C  
Water Temperature: 15 °C  
Fuel Temperature: 15 °C  
Premix Temperature: 15 °C  
Wind Speed: < 3 m/s  
Preburn Time: 1 min.  
Foam Application: 3 min.  
Waiting Period: 5 min.  
Fire Tray: 144B (4,5 m<sup>2</sup>)

	Fresh Water	Sea Water	Sea Water (repeat)
90% Control	0 min 40 sec	0 min 45 sec	0 min 40 sec
99% Control	1 min 03 sec	1 min 55 sec	1 min 20 sec
Extinction	2 min 50 sec	3 min 00 sec	2 min 30 sec
25% Burnback Time	n.a	n.a	n.a

**B) Gentle Application in accordance with EN 1568-3**

Air Temperature: 15 °C  
Water Temperature: 15 °C  
Fuel Temperature: 15 °C  
Premix Temperature: 15 °C  
Wind Speed: < 3 m/s  
Preburn Time: 1 min.  
Foam Application: 5 min.  
Waiting Period: 5 min.  
Fire Tray: 144B (4,5 m<sup>2</sup>)

	Fresh Water	Sea Water	Sea Water (repeat)
90% Control	0 min 45 sec	0 min 50 sec	0 min 30 sec
99% Control	1 min 00 sec	1 min 30 sec	1 min 00 sec
Extinction	1 min 42 sec	5 min 00 sec	3 min 58 sec
25% Burnback Time	> 15 min 00 sec	18 min 00 sec	20 min 00 sec

**C) Gentle Application in accordance with EN 1568-4 (Polar Fuels)**

Air Temperature: 15 °C  
Water Temperature: 15 °C  
Fuel Temperature: 15 °C  
Premix Temperature: 15 °C  
Wind Speed: < 3 m/s  
Preburn Time: 2 min.  
Foam Application: 3 min.  
Waiting Period: 5 min.  
Fire Tray: 55B (1,73 m<sup>2</sup>)

	Fresh Water	Sea Water	Fresh Water (repeat)
<b>Isopropyl Alcohol (IPA)</b>			
90% Control	0 min 50 sec	0 min 30 sec	0 min 55 sec
99% Control	1 min 05 sec	0 min 40 sec	1 min 10 sec
Extinction	1 min 30 sec	1 min 03 sec	1 min 35 sec
25% Burnback Time	> 15 min 00 sec	15 min 05 sec	> 15 min 00 sec

	Fresh Water	Sea Water	Sea Water (repeat)
<b>Acetone</b>			
90% Control	0 min 25 sec	0 min 30 sec	0 min 25 sec
99% Control	0 min 35 sec	0 min 45 sec	0 min 40 sec
Extinction	1 min 00 sec	1 min 12 sec	0 min 55 sec
25% Burnback Time	13 min 40 sec	12 min 30 sec	> 15 min 00 sec

From the above test results it is confirmed that FOMTEC ARC 3x3 is an alcohol resistant film forming foam suitable for use at 3% concentration with both potable and sea water on both hydrocarbon and polar fuels. Fomtec ARC 3x3 X has tolerance to freezing and thawing (Annex E). The product is suitable for storage above -30°C. The fire extinguishing performance is Class I on both hydrocarbon and polar fuels B using potable and sea water. The burnback level is A on isopropyl alcohol and B on acetone.

**Performance Level Achieved:**

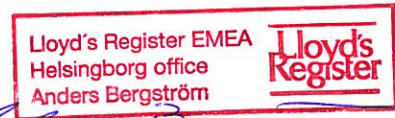
	Heptane	Acetone	IPA
Fresh Water	I B	I B	I A
Sea Water	I B	I B	I A

Extinguishment: **Class I**  
 Burnback Resistance Level: **B**

**Conclusion**

From the above test results it is confirmed that the physical data and fire performance of FOMTEC ARC 3x3 are in accordance with the requirements of EN 1568-3:2008 and EN 1568-4 2008.

Client: Dafo Fomtec AB  
 Helsingborg, Sweden



*Handwritten signature of Anders Bergström in blue ink.*

Anders Bergström  
 Surveyor to Lloyd's Register EMEA

A member of the Lloyd's Register Group