Mines Rescue Pty Limited
Mine Safety Laboratory
8 Hartley Drive
Thornton NSW 2322
minesafetylab@coalservices.com.au
ABN 15 099 078 261

Mine Safety Laboratory

Brad Degnian
JSIS Engineering Pty. Ltd.
22 – 26 McCulloch Street
NORTH MACKAY QLD. 4740

15 July 2022

NATA
WORLD RECOGNISED ACCREDITATION
Accredited for compliance with ISO/IEC 17025 - Testing
Accreditation No. 21084

TEST REPORT No.: 22-0069/02

Report Version: 1

Figs. 1a & 1b – Sample material and identification

Company:	Ltd. JSIS Engineering Pty. Ltd.
Sample Description:	*85A Duro/MOCA/FRAS* polyurethane
Intended Use:	Ventilating Sheet [refer *MDG3608* - Section 4.2]
Sample No.:	22-0069/02

SUMMARY

The material **complied** with the Fire Resistance requirements of *MDG3608*, 4.2.1.1 (1kW Burner Test).

The material **complied** with the Electrical Resistance requirements of *MDG3608*, 4.2.2.

The Oxygen Index of the material was determined as specified by *MDG3608*, 4.2.4.

Analysed by: Checked by:

Authorised by:

G. Browning
Laboratory Manager
Mine Safety Laboratory

Endorsed tests indicated by logo on test page

Clause 4.1.2 of MDG3608 states that all ventilation products and accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply or manufacturing process occurs, and if aware that supplied product is not compliant to MDG3608.

FIRE RESISTANCE – 1kW Burner Flame Test

Sample: *85A Duro/MOCA/FRAS* polyurethane

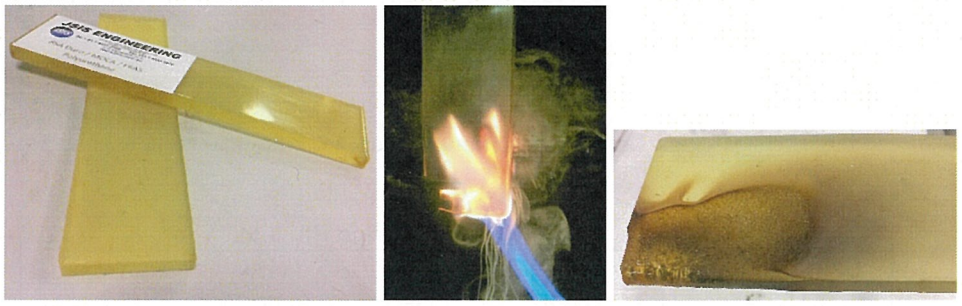
Test Date: 15 July 2022

Method of Analysis: *MDG3608*, Appendix C2.1 – *One Kilowatt Burner Flame Test*
(– adapted from *NCB Specification 245:1985, Appendix 2 – Spirit Burner Flame Test* procedure)

Results:

TABLE 1

Test	Persistence of Flame (s)	Persistence of After Glow (s)
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
Mean:	**0 s**	**0 s**



Figs. 2a – 2c: Test pieces before, during and after testing

Note:
- Sample sizes: approx. 318.5 mm x 75.5 mm x 10.5 mm.
- 20 s flame duration.
- Samples did not shrivel out of contact with ignition source during flame application.

Any variation from Standard/Test Method:
A 1kW burner conforming to the requirements of *IEC60695-11-2* was used; received sample sizes.

Requirements:
The material shall fail the test if any of the following occur:
a) If at any time:
(i) a flame on two or more test pieces extends above the marker, or
(ii) a glow on two or more test pieces extends above the marker.

b) If after the burner flame has been removed:
(i) the mean persistence time of the flame of the six test pieces exceeds 3 seconds, or the persistence time of the flame on any test piece exceeds 10 seconds, or
(ii) the mean persistence time of the glow of the six test pieces exceeds 10 seconds, or if the persistence time of the glow on any test piece exceeds 30 seconds.

Sample Status:
The material complied with the Fire Resistance requirements of *MDG3608*, 4.2.1.1.

Clause 4.1.2 of MDG3608 states that all ventilation products and accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply or manufacturing process occurs, and if aware that supplied product is not compliant to MDG3608.

ELECTRICAL RESISTANCE
Electrical Resistance of Flat Surfaces Test, Appendix C5

Sample:
85A Duro/MOCA/FRAS polyurethane

Test Date:
8 July 2022

Method of Analysis:
MDG3608, Clause C5 – *Electrical Resistance of Flat Surfaces Test* [– adapted from *NCB Specification 245:1985, Appendix 5 - Electrical Resistance of Flat Surfaces Test.*]

Results:

TABLE 2

Test Piece	Electrical Resistance (MΩ)	
	Upper Surface	Lower Surface
1	123	127
2	157	163
Mean	**140 MΩ**	**145 MΩ**

Notes:
a) Samples conditioned at 22°C with 50% relative humidity for >2 hours in an unrestrained state.
b) Samples tested at ambient temperature of 22°C with 50% relative humidity.
c) Approx. sample sizes - #1: 319 mm x 318 mm; #2: 317 mm x 318 mm
d) No conductivity solution was applied between the electrodes and the sample material.

Any variation from Standard/Test Method:
Samples conditioned and tested in atmospheres having relative humidity not (65 ± 5)%.

Requirements:
The average value of the electrical resistance on both the upper and lower surfaces of the sheeting shall not be greater than 300 MΩ (300 x 10^6 ohms), and shall remain so in use.

Sample Status:
The material complied with the Electrical Resistance requirements of *MDG3608*, 4.2.2.1.

The material **complied** with the Electrical Resistance requirements of *MDG3608*, 4.2.2.

Clause 4.1.2 of MDG3608 states that all ventilation products and accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply or manufacturing process occurs, and if aware that supplied product is not compliant to MDG3608.

OXYGEN INDEX

Sample:
85A Duro/MOCA/FRAS polyurethane

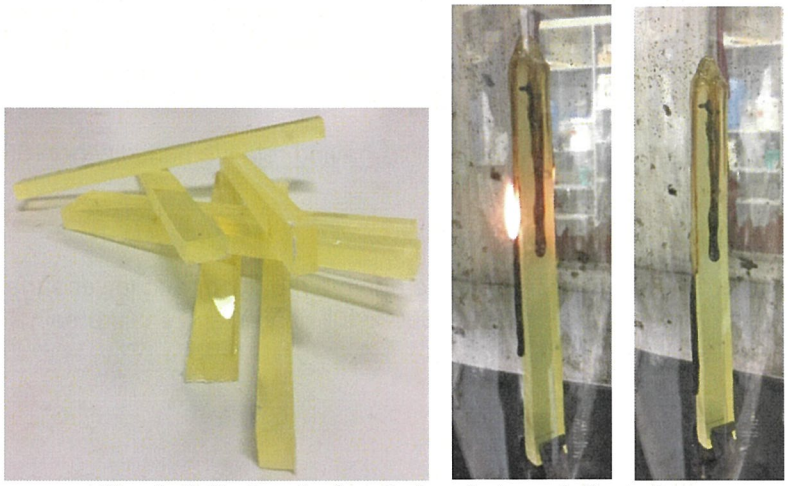
Test Date:
13 July 2022

Method of Analysis:
ISO 4589-2:1996(E) Determination of Burning Behaviour by Oxygen Index – Part 2 Ambient-temperature test.

Results:

	% O_2
Oxygen Index	37.2

Notes:
a) Oxygen concentrations are percentage by volume.
b) Top surface ignition [*ISO4589-2:1996* ignition 'Procedure A'].
c) The estimated standard deviation of the Oxygen Index concentration measurements is 0.15.
d) The material exhibited flaming combustion, with the Oxygen Index being determined by the extent of the propagation of flaming along the sample length.
e) Sample size: approx. 8 mm x 13 mm x 150 mm.
f) The result relates only to the behaviour of the test specimens under the conditions of the test and these results shall not be used to infer the fire hazards of the materials in other or under other fire conditions.
g) Tested in ambient 22°C, 50% relative humidity.
h) Samples conditioned at 22°C and 50% relative humidity for > 88 hours.



Figs. 3a & 3b: Sample pieces before, during and after testing

Any variation from Standard/Test Method:
Sample pieces tested with as-received sizing (- sized with reference to *AS4606:2012*).

Sample Status:
The Oxygen Index of the material was determined as specified by *MDG3608*, 4.2.4.

Clause 4.1.2 of MDG3608 states that all ventilation products and accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply or manufacturing process occurs, and if aware that supplied product is not compliant to MDG3608.