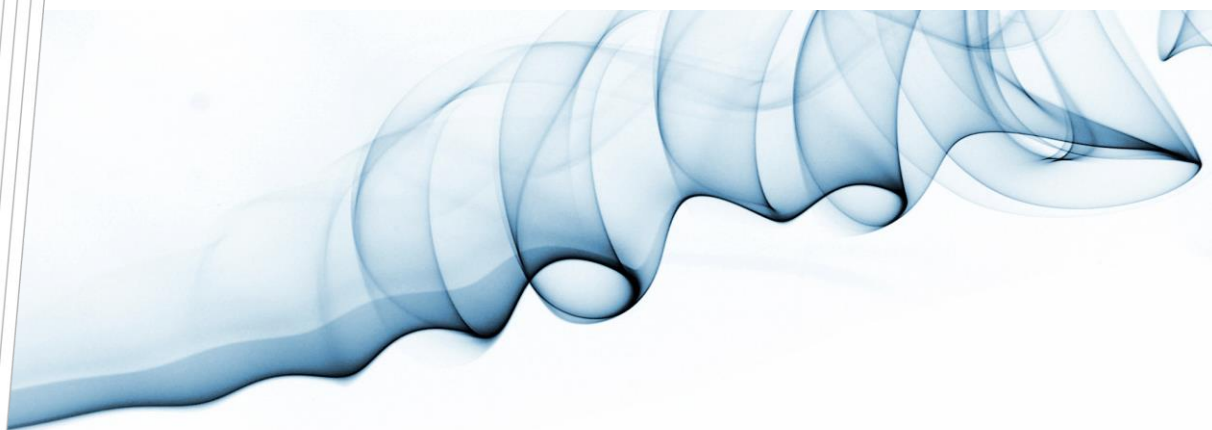




Thermal transmission properties of High density mineral fibre insulation

Commercial-in-Confidence



www.csiro.au

Prepared for: Fireproof Cladding Facades Pty Ltd
2/1 Laser Drive
Rowville VIC 3178

Agreement: 20170113 Cat 5
Report: XC3395/R1a
Issue date: 2-Mar-2017



Test Report XC3395/R1a

Thermal transmission properties of high density mineral fibre insulation

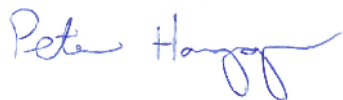
Prepared on behalf of CSIRO by

Name Mr Peter Haggar

Position Senior Materials Scientist – Fire Systems and Thermal

Date 2-Mar-2017

Signature



Authorised signatory

Name Mr Robin Clarke

Position Senior Experimental Scientist

Date 2-Mar-2017

Signature



Commonwealth Scientific and Industrial Research Organisation
Services
Infrastructure Technologies
Materials Performance

Gate 5, 2 Normanby Road
(East Reception, Rivett Building 001)
CLAYTON, VIC
AUSTRALIA, 3168

Ph.: +61 (0)3 9545 2777
Web: <http://www.csiro.au>
Fax: +61 (0)3 9544 1128



Laboratory No. 165

Corporate Site 549

Accredited for compliance to ISO/IEC 17025 - Testing

Copyright and Disclaimer

To the extent permitted by law, all rights are reserved and no part of this publication covered by copyright may be reproduced or copied in any form or by any means except with the written permission of CSIRO.

CSIRO reports apply only to the specific samples investigated under the stated criteria and conditions. It is the client's responsibility to assure that production units of the products are of identical manufacture. CSIRO shall have no liability for deductions, inferences or generalisations drawn by the client or others from reports issued by CSIRO. This report shall not be used to claim, constitute or imply product endorsement by CSIRO

Client

Fireproof Cladding Facades Pty Ltd

Summary

This is a report of measurements performed in a CSIRO laboratory at Clayton North to determine the thermal properties of high density mineral fibre insulation.

The measurements have been performed using a heat flow meter apparatus and are in general accordance with **ASTM C 518 Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus**.

This is one of the allowable test methods for the measurement of formed shape (panel or sheet) material for compliance with **AS/NZS 4859.1 Materials for the Thermal Insulation of Buildings Part 1: General criteria and technical provisions**. Building authorities generally require that testing laboratories are formally accredited by the National Association of Testing Laboratories (NATA) for such measurements. Our laboratory has this accreditation.

Table 1 below summarizes results. It is provided for convenience and is not intended to be used as a certificate or in isolation without the full details. These are given on the listed page and may describe special provisions or limitations that apply.

Table 1. Measurement results

Page	Specimen	Customer ID	Measurement number	Thickness (mm)	Mean Temperature (°C)	Thermal Resistance (m ² .K/W)	Apparent Thermal Conductivity (W/m.K)
6	170113a	Rockbatts™	FX6-0854	88.5	23.0	2.505	0.0351

1 LAB MEASUREMENTS

1.1 Specimen Description and Identification

This report relates to specimens of high density fibre insulation supplied by Fireproof Cladding Facades Pty Ltd. This report does not extend to any modification of the specified sample. This report cannot be applied to another product of similar nature by analogy. The report replaces test report XC3395/R1, and contains minor typographical corrections.

Fireproof Cladding Facades submitted one (1) specimen which was given laboratory identification 170113a. The test specimen, as submitted, was cut from stock and excluded product markings.

After the completion of testing, the supplier provided product identification “*Rockbatts™*” for the submitted test specimen.

The specimen was approximately 88 mm thick and 600 mm square.

1.2 Apparatus

The measurements were performed using a Fox 600 heat flow meter apparatus, incorporating two 254mm square heat flow meters.

Calibration checks traceable to IRMM and NIST Standard reference materials have been performed within 30 days of the reported measurements.

1.3 Specimen Preparation and Measurement Details

The test specimen was weighed as supplied before being dried for 24 hours at 50°C and then re-weighed. It was then conditioned at 23°C for a further 24 hours prior to the thermal properties measurement.

Thickness was measured at 16 locations on a grid across the test specimen and the average value was taken as the mean thickness.

The specimen fitted into the formed shape classification of AS/NZS 4859.1 because of minimal thickness variation and it could not be compressed by 10% under a compressive load of 2.1 kPa (the load applied by the fox 600 test apparatus).

The heat flow direction was downwards, with the cold plate at the bottom. Monitoring was continued until heat flow through the test sample had stabilized. (Approximately 2 hours.)

2 MEASUREMENTS

Specimen lab ID	170113a
Customer ID	Rockbatts™
Measurement No	FX6-0854
Date of measurement	25 January 2017
Ambient temperature	23 °C
Mean thickness (average of 16 measurements)	88.5 mm
Mean thickness standard deviation	0.5 mm
Length x width	603 mm x 599 mm
Weight (as submitted)	2.725 kg
Weight (after drying)	2.718 kg
Weight (as tested)	2.724 kg
Apparent density (as tested)	85.2 kg/m ³
Moisture content (when tested)	0.2 %
Plate spacing	88.5 mm
Hot surface temperature	33.0 °C
Cold surface temperature	13.0 °C
Temperature difference	20.0 K
Specimen mean temperature	23.0 °C
Mean heat flow	7.97 W/m ²
Mean thermal conductance	0.399 W/m ² .K ± 3 %
Apparent thermal conductivity	0.0353 W/m.K ± 4 %
Mean thermal resistance (R value)	2.505 m ² .K/W ± 3 %

The reported measurement uncertainty is for a 95% confidence interval with a coverage factor of k=2.