IAPMO R&T LAB

5001 East Philadelphia Street
Ontario, California – USA 91761-2816
Ph: 909.472.4100 | Fax: 909.472.4243
http://www.iapmortl.org

TEST REPORT

Report Number: 1622-13002 **Lab Project No.** 22419

Report Issued: November 19, 2013

Client: R. Turner Associates LLC
410 Friar Tuck Road
Winston Salem, North Carolina 27104-1611

Contact: Robert Turner

Source of Samples: The samples were shipped to IAPMO R&T Lab from R. Turner Associates LLC and received in good condition on October 11, 2013.

Date of Evaluation: October 15, 2013 through November 14, 2013

Sample Description: Replacement cartridge for a vitreous china, non-flushing / waterless type urinal.

Model: Smarty Bee

The unit consisted of a replacement cartridge body and a deodorizer dome / strainer.

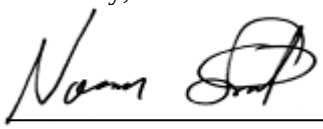
Please refer to the photograph for details.

Scope of Testing: The purpose of the testing was to determine whether the sample tested of the waterless urinal replacement cartridge met the applicable requirements of ASME A112.19.19-2006 entitled, "Vitreous China Nonwater Urinals".

CONCLUSION: **The sample tested of the waterless urinal replacement cartridge from R. Turner Associates LLC, model Smarty Bee, COMPLIED with the applicable requirements of ASME A112.19.19-2006.**

By our signatures below we certify that all the testing and sample preparation for this report was performed under continuous, direct supervision of IAPMO R&T Lab, unless otherwise stated.

Tested By,



Norm Smith, Sr. Test Technician

Reviewed By,

Jeffrey Yu, MSEM, Manager - Fixture Testing

Primary Standard: ASME A112.19.19-2006. Sections Tested / Evaluated:

4.1 Permanent Markings on Product
4.2 Marking Requirements for Product Packaging
4.3 Installation Instructions
6.2 Selection of Test Urinal and General Instructions
6.3 Resistance to Stoppage
6.4 Tightness Test of Removable Trap
6.5 Evaluation Test for Ammonia

Notes: The Smarty Bee cartridge was tested with a vitreous china, non-flushing / waterless type urinal made by Falcon Waterfree Technology model F-1000 that is currently UPC listed under file no. 4107 for complying with ASME A112.19.19-2006. Therefore, only the above sections of the Standard were performed.

Test Results: All tests and evaluations were conducted per the written procedures in the specified standard.

ASME A112.19.19-2006

4.1 Permanent Markings on Product

4.1.1 Manufacturer's Name – COMPLIED

The replacement cartridge was marked with the manufacturer's name or trademark, "HybridH2O". The marking was permanent, legible, and visible after installation.

4.1.2 Model Number – COMPLIED

The replacement cartridge was marked with the model number, "Smarty Bee".

4.2 Marking Requirements for Product Packaging – COMPLIED

The packaging was marked with the manufacturer's name or trademark, "www.hybridH2O.com" and the model number, "Smarty Bee".

4.3 Installation Instructions – COMPLIED

The installation instructions and care and maintenance were provided.

6 Urinal Test

6.2 Selection of Test Urinal and General Instructions

6.2.1 Selection Information – FOLLOWED

Three samples were provided and one sample was selected for testing.

6.2.2 FOLLOWED. The unit was installed in an enclosure as specified in para. 6.5.1.2.

6.2.2.1 FOLLOWED. The unit was installed per the manufactures instructions and an outlet installed.

6.3 Resistance to Stoppage – COMPLIED

When tested per the standard according to section 6.3.1 With the fixture installed on a test stand in accordance with the manufacturer's installation instructions, two unfiltered cigarette butts were dropped into the urinal and tap water added to the unit at a flow rate of 1 pint per minute. This procedure was repeated, alternating between the cigarette butts and water until a total of twenty cigarette butts and ten pints of water had been added. The cigarette butts were removed and the test repeated five times alternating between unfiltered and unfiltered crumpled cigarettes.

Findings: There was no evidence of stoppage or clogging during the test.

6.4 Tightness Test of Removable Trap – COMPLIED

When tested per the standard according to section 6.4.1 The trap insert was installed and removed 50 times. Upon completion of the extractions and insertions, the trapway was subjected to an air pressure test of 1.45 psi for 15 minutes, The test was repeated five times.

Findings: There was no pressure loss.

6.5 Evaluation Testing for Ammonia – COMPLIED

6.5.1 Test Method – FOLLOWED

6.5.2 Performance Requirement

6.5.2.1 COMPLIED.

When tested to section 6.5.1 Extraction of all liquid was required in eight of nine solution extraction test sets as specified in 6.5.1.8.2 on each of the successive 3 days of test.

Findings:

	Day 1	Day 2	Day 3
Solution Poured	9	9	9
Solution Extracted	9	9	9
Complied (Yes/No)	Yes	Yes	Yes

6.5.2.2 COMPLIED. All initial ammonia sample reading taken in paragraph 6.5.1.8.2.b 1 (5 minutes after introduction of the test sample liquid) did not exceed 40 % of the ammonia vapor measures under paragraph 6.5.1.8.1.

Findings:

DAY 1

Location	Initial PPM (Avg of 3 test)	Required: 40% of initial PPM, Max	PPM after 5 mins Test 1	PPM after 5 mins Test 2	PPM after 5 mins Test 3
3" above urinal lip	17.0	6.8	2.5	2.0	2.5
3" above urinal well	35.0	14.0	9.0	7.5	8.0
59" above floor	6.0	2.4	0.0	0.0	0.0
47" above floor	8.0	3.2	0.25	0.25	0.25

DAY 2

Location	Initial PPM (Avg of 3 test)	Required: 40% of initial PPM, Max	PPM after 5 mins Test 1	PPM after 5 mins Test 2	PPM after 5 mins Test 3
3” above urinal lip	16.0	6.4	2.5	2.0	2.5
3” above urinal well	34.5	13.8	8.5	7.0	8.0
59” above floor	5.5	2.2	0.0	0.0	0.0
47” above floor	7.5	3.0	0.25	0.25	0.25

DAY 3

Location	Initial PPM (Avg of 3 test)	Required: 40% of initial PPM, Max	PPM after 5 mins Test 1	PPM after 5 mins Test 2	PPM after 5 mins Test 3
3” above urinal lip	16.5	6.6	2.25	2.25	2.25
3” above urinal well	34.5	13.8	8.0	7.5	8.0
59” above floor	6.0	2.4	0.0	0.0	0.0
47” above floor	7.5	3.0	0.25	0.25	0.25

6.5.2.3 COMPLIED. Ninety five percent minimum of all initial ammonia sample reading taken in paragraph 6.5.1.8.2.b 2,3 4 (15 minutes, 30 minutes and 1 hour after introduction of the test sample liquid) did not exceed 10 ppm at the end of test period specified.

Findings: 100% of all the readings did not exceed 10 ppm.

DAY 1 READING 1

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.25	0.1	0.0
3” above urinal well	10	2.5	1.25	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 1 READING 2

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.0	0.1	0.0
3” above urinal well	10	2.25	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 1 READING 3

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.0	0.1	0.0
3” above urinal well	10	2.25	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 2 READING 1

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.0	0.1	0.0
3” above urinal well	10	2.5	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 2 READING 2

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.0	0.1	0.0
3” above urinal well	10	2.25	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 2 READING 3

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	1.75	0.1	0.0
3” above urinal well	10	2.0	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 3 READING 1

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	1.75	0.1	0.0
3” above urinal well	10	2.0	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 3 READING 2

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.0	0.1	0.0
3” above urinal well	10	2.25	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

DAY 3 READING 3

Location	Max PPM allowed	PPM after 15 Min	PPM after 30 Min	PPM after 60 Min
3” above urinal lip	10	2.25	0.1	0.0
3” above urinal well	10	2.25	1.0	0.0
59” above floor	10	0.0	0.0	0.0
47” above floor	10	0.0	0.0	0.0

Photograph of the Sample Tested: