



Fire assessment report




Combustibility of renders in accordance with AS 1530.1:1994

Sponsor: Melbourne Acrylic Coatings Victoria Pty Ltd.

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Quality management

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		Signature			

Executive summary

This report documents the findings of the assessment undertaken to determine the likely combustibility of Macrender Coarse, Sydney Coarse and Supaskin renders if tested in accordance with AS 1530.1:1994 (R2016). This assessment was carried out at the request of Melbourne Acrylic Coatings Victoria Pty Ltd.

Macrender is a polymer modified cement-based render composed of HE class Portland cement, redispersible polymer powders, graded sands and workability admixtures. It was tested in accordance with AS 1530.1:1994 (R2016) and was not deemed combustible. The Macrender Coarse, Sydney Coarse and Supaskim renders are of identical chemical composition and binder formulation, varying only in particle size of the silica sand. The Sydney Coarse render is identical in composition to the Macrender Coarse.

The analysis in section 0 of this report found that the proposed variations are likely to achieve a combustibility rating as shown in Table 1, if tested in accordance with AS 1530.1:1994 (R2016).

Table 1 Variations and assessment outcome

Product	Reference test	Variation	Combustibility
Macrender	RTF200348 R1.0	Silica particulate sizes	Not deemed combustible
Macrender Coarse			
Sydney Coarse			
Supaskim			

The variations and outcome of this assessment are subject to the limitations and requirements described in sections 2, 3 and 6 of this report. The results of this report are valid until 30 October 2025.

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1. Introduction

This report documents the findings of the assessment undertaken to determine the likely combustibility of Macrender Coarse, Sydney Coarse and Supaskin renders if tested in accordance with AS 1530.1:1994 (R2016)¹.

This assessment was carried out at the request of Melbourne Acrylic Coatings Victoria Pty Ltd.

The sponsor details are included in Table 2.

Table 2 Sponsor details

Sponsor	Address
Melbourne Acrylic Coatings Victoria Pty Ltd	196-200 Hammond Road Dandenong South VIC - 3188 Australia

2. Framework for the assessment

2.1 Assessment approach

An assessment is an opinion about the likely performance of a component or element of structure if it was subject to a standard fire test.

No specific framework, methodology, standard or guidance documents exists in Australia for doing these assessments. We have therefore followed the 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the Passive Fire Protection Forum (PFPF) in the UK in 2019².

This guide provides a framework for undertaking assessments in the absence of specific fire test results. Some areas where assessments may be offered are:

- Where a modification is made to a construction which has already been tested
- The interpolation or extrapolation of results of a series of fire resistance tests, or utilisation of a series of fire test results to evaluate a range of variables in a construction design or a product
- Where, for various reasons – eg size or configuration – it is not possible to subject a construction or a product to a fire test.

Assessments will vary from relatively simple judgements on small changes to a product or construction through to detailed and often complex engineering assessments of large or sophisticated constructions.

This assessment uses established empirical methods and our experience of fire testing similar products to extend the scope of application by determining the limits for the design based on the tested constructions and performances obtained. The assessment is an evaluation of the potential determination of combustibility if the elements were to be tested in accordance with AS 1530.1:1994 (R2016).

This assessment has been written using appropriate test evidence generated at accredited laboratories to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's stated design.

¹ Standards Australia , AS 1530.1-1994 (R2016) : Methods for fire tests on building materials, components, and structures Combustibility test for materials, Standards Australia , Sydney , NSW.

² Passive Fire Protection Forum (PFPF) 2019, Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence, Passive Fire Protection Forum (PFPF), UK.

2.2 Compliance with the National Construction Code

This assessment report has been prepared to meet the evidence of suitability requirements of the National Construction Code Volumes One and Two – Building Code of Australia (NCC) 2019 Amendment 1³ under A.5.2.(1) (d) and 2016 under specification A2.3, including amendments.

This assessment has been written in accordance with the general principles outlined in EN 15725:2010⁴ for extended application reports on the fire performance of construction products and building elements. It also references test evidence for meeting a performance requirement or deemed to satisfy (DTS) provisions of the NCC for determination of combustibility as applicable to the assessed elements.

2.3 Declaration

The 'Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence' prepared by the PFPF in the UK requires a declaration from the client. By accepting our fee proposal on 12 October 2020, Melbourne Acrylic Coatings Victoria Pty Ltd. confirmed that:

- To their knowledge the component or element of structure, which is the subject of this assessment, has not been subjected to a fire test to the standard against which this assessment is being made.
- They agree to withdraw this assessment from circulation if the component or element of structure is the subject of a fire test by a test authority in accordance with the standard against which this assessment is being made and the results are not in agreement with this assessment.
- They are not aware of any information that could adversely affect the conclusions of this assessment and – if they subsequently become aware of any such information – they agree to ask the assessing authority to withdraw the assessment.

3. Limitations of this assessment

- The scope of this report is limited to an assessment of the variations to the tested systems described in section 4.3.
- This report details the methods of construction, test conditions and assessed results that are expected if the system were tested in accordance with AS 1530.1:1994 (R2016).
- This report is only valid for the assessed system/s for this project and must not be used for any other purpose. Any changes with respect to size, construction details, loads, stresses, edge or end conditions – other than those identified in this report – may invalidate the findings of this assessment. If there are changes to the system, a reassessment will need to be done by an Accredited Testing Laboratory (ATL).
- This report has been prepared based on information provided by others. Warringtonfire has not verified the accuracy and/or completeness of that information and will not be responsible for any errors or omissions that may be incorporated into this report as a result.
- This assessment is based on the proposed systems being constructed under comprehensive quality control practices and following appropriate industry regulations and Australian Standards on quality of materials, design of structures, guidance on workmanship and the expert handling, placing and finishing of the products on site. These variables are beyond the control and consideration of this report.

³ National Construction Code Volume One – Building Code of Australia 2019 Amendment 1, Australian Building Codes Board, Australia.

⁴ European Committee for Standardization, EN 15725:2010: Extended application reports on the fire performance of construction products and building elements, European Committee for Standardization, Brussels, Belgium.

4. Description of the specimen and variations

4.1 System description

Macrender is a polymer modified cement-based render composed of HE class Portland cement, redispersible polymer powders, graded sands and workability admixtures. The Macrender Coarse, Sydney Coarse and Supaskim renders are of identical chemical composition and binder formulation, varying only in particle size of the silica sand. The Sydney Coarse render is identical in composition to the Macrender Coarse.

4.2 Referenced test data

The assessment of the variation to the tested system and the determination of the likely performance is based on the results of the fire test documented in the report summarised in Table 3. Further details of the tested system are included in Appendix A.

Table 3 Referenced test data

Report number	Test sponsor	Test date	Testing authority
RTF200348 R1.0	Melbourne Acrylic Coatings Victoria Pty Ltd	02 October 2020 and 08 October 2020	Warringtonfire

4.3 Variations to the tested system

An identical product has not been subject to a standard fire test. We have therefore assessed the product using baseline test information for similar products. The variations to the tested system – together with the referenced standard fire tests – are described in Table 4.

Table 4 Variation to tested system

Item number	Reference test	Description	Variations
System A	RTF200348 R1.0	Combustibility test on Macrender	Particulate size of silica

4.4 Purpose of the test

AS 1530.1:1994 (R2016) has been developed for use by those responsible for the selection of construction products which, whilst not completely inert, produce only a very limited amount of heat and flame when exposed to temperatures of approximately 750°C.

5. Assessment 1 – [System A]

5.1 Description of variation

Macrender is a polymer modified cement-based render composed of HE class Portland cement, redispersible polymer powders, graded sands and workability admixtures. It was tested in accordance with AS 1530.1:1994 (R2016) and was not deemed combustible.

The Macrender Coarse, Sydney Coarse and Supaskim renders are of identical chemical composition and binder formulation, varying only in particle size of the silica sand. The Sydney Coarse render is identical in composition to the Macrender Coarse.

This assessment was done to determine the likely performance of the Macrender Coarse, Sydney Coarse and Supaskim renders based on testing conducted on Macrender.

5.2 Methodology

The method of assessment used is summarised in Table 5.

Table 5 Method of assessment

Assessment method	
Level of complexity	Simple assessment – changes to particulate size
Type of assessment	Qualitative

5.3 Assessment

As mentioned earlier, Macrender is a polymer modified cement-based render composed of HE class Portland cement, redispersible polymer powders, graded sands (silica) and workability admixtures. It was tested in accordance with AS 1530.1:1994 (R2016) and was not deemed combustible. The Macrender Coarse, Sydney Coarse and Supaskim renders are of identical chemical composition and binder formulation, varying only in particle size of the silica sand – see Table 6 for more information. The Sydney Coarse render is identical in composition and particulate size to the Macrender Coarse.

Table 6 Product details

Product name	Ratio of silica to other materials	Silica particle size of 400-600 µm	Silica particle size of 500-1200 µm
Macrender	Identical (details withheld on file)	50%	50%
Macrender Coarse and Sydney Coarse		-	100%
Supaskim		100%	-

The combustibility of a material is determined by a multitude of factors including type (calorific value) of fuel, fuel load, fuel size (area), oxygen content in the flame, wind speed and ventilation. Silica (glass) is a chemically inert material which retains chemical and physical stability at high temperatures and heat flux. Resistance to ignition is determined by the amount of silica particles, not its size. Increasing the silica content reduces the amount of polymeric content, and therefore less combustible material is available to produce flammable volatiles needed for ignition.

The mass percentage of the silica particles (i.e. ratio of silica to other components), despite varying in size, is identical for all products. There is no evidence of particle sizes affecting combustibility of a material. The combustibility performance of the Macrender Coarse, Sydney Coarse and Supaskim renders is therefore expected to be identical to that of the Macrender when tested in accordance with AS 1530.1:1994 (R2016)

5.4 Conclusion

This assessment demonstrates that the Macreuder Coarse, Sydney Coarse and Supaskim renders are likely not deemed combustible if they were tested in accordance with AS 1530.1:1994 (R2016)

6. Validity

Warringtonfire Australia does not endorse the tested or assessed product in any way. The conclusions of this assessment may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all conditions.

Due to the nature of fire testing and the consequent difficulty in quantifying the uncertainty of measurement, it is not possible to provide a stated degree of accuracy. The inherent variability in test procedures, materials and methods of construction, and installation may lead to variations in performance between elements of similar construction.

This assessment is based on information and experience available at the time of preparation. The published procedures for the conduct of tests and the assessment of test results are subject to constant review and improvement. It is therefore recommended that this report be reviewed on, or before, the stated expiry date.

This assessment represents our opinion about the performance likely to be demonstrated on a test in accordance with AS 1530.1:1994 (R2016), based on the evidence referred to in this report.

This assessment is provided to Melbourne Acrylic Coatings Victoria Pty Ltd. for their own purposes and we cannot express an opinion on whether it will be accepted by building certifiers or any other third parties for any purpose.

Appendix A Summary of supporting test data

A.1 Test report – RTF200348 R1.0

Table 7 Information about test report

Item	Information about test report
Report sponsor	Melbourne Acrylic Coatings Victoria Pty Ltd
Test laboratory	Warringtonfire Australia, Unit 2, 409-411 Hammond Road, Dandenong, Victoria 3175, Australia.
Test date	The combustibility test was conducted on 02 October and 08 October 2020.
Test standards	The test was done in accordance with AS 1530.1:1994 (R2016).
Variation to test standards	<ol style="list-style-type: none"> 1. During the tests, the thermocouples did not reach equilibrium. The tests were ended after 3600 seconds as described in section 7.4.7 of ISO 1182:2010. 2. A suitable alternative insulating material was used to fill the annular space between the furnace tubes, as specified in clause 4.2 of ISO 1182:2010.
Product	Macrender
General description of tested specimen	The material was composed of HE class portland cement, redispersible polymer powders, graded sands and workability admixtures.
Instrumentation	The test report states that the instrumentation was in accordance with AS 1530.1:1994 (R2016).

The material is not deemed combustible according to the test criteria for combustibility specified in clause 3.4 of AS 1530.1:1994 (R2016). A comparison between the failure criteria and the corresponding results determined from testing is presented in Table 8.

Table 8 Results summary for this test report

Combustibility Performance Criteria	Measured value	Unit	Result
Mean duration of sustained flaming > 0 s	0	s	Pass
Mean furnace thermocouple temperature rise $\Delta T_f > 50$ °C	1.8	°C	Pass
Mean specimen surface thermocouple temperature rise $\Delta T_s > 50$ °C	0.4	°C	Pass

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