



Test report

1. Document Control

| | | | |
|--------------|-----------------------------------|----------------|----------------|
| Company Name | United Products Australia Pty Ltd | Address | 72-76 Ryrie St |
| Client Name | Stephen Royce | Suburb | Geelong |
| E-mail | stephen@united-products.co | State/Province | Victoria |
| Phone | | Postal Code | 3220 |
| ABN | 44 612 722 406 | Country/Region | Australia |

Report Number: UPA-17-1-REP-3558-1

Document prepared by:  Terry Nguyen BEng (Mech) PROVE Authorised Signatory Date: 14/11/2017

Document reviewed by:  Frank Lapozzuto BEng (Mech) PROVE Authorised Signatory Date: 14/11/2017

| Issue Date | Release Number | Description |
|------------|----------------|---------------|
| 14/11/2017 | 1 | Initial issue |

2. General

| | |
|------------------------|-----------------------------------|
| Test Item: | Samples of solid surface material |
| Standard tested to: | AS 3558 Test Methods, 2,3,4,5,19 |
| Sample(s) selected by: | United Products Australia |
| Mode of delivery: | Hand delivered (Stephen Royce) |
| Date Received: | 08/11/2017 |



NATA Accredited Laboratory, Accreditation no: 18640
Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests and/or measurements included in this document are traceable to Australian/national standards

This test report shall not be reproduced except in full, without the written approval of the laboratory

3. Referenced documents

The following documents have been referenced for testing and reporting.

| Standard | Standard Name |
|-------------------|---|
| ATS 5200.469:2005 | Technical Specification for plumbing and drainage products Part 469: Waterless or limited flush urinals—With an integral sealing device |
| AS 3558.2:1999 | Methods of testing plastics and composite materials sanitary plumbing fixtures Method 2: Determination of chemical and stain resistance |
| AS 3558.3:1999 | Methods of testing plastics and composite materials sanitary plumbing fixtures Method 3: Determination of colour fastness |
| AS 3558.4:1999 | Methods of testing plastics and composite materials sanitary plumbing fixtures Method 4: Determination of resistance to surface scratching |
| AS 3558.5:1999 | Methods of testing plastics and composite materials sanitary plumbing fixtures Method 5: Determination of degradation by ultraviolet light |
| AS 3558.19:1999 | Methods of testing plastics and composite materials sanitary plumbing fixtures Method 19: Determination of impact resistance of sinks |



4. Specimens Description

| Sample ID | Sample description |
|----------------------------------|---|
| Samples A,B,C,D,E,F,G,H, I, J | Solid surface samples used as material in bathroom products 80mm x 80mm pieces Thickness: 10mm (approximately) Colour: white Material: composite |



Figure 4.1 – Solid surface 80mm x 80mm samples

All results of testing in this report relate only to the items tested, and listed above.



| | |
|---|--|
|   | NATA Accredited Laboratory, Accreditation no: 18640 Accredited for compliance with ISO/IEC 17025 - Testing |
| | The results of the tests and/or measurements included in this document are traceable to Australian/national standards This test report shall not be reproduced except in full, without the written approval of the laboratory |

5. Performance Requirements – AS 3558 Test Methods

| Test Reference Standard: | Clause 5.2.2.3 of ATS 5200.469:2005 – Chemical and stain resistance test | | |
|--------------------------|--|---|---|
| Test Method Standard: | AS 3558.2:1999 | | |
| Date of Test: | 13/11/2017 – 14/11/2017 | | |
| Test Officer: | Terry Nguyen | | |
| Sample ID | Requirement | Result | Conformity to Clause 5.2.2.3 of ATS 5200.469:2005 |
| Samples F, G | <p>When sample specimens are tested in accordance with AS 3558.2, the material shall be unaffected by the following reagents:</p> <p>(a) Household detergent 'Teepol' Gold D6515 (5% solution/deionized water) or equivalent.</p> <p>(b) Urea 6% (urine), analar grade</p> <p>Samples are tested for a period of 16, +2, -0 hours and assessed for any for damage or colour change. Samples were supplied already cut from client.</p> <p>Samples shall be unaffected except for stains that can be removed.</p> | Samples were unaffected by the chemicals following the exposure period. | Conforms |

| Results of Chemical Resistance Test | | | | |
|-------------------------------------|----|--|------------------------|-------------|
| Sample | ID | Reagent description | Result | Pass / Fail |
| Sample G | g | Shell "Dobatex" Gold D6515* (5% solution/deionized water). | Unaffected – No change | PASS |
| Sample F | p | Urea 6% (urine), analar grade | Unaffected – No change | PASS |

*Teepol Gold has been re-named and is now commercially known as Shell Dobatex Gold

| | |
|---|---|
|   | <p>NATA Accredited Laboratory, Accreditation no: 18640 Accredited for compliance with ISO/IEC 17025 - Testing</p> |
| | <p>The results of the tests and/or measurements included in this document are traceable to Australian/national standards</p> <p>This test report shall not be reproduced except in full, without the written approval of the laboratory</p> |

| | |
|--------------------------|---|
| Test Reference Standard: | Clause 5.2.2.4 of ATS 5200.469:2005 – Colourfastness test |
| Test Method Standard: | AS 3558.3:1999 |
| Date of Test: | 10/11/2017 – 12/11/2017 |
| Test Officer: | Terry Nguyen |

| Sample ID | Requirement | Result | Conformity to Clause 5.2.2.4 of ATS 5200.469:2005 |
|--------------|--|---|---|
| Samples A, B | <p>When a sample specimen is tested in accordance with AS 3558.3 the material shall not craze, crack or exhibit signs of any defect and change in colour shall not resister less than grey scale of ISO 105.AO2</p> <p>Sample A was used as the reference sample</p> <p>Sample B was submitted to 48 hours at 90±2°C whilst submerged in distilled water.</p> <p>At the conclusion of the exposure period, the test sample is allowed to cool and compared against the reference sample kept in a lightfast container.</p> | <p>Sample showed no signs of crazing, cracking or defects.</p> <p>Sample registered a colour change of approximately 4/5 on the grey scale of ISO 105.AO2</p> <p>(See Figure 5.1 below)</p> | Conforms* |

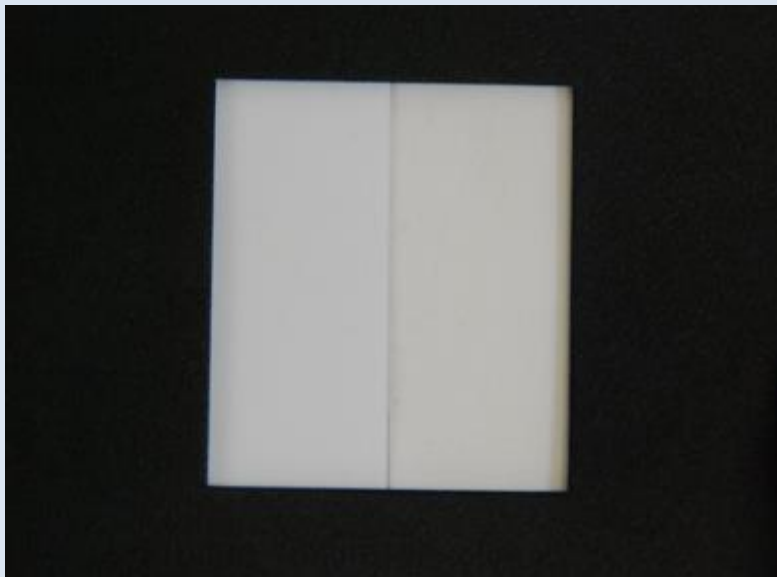






Figure 5.1 – Colour change following 48 hours exposure (control sample on left, tested sample on right)

*Note: Standard does not specify the minimum amount permissible on a grey scale, however a score of 4 or greater is considered acceptable under many similar standards for products such as, baths, sinks, and basins etc. where the same test method is also applied identically for plastic/composite materials.

| | |
|---|--|
|   | NATA Accredited Laboratory, Accreditation no: 18640 Accredited for compliance with ISO/IEC 17025 - Testing |
| | The results of the tests and/or measurements included in this document are traceable to Australian/national standards This test report shall not be reproduced except in full, without the written approval of the laboratory |

| Test Reference Standard: | Clause 5.2.2.5 of ATS 5200.469:2005 – Surface scratching test | | |
|--------------------------|--|---|---|
| Test Method Standard: | AS 3558.4:1999 | | |
| Date of Test: | 13/11/2017 | | |
| Test Officer: | Terry Nguyen | | |
| Sample ID | Requirement | Result | Conformity to Clause 5.2.2.5 of ATS 5200.469:2005 |
| Sample E | <p>When a sample specimen is tested in accordance with AS 3558.4 using a 2H lead there shall be no indentation or scratching deeper than 0.15 mm. Removable scratches as defined in AS 3558.4 are acceptable.</p> <p>A 2 ±0.1mm lead pencil is prepared with a fresh edge with 6mm length protruding. The holder is positioned 45° from the surface and a downward force is applied to either scratch the surface or cause the tip to break.</p> | No scratching observed after 4 attempts. Lead broke before any scratching was observed. | Conforms |

| Test Reference Standard: | Clause 5.2.2.6 of ATS 5200.469:2005 – Impact test | | |
|--------------------------|---|---|---|
| Test Method Standard: | AS 3558.5:1999 | | |
| Date of Test: | 13/11/2017 | | |
| Test Officer: | Terry Nguyen | | |
| Sample ID | Requirement | Result | Conformity to Clause 5.2.2.6 of ATS 5200.469:2005 |
| Samples C, D | <p>When a sample specimen is tested in accordance with AS 3558.5 it shall not crack, craze or show any signs of delamination.</p> <p>Two samples are placed under UV lights and exposed for a period of 24 hours at 45°C to 55°C in accordance with AS 3558.5. After the exposure period samples are subjected to an impact test in accordance with AS 3558.19. Test reference standard does not specify the drop height, therefore testing was performed at 750mm to represent the worst case scenario.</p> <p>Following the impact test, the samples are compared against a third un-exposed sample for any signs of deterioration, damage or other failures.</p> | <p>No signs of crazing, cracking or delamination. No failures following 24 hours of UV exposure.</p> <p>Impact height: 750mm No signs of cracking or damage using a 38mm steel ball of 225g.</p> <p>No change in colour when comparing against an un-exposed sample</p> | Conforms |

| | |
|---|--|
|   | <p>NATA Accredited Laboratory, Accreditation no: 18640 Accredited for compliance with ISO/IEC 17025 - Testing</p> <p>The results of the tests and/or measurements included in this document are traceable to Australian/national standards</p> |
| | <p>This test report shall not be reproduced except in full, without the written approval of the laboratory</p> |

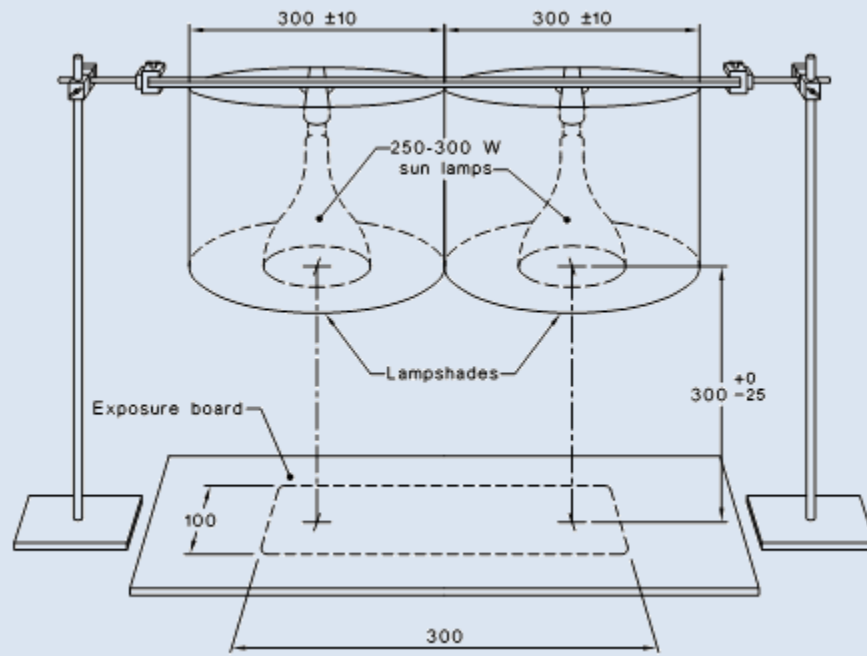


Figure 5.2. Figure 1 of AS 3558.5 – Typical ultraviolet lamp exposure test set-up



NATA Accredited Laboratory, Accreditation no: 18640
Accredited for compliance with ISO/IEC 17025 - Testing
The results of the tests and/or measurements included in this document are traceable to Australian/national standards

This test report shall not be reproduced except in full, without the written approval of the laboratory