

Peter Rossi  
Rebain International (Aust) Pty. Ltd.  
53 – 55 Rodeo Drive  
DANDENONG SOUTH VIC. 3175

7<sup>th</sup> of August, 2017

**M.S.T.C. TEST REPORT T17-00501/0001**  
**Replacement for Report No. T17-00475/0001 issued on 1/08/2017**

|                     |  |   |
|---------------------|--|---|
| Company:            | Rebain International (Aust) Pty. Ltd.                            |   |
| Sample Description: | IMUTHANE 22-95A – ORANGE PIGMENT - POLYMAC – orange polyurethane |   |
| Intended Use:       | Minor Conveyor Accessories                                       | [Refer to requirements of MDG3608, Section 3.3] |
| Sample No.:         | T17-00475/0001   |   |



**SUMMARY**

The material **complied** with the Ignitability and Flame Propagation Characteristics (Finger Burn Test) requirements of *MDG3608*, Clause 3.3.1.1.

The material **complied** with the Oxygen Index requirements of *MDG3608*, 3.3.1.2.

14 mm thick material samples **complied** with the Electrical Resistivity requirements of *MDG3608*, 3.3.1.3.

Analysed by: A.Thompson  
C.Teasdale

Checked by: *J. Sanders*

Authorised by:

*G. Slater*

G. Slater  
Manager, Mine Safety Technology Centre



**WORLD RECOGNISED  
ACCREDITATION**  
Accredited for compliance  
with ISO/IEC 17025  
Accreditation No. 2325

Endorsed tests indicated by logo on test page

Clause 3.1.2 of *MDG3608* states that all conveyor belting (Grade S) and conveyor accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply, manufacturing process or manufacturing location occurs.

## IGNITION & FLAME PROPAGATION CHARACTERISTICS (Finger Burn test)

**Sample:**

IMUTHANE 22-95A – ORANGE PIGMENT - POLYMAC – orange polyurethane

**Test Date:**

27<sup>th</sup> of July, 2017

**Results:**

| Test        | Persistence of Flame (s) | Persistence of After Glow (s) | Extent of Melting (mm) |
|-------------|--------------------------|-------------------------------|------------------------|
| 1           | 2                        | 0                             | 46                     |
| 2           | 8                        | 0                             | 44                     |
| 3           | 0                        | 0                             | 43                     |
| 4           | 15                       | 0                             | 45                     |
| 5           | 8                        | 0                             | 42                     |
| 6           | 0                        | 0                             | 48                     |
| 7           | 12                       | 0                             | 44                     |
| 8           | 18                       | 0                             | 49                     |
| 9           | 1                        | 0                             | 56                     |
| 10          | 4                        | 0                             | 46                     |
| <b>Mean</b> | <b>7 s</b>               | <b>0 s</b>                    | <b>46 mm</b>           |

**Notes:**

- These test results on their own do not indicate the fire hazard of the material or product under actual fire conditions and consequently should not be applied to the assessment of fire hazard without taking into account supportive information.
- Mean bunsen flame temperature: approx. 961°C.
- Sample dimensions: approx. 15 mm x 15 mm x 154 mm.



**Method of Analysis:**

AS 1334.10-1994: *Methods of testing conveyor and elevator belting – Method 10: Determination of ignitability and flame propagation characteristics of conveyor belting.*

**Any variation from Standard/Test Method:**

Sample sizes as received.

**Requirements:**

When tested in accordance with AS 1334.10-1994:

- the average duration of the visible flame shall not exceed 30 s and the average duration of the visible after glow shall not exceed 120 s for 'Minor Conveyor Accessories' materials.
- the visible flame duration of any test piece shall not exceed 45s and the visible afterglow duration of any test piece shall not exceed 180 s for materials used as 'Minor Conveyor Accessories'.

**Sample Status:**

The material **complied** with the requirements for Ignitability and Flame Propagation Characteristics (Finger Burn test) of MDG3608, 3.3.1.1 for 'Minor Conveyor Accessories'

Clause 3.1.2 of MDG3608 states that all conveyor belting (Grade S) and conveyor accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply, manufacturing process or manufacturing location occurs.

## OXYGEN INDEX

**Sample:**

IMUTHANE 22-95A – ORANGE PIGMENT - POLYMAC – orange polyurethane

**Test Date:**

31<sup>st</sup> of July, 2017

**Results:**

|              | % O <sub>2</sub> |
|--------------|------------------|
| Oxygen Index | 29.3             |

**Notes:**

- Oxygen concentrations are percentage by volume.
- Top surface ignition [ISO4589-2:1996 ignition 'Procedure A'].
- The estimated standard deviation of the Oxygen Index concentration measurements is 0.11.
- The material exhibited flaming combustion, with the Oxygen Index being determined by the propagation of flaming material along the length of sample.
- Sample size: approx. 14 mm x 15 mm x 154 mm.



- The result relate 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.
- Tested in ambient 23°C, 52% relative humidity.
- Samples conditioned at 23°C and 50% relative humidity for > 88 hours.

**Method of Analysis:**

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

**Any variation from Standard/Test Method:**

Sample sizes as described.

**Requirements:**

- The calculated oxygen index shall not be less than 28%
- When the material is re-tested at a later stage, the result shall be within  $\pm 3$  points of that originally obtained, but in no case shall be less than 28%.

**Sample Status:**

The material **complied** with the Oxygen Index requirements of MDG3608, 3.3.1.2.



Clause 3.1.2 of MDG3608 states that all conveyor belting (Grade S) and conveyor accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply, manufacturing process or manufacturing location occurs.

## ELECTRICAL RESISTIVITY Surface Resistance

**Sample:**

IMUTHANE 22-95A – ORANGE PIGMENT - POLYMAC – orange polyurethane

**Test Date:**

31<sup>st</sup> of July, 2017

**Results:**

| Test Piece  | Electrical Resistance (MΩ) |               |
|-------------|----------------------------|---------------|
|             | Upper Surface              | Lower Surface |
| 1           | 42                         | 30            |
| 2           | 38                         | 34            |
| <b>Mean</b> | <b>40 MΩ</b>               | <b>32 MΩ</b>  |

**Notes:**

- Conditioned (for > 2 hours) at 23°C and 50% relative humidity.
- Tested in atmosphere of 23°C with 58% relative humidity.
- Conductivity solution applied between electrodes and sample surface (- just between central cylindrical electrode and surface for 'upper' surface measurements).
- Sample sizes: #1 approx. 297 mm x 294 mm; #2 approx. 300 mm x 296 mm.



**Method of Analysis:**

AS 1334.9-1982 (Determination of electrical resistance of conveyor belting).

**Any variation from Standard/Test Method:**

Sample sizes.

**Requirements:**

The mean value for the Electrical Resistance on both upper and lower surfaces of the material shall not be greater than 300 MΩ (300 x 10<sup>6</sup> ohms).

**Sample Status:**

The material **complied** with the requirements for surface Electrical Resistivity of MDG3608, 3.3.1.3.

## ELECTRICAL RESISTIVITY Through Resistance

**Sample:**

IMUTHANE 22-95A – ORANGE PIGMENT - POLYMAC – orange polyurethane  
Approx. 14 mm thick sample pieces

**Test Date:**

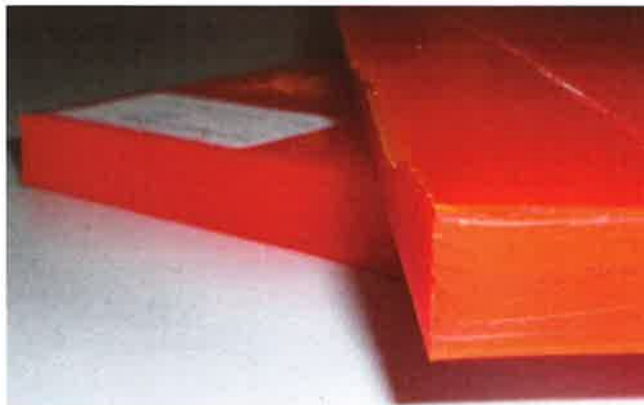
1<sup>st</sup> of August, 2017

**Results:**

| Test Piece  | 'Through' Electrical Resistance (MΩ) |
|-------------|--------------------------------------|
| 1           | 48                                   |
| 2           | 39                                   |
| <b>Mean</b> | <b>44 MΩ</b>                         |

**Notes:**

- Conditioned at  $(23 \pm 2)^{\circ}\text{C}$  and  $(50 \pm 5)\%$  relative humidity for > 16 hours.
- Tested at ambient temperature of  $23^{\circ}\text{C}$  with 53% relative humidity.
- Electrodes had approx. 14 mm separation through sample.
- No conductivity solution was applied between electrodes and samples surfaces.
- Resistance readings taken  $(5 \pm 1)$  s after application of voltage between electrodes.



**Method of Analysis:**

ISO 2878:2011 (Rubber, vulcanized or thermoplastic - Antistatic and conductive products – Determination of electrical resistance), Clause 8.2

**Any variation from Standard/Test Method:**

Clause 8.2 ('Test Between Two Surfaces') performed only.

**Requirements:**

Where the normal electrical discharge path is between two surfaces, the average of two resistance measurements shall not exceed 300 MΩ (300 megohm;  $300 \times 10^6$  ohms) for 'Minor Conveyor Accessories'.

**Sample Status:**

14 mm thick material samples **complied** with the Electrical Resistivity requirements for through resistance of MDG3608, 3.3.1.3.

Clause 3.1.2 of MDG3608 states that all conveyor belting (Grade S) and conveyor accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply, manufacturing process or manufacturing location occurs.