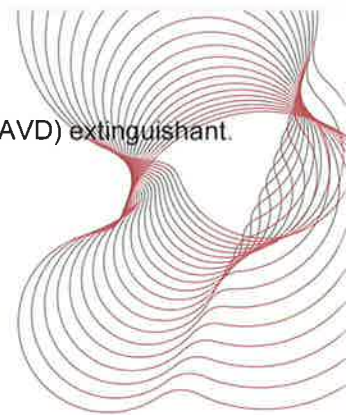


**Fire extinguishing
performance testing of
Dupré Minerals Limited
Aqueous Vermiculite
Dispersion (AVD)
extinguishant utilising
Jewel Saffire Products Ltd
fire extinguishers to BS EN
3-7:2004+A1:2007 Clause
15 only.**

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ST5 9JE.

7th August 2012

Test report number 280600



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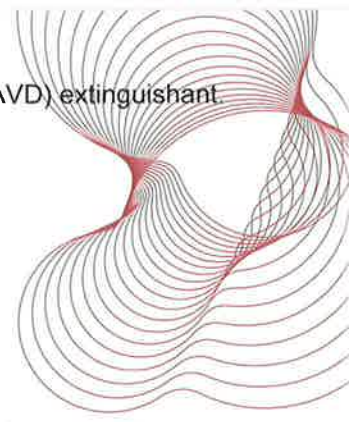
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1 INTRODUCTION

1.1 Object

The object of this evaluation was to conduct Class A fire testing on Jewel Saffire Products Limited stored pressure fire extinguishers filled with Aqueous Vermiculite Dispersion (AVD) extinguishant in accordance with Clause 15 of BS EN 3-7: 2004+A1:2007 only.

1.2 Origin of request

The evaluation was requested by Dupré Minerals Limited, Newcastle-under-Lyme, Staffordshire, ST5 9JE, order number 31128/AJB, dated 3rd July 2012.

2 EQUIPMENT SUBMITTED

2.1 Equipment

The following Jewel Saffire Products Ltd, stored pressure fire extinguishers filled with AVD extinguishant, supplied by Dupré Minerals Limited were received on 17th July 2012;

Six Model FFEX3, 3 litre, stored pressure fire extinguishers.
Six Model FFEX621, 6 litre, stored pressure fire extinguishers.
Six Model FFEX9, 9 litre, stored pressure fire extinguishers.
10 litres of Aqueous Vermiculite Dispersion (AVD) extinguishant.

2.2 Data

No drawings of the extinguisher components were submitted.

All extinguishers were supplied filled and pressurised to 12 bar.

Material safety data sheet and identification data for the Aqueous Vermiculite Dispersion (AVD) extinguishant, dated 14th March 2012 was supplied by Dupré Minerals Limited, Newcastle-under-Lyme, Staffordshire, ST5 9JE.

Each extinguisher specimen was stated to contain either 3 litres, 6 litres or 9 litres of Dupré Minerals Limited Aqueous Vermiculite Dispersion (AVD) extinguishant. This was verified for each specimen by calculation utilising the manufacturers stated specific gravity value.

No verification analysis of the discharge times or the extinguishant was undertaken, however a sample of extinguishant was retained for future confirmation if required.

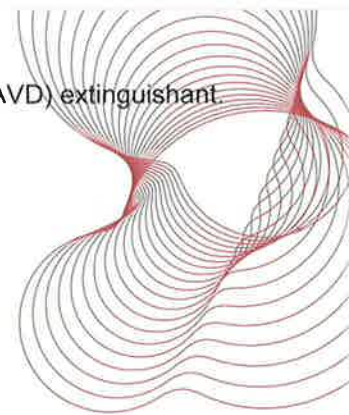


Figure 1 – Jewel Saffire Products Ltd 3 litre, 6 litre and 9 litre Aqueous Vermiculite Dispersion (AVD) fire extinguishers received.

3 TEST PROGRAMME

The Class A fire extinguishing performance rating, for all three model sizes, was determined in accordance with Clause 15 of BS EN 3-7: 2004+A1:2007 assessed against the requirements of Clause 6.4 of BS EN 3-7: 2004+A1:2007.

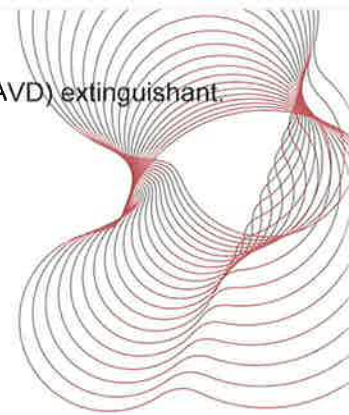
A pressure indicator verification check was conducted on a single specimen of each model size, which registered 12 bar at the nominal charge mark.

The testing was conducted inside the BRE Garston Burnhall, Watford, Herts.

The oxygen concentration requirement of Annex I.2.2 was monitored during the fire testing and at no time did the concentration fall below 19%.

All specimens were conditioned as per Clause 5 of BS EN3-7:2004+A1:2007 prior to testing.

Evaluation commenced 24th July 2012 and completed 24th August 2012.



4 RESULTS

4.1 Fire performance – 3 litre Aqueous Vermiculite Dispersion (AVD).

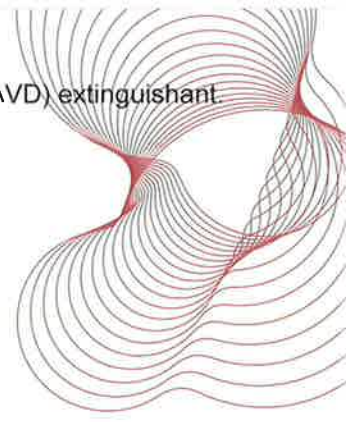
Class A fire rating (BS EN 3-7, Clause 15.2)

Test No.	1A	2A
Fire size	8A	
Moisture of test fire wood: measured average (%)	13	13
Required (%)	10 to 15	
Actual ambient temperature within test room (°C)	22	24
Required temperature within test room (°C)	0 to 30	
Maximum air speed (m/s)	≤ 0.2	
Actual air speed (m/s)	< 0.2	< 0.2
Fire extinguished (yes/no)	Yes	Yes
Measured time to extinguish fire (min:s)	1:28	1:08
Required ≤ 5 min for ≤ 21A; ≤ 7 min for ≥ 27A	≤ 5	
Achieved test fire rating – Class A	8A	
Minimum required test fire rating – Class A	5A	
Compliance to clause 15.2 (yes/no)	Yes	

4.2 Fire performance – 6 litre Aqueous Vermiculite Dispersion (AVD).

Class A fire rating (BS EN 3-7, Clause 15.2)

Test No.	1A	2A
Fire size	13A	
Moisture of test fire wood: measured average (%)	13	13
Required (%)	10 to 15	
Actual ambient temperature within test room (°C)	22	23
Required temperature within test room (°C)	0 to 30	
Maximum air speed (m/s)	≤ 0.2	
Actual air speed (m/s)	< 0.2	< 0.2
Fire extinguished (yes/no)	Yes	Yes
Measured time to extinguish fire (min:s)	1:48	1:53
Required ≤ 5 min for ≤ 21A; ≤ 7 min for ≥ 27A	≤ 5	
Achieved test fire rating – Class A	13A	
Minimum required test fire rating – Class A	8A	
Compliance to clause 15.2 (yes/no)	Yes	



4.3 Fire performance – 9 litre Aqueous Vermiculite Dispersion (AVD).

Class A fire rating (BS EN 3-7, Clause 15.2)

Test No.	1A	2A
Fire size	21A	
Moisture of test fire wood: measured average (%)	13	13
Required (%)	10 to 15	
Actual ambient temperature within test room (°C)	20	21
Required temperature within test room (°C)	0 to 30	
Maximum air speed (m/s)	≤ 0.2	
Actual air speed (m/s)	< 0.2	< 0.2
Fire extinguished (yes/no)	Yes	Yes
Measured time to extinguish fire (min:s)	1:56	2:13
Required ≤ 5 min for ≤ 21A; ≤ 7 min for ≥ 27A	≤ 5	
Achieved test fire rating – Class A	21A	
Minimum required test fire rating – Class A	13A	
Compliance to clause 15.2 (yes/no)	Yes	

4.4 Nozzle details

All three model sizes were fitted with a discharge jet style nozzle that incorporated a single 3.2mm restriction orifice.

5 CONCLUSION

The Dupré Minerals Limited, Aqueous Vermiculite Dispersion (AVD) extinguishant, contained in the Jewel Saffire Products Ltd fire extinguishers detailed above, when tested in accordance with Clause 15 of BS EN 3-7:2004+A1:2007 achieved the following fire extinguishing performance ratings;

Model FFEX3, 3 litre Aqueous Vermiculite Dispersion (AVD) stored pressure fire extinguisher - 8A.

Model FFEX621, 6 litre Aqueous Vermiculite Dispersion (AVD) stored pressure fire extinguisher - 13A.

Model FFEX9, 9 litre Aqueous Vermiculite Dispersion (AVD) stored pressure fire extinguisher - 21A.

6 REFERENCE

1. Portable fire extinguishers - Part 7: Characteristics, performance requirements and test methods. BS EN 3-7:2004+A1:2007. British Standards Institution, London, 2007.

=====REPORT ENDS=====