

CLIENT: Onyx Collections
202 Anderson Ave.
Belvue, KS 66407

Test Report No: TJ2009-1	Date: June 4, 2014
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SAMPLE ID:

- Tiramisu 73 x 22 Gloss Smooth Standard Lavatory with Integral Backsplash, Raised Edge, 1 – Center Atlantic Bowl, Single Hole Faucet
- Tiramisu 73 x 22 Gloss Smooth Standard Lavatory with Integral Backsplash, Raised Edge, 1 – Center Pacific Bowl, Single Hole Faucet
- Tiramisu 73 x 22 Gloss Smooth Standard Lavatory with Integral Backsplash, Raised Edge, 1 – Center Non-Recessed Oval, Single Hole Faucet
- Tiramisu 25 x 22 Gloss Smooth Standard Lavatory with Integral Backsplash, Raised Edge, 1 – Center Recessed Oval, Single Hole Faucet with Chrome Finish
- Tiramisu 25 x 22 Gloss Smooth Standard Lavatory with Integral Backsplash, Raised Edge, 1 – Center ADA Bowl, Single Hole Faucet
- Tiramisu 25 x 22 Gloss Smooth Standard Lavatory with Integral Backsplash, Raised Edge, 1 – Center Tahoe Bowl, Single Hole Faucet

SAMPLING DETAIL: Test samples were submitted to the laboratory directly by the client. No special sampling conditions or sample preparation were observed by QAI.

DATE OF RECEIPT: Samples were received in good condition at QAI on March 23, 2014.

TESTING PERIOD: April 14, 2014 to May 30, 2014.

AUTHORIZATION: Testing authorized on QAI proposal SP-2014-011401 signed by Francis Awerkamp, Vice President, Onyx Collection on March 12, 2014.

TEST PROCEDURE: Test and evaluate the submitted samples to *CSA B45.5-11/ IAPMO Z124-2011 Plastic plumbing fixtures.*

TEST RESULTS: The samples **meet** the criteria of CSA B45.5-11/ IAPMO Z124-2011. Detailed test results are presented in the subsequent pages of this report.

Prepared By



Christopher Clark
Laboratory Test Technician

**Signed for and on behalf of
QAI Laboratories, Inc.**



Joe Cavett
Laboratory Project Manager

4 General Requirements

4.2 Waste fitting openings, drainage and overflows

4.2.1 Openings and drainage

Pass

Requirements: Fixture shall:

- (a) Have a waste fitting opening (outlet), the centre of which shall be located at the lowest point of the fixture; and
- (b) Drain to the waste outlet.

Except when proprietary (i.e., non-standard) waste fittings are provided by the manufacturer, the dimensions of waste outlets for Lavatories shall be 41 – 45 mm (1.63 – 1.75 in.).

Results: The waste fitting opening of the fixture is located at the lowest point of the fixture, drains to the waste outlet, and measures 1.675 inches in diameter.

4.3 Lavatories and sinks

Pass

Requirements: When provided, openings and mounting surfaces shall be as shown in Figures 2, 3, 4, 5 or 6 as applicable. Factory supplied fittings shall comply with ASME A112.18.1/CSA B125.1. If an air gap is relied upon for backflow prevention the mounting surface may not be more than 13mm (0.5 in) below the flood level rim.

4.4 Bathtubs and shower bases

Not Applicable

4.5 Water closets

Not Applicable

4.6 Urinals

Not Applicable

5 Test requirements

5.2 Load and rotation tests for grab bars and grip rails

Not Applicable

5.3 Warpage tolerance test

Pass

Requirements: When measured in accordance with Clause 5.3.1, the

- (a) Warpage at the edges of the fixture that set against a wall or floor, or into cabinets or countertops, shall not exceed 5 mm/m (0.06 in/ft);
- (b) Warpage at all other edges of the fixture shall not exceed 7.5 mm/m (0.09 in/ft); and
- (c) Total warpage of any linear dimension shall not exceed 16 mm (0.63 in.).

Curves that are part of the design shall not be considered warpage.

5.4 Surface examination test

Pass

Requirements: The specimen shall be free from cracks, chipped areas, and blisters. Other defects shall not exceed the maximums specified in Table 1.

Results: The specimen was free of any Cracks, Chips, Blisters, Molding Irregularities, Pinholes, Pits, Small Specks, Medium Specks, Large Specks, or Surface Porosity.

5.5 Subsurface test

Pass

Requirements: There shall be no visible voids larger than 1.6 mm (0.063 in.) in diameter below the original finish surface, and the maximum allowable number of voids smaller than 1.6 mm (0.063 in.) for the two test areas shall be eight.

5.6 Waste fitting connection test

Pass

Requirements: There shall be no visible cracks the bottom surface of the specimen.

Results:

Specimen	25 lb. Load Position 1	25 lb. Load position 2	25 lb. Load position 3
73x22, Atlantic Bowl	No Cracks	No Cracks	No Cracks
73x22, Pacific Bowl	No Cracks	No Cracks	No Cracks
73x22, Non-Recessed Oval	No Cracks	No Cracks	No Cracks
25x22, Recessed Oval	No Cracks	No Cracks	No Cracks
25x22, ADA Bowl	No Cracks	No Cracks	No Cracks
25x22, Tahoe Bowl	No Cracks	No Cracks	No Cracks

5.7 Point impact load test

Pass

Requirements: The point impact load test shall be conducted using a steel ball with a diameter of 38mm (1.5 in.) and a weight of 2.20 ± 0.05 N (0.50 ± 0.01 lbf). The steel ball shall be dropped from a height of 500 mm (20 in.). There shall be no cracks or chips in the surface of the specimen.

Results:

Impact location	Observations
Top of specimen	No Cracks
Top of specimen	No Cracks
Top of specimen	No Cracks
Near waste opening	No Cracks
4 in from the waste opening	No Cracks
sloping area within the bowl	No Cracks

5.8 Structural integrity tests

5.8.7 Load test for lavatories with integral tops

Pass

Requirements: There shall be no cracks in the surface of the specimen when examined in accordance with Items (b) to (d) of Clause 5.4.1. The maximum residual deflection after removal of the load shall not exceed 0.254 mm (0.010 in.).

Results:

Specimen	Residual Deflection (in.)	Cracks
73x22, Atlantic Bowl	0.000	None
73x22, Pacific Bowl	0.003	None
73x22, Non-Recessed Oval	0.000	None
25x22, Recessed Oval	0.002	None
25x22, ADA Bowl	0.001	None
25x22, Tahoe Bowl	0.001	None

5.9 Radii Load Test

Pass

Requirements: The outside radii of the finished surfaces shall be tested with a 13mm (0.5 in.) diameter nylon rod applying a load of approximately 45 N (10 lbf). When the surface of the specimen is examined in accordance with items (b) to (d) of Clause 5.4.1, it shall show no cracks, chips, or voids.

Results: The specimen showed no cracks, chips or voids when tested to section 5.9.1.

5.10 Colorfastness test

Pass

Requirements: When compared to the control piece, the test piece shall show no significant change in color. The average color difference between the test and control pieces shall be not more than ± 2 Delta E units. Discoloration that can be removed by abrading the surface to a maximum depth of 0.125 mm (0.005 in.) and repolished in accordance with the manufacturer's care and maintenance instructions shall be acceptable.

Results: The specimen showed noticeable color change after being tested for 200 hours in accordance with ASTM D2565. The discoloration was removable by abrading and repolishing the surface in accordance with the manufacturer's care and maintenance instructions.

5.11 Stain resistance test

Pass

Requirements: The maximum stain resistance rating shall be the sum of the individual stain ratings for each of the covered and uncovered stain areas and shall not exceed 50, except for sinks, where it shall not exceed 64. The maximum allowable thickness of material removed to eliminate a stain shall be 0.127 mm (0.005 in.).

Results:

Reagent	Covered specimen rating	Uncovered specimen rating
Black Crayon	1	1
Black Liquid Shoe Polish	1	1
Blue Washable Ink	1	1
Lipstick	1	1
Hair Dye	3	3
Iodine, 1%	1	1
Gentian Violet Solution	2	2
Beet Juice	1	1
Grape Juice	1	1
Liquid from a wet Tea Bag	1	1
Total Stain Resistance Rating		<u>26</u>

5.12 Cleanability and wear tests

Pass

Requirements: Each specimen shall withstand the number of scrub cycles specified in Table 2 (12,000) without wear-through of the surface material in the middle third of the specimen surface when tested in accordance with Clause 5.12.1. In addition, when tested in accordance with Clause 5.12.2, each specimen shall not lose more than 5% white-light reflectance after being cleaned with liquid cleanser and not more than 2% white-light reflectance after an additional cleaning with abrasive cleaner.

Results:

Specimen #	1	2	3
Thickness (in.)	0.32	0.32	0.32
Scrub specimen:			
Y Reading 1	35.70	32.40	32.85
Y Reading 2	38.26	41.70	35.27
Y Reading 3	35.71	35.85	35.16
Total	109.67	109.95	103.28
Average (A)	36.56	36.65	34.43
Dirt Specimen:			
Y Reading 1	36.07	32.54	33.45
Y Reading 2	35.33	38.59	34.47
Y Reading 3	44.71	34.38	34.07
Total	106.11	105.51	101.99
Average (B)	35.37	35.17	34.00
$((A-B)/A) \times 100 =$ % Loss (5% Max)	<u>3.25%</u>	<u>4.04%</u>	<u>1.25%</u>
Slurry Specimen:			
Y Reading 1	35.80	33.26	32.98
Y Reading 2	37.86	38.70	34.85
Y Reading 3	35.60	37.60	35.28
Total	109.26	109.56	103.11
Average (C)	36.42	36.52	34.37
$((A-C)/A) \times 100 =$ % Loss (2% Max)	<u>0.38%</u>	<u>0.35%</u>	<u>0.17%</u>

5.13 Ignitability test

Not Applicable

5.14 Cigarette test

Pass

Requirements: There shall be no ignition or progressive glow of the specimen surface during or after contact with the lighted cigarettes. Any resulting damage shall not impair the serviceability of the fixture and shall be easily repairable using abrasive and polishing compounds to approximate the original finish.

5.15 Chemical Resistance

Pass

Requirements: The surface finish shall be unaffected by the reagents except for superficial changes removable by sanding with 400-grit wet or dry sandpaper and water. Damage resulting from the test shall not impair the serviceability of the fixture and shall be easily repairable using abrasive and polishing compounds to approximate the original finish.

Results: All reagents had a minimal effect on the specimen that was removable via soap and water.

5.16 Thermal shock resistance test

Pass

Requirements: Examine the specimen for cracking and crazing in accordance with Clause 5.4.1. There shall be no cracking, crazing, blistering or spaling, or delamination after subjecting the specimen to 500 cycles of thermal shock. Each cycle consists of Hot water impingement (150 ± 4°F) for 1.5 minutes, a 30 second drain time, Cold water impingement (50 ± 4°F) for 1.5 minutes, and a 30 second drain time.

Results: The specimen showed no evidence of cracking, crazing, blistering or spaling, or delamination after being subjected to 500 cycles of thermal shock.

5.17 Water resistance test for bathtubs and showers

Not Applicable

5.18 Laboratory test for non-integral flange seal

Not Applicable

5.19 Overflow test

Pass

Requirements: With the waste outlet blocked and water flowing at 1.5 gpm (4 gpm for laundry or utility sinks) the specimen shall drain for at least 5 minutes from the onset of water flowing into the overflow opening, without overflowing the flood level rim.

5.20 Knife drop test (for kitchen and bar sinks only)

Not Applicable

5.21 Skillet drop test (kitchen sinks only)

Not Applicable

5.22 Vibration test

Not Applicable

5.23 Heated pan test

Not Applicable

5.24 Hot wax test

Not Applicable

5.25 Tests for flexible core construction fixtures

Not Applicable

6 Markings

6.1 General

Pass

Requirements: Plumbing fixtures shall be marked with the manufacturer's name or registered trademark or; in the case of private labeling, the name of the customer for whom the fixture was manufactured.

Results: The fixture is marked with an adhesive label featuring the "Onyx Collections" logo.

6.2 Non-standard fixtures

Not Applicable

6.3 Field-installed flanges

Not Applicable

6.4 Packaging

Pass

Requirements: Packaging for plastic plumbing fixtures shall be marked with the;

- (a) Manufacturer's name or registered trademark or; in the case of private labeling, the name of the customer for whom the fixture was manufactured; and
- (b) Model number.

6.5 Installation instructions

Not Applicable

*** END OF TEST REPORT ***