Summary of Substantive Changes
between the 2009 and the 2016 edition of
ASSE 1055, Performance Requirements for Chemical Dispensing Systems

Presented to the IAPMO Standards Review Committee on August 7, 2017

General: The changes to this standard might have an impact on currently listed products. The significant change is:

- Limited the scope to cover only devices with integral backflow protection (see Section 1.2).
- Removed the test for non-permanent or hose connection means (see Section 3.1).
- Changed the test procedure from 5000 cycles over 10, 8-hour days to cycling 5000 times, then maintain a continuous flow for 4, 8-hour days (see Section 3.2).
- Removed testing to ensure the device does not adversely affect any other means of backflow protection upstream of the device (see former Section 3.3).
- Removed the requirements limiting lead content (see former Section 4.1)
- Added additional marking requirements for devices with an ASSE 1001 atmospheric vacuum breaker and clarified the direction of flow marking for devices with ASME B1.20.1 threads (see Section 4.1).
- Added additional installation requirements for devices installed in systems with integrated ASSE 1001 or ASSE 1011 vacuum breakers (see Section 4.4)

Section 1.2, Scope: Revised the scope to cover only devices with integral backflow protection as follows:

1.2.1 Description

This standard applies to those devices classified as chemical dispensing systems having a self-contained means of integral backflow protection. ~~The devices shall be classified as follows:~~

~~*Type A: These devices have the chemical(s) pressurized above atmospheric pressure.*~~

~~*Type B: These devices do not pressurize the chemical(s) above atmospheric pressure. The only source of back pressure comes from an elevated hose.*~~

~~*1.2.4 Means of Backflow Protection*~~

~~*Devices shall have an integral means of backflow protection or shall include a backflow protection device that conforms with one of the following standards, current edition:*~~

~~*(a) ANSI/ASME A112.1.3, Air Gaps Fittings for Use with Plumbing Fixtures, Appliances and Appurtenances;*~~

~~*(b) ASSE 1001, Atmospheric Type Vacuum Breaker;*~~

~~*(c) ASSE 1013, Reduced Pressure Principle Backflow Preventer and Reduced Pressure Principle Fire Protection Backflow Preventer;*~~

~~*(d) ASSE 1020, Pressure Vacuum Breaker; or*~~

~~*(e) ASSE 1056, Spill Resistant Vacuum Breaker.*~~

Section 1.3, Reference Standards: The following referenced standards were either updated to the current edition of the referenced standard, deleted or added.

~~*ANSI/ASME A112.1.3, Air Gaps Fittings for Use with Plumbing Fixtures, Appliances and Appurtenances.*~~

ASSE 1001-2008, Atmospheric Type Vacuum Breaker.

~~*ASSE 1013, Reduced Pressure Principle Backflow Preventer and Reduced Pressure Principle Fire Protection Backflow Preventer.*~~

~~*ASSE 1020, Pressure Vacuum Breaker.*~~

~~*ASSE 1056, Spill Resistant Vacuum Breaker.*~~

ASME B1.20.1 – 2013, Pipe Threads, General Purpose, Inch

ASSE 1011-2004, Performance Requirements for Hose Connection Vacuum Breakers

IAPMO PS-104-97, Material and Property Standard for Pressure Relief Connection for Dispensing Equipment

Section 3.1, Non-Permanent or Hose Connection Means: Removed the test for non-permanent or hose connection means as follows:

~~*3.1 Non-Permanent or Hose Connection Means*~~

~~*3.1.1 Purpose*~~

~~*The purpose of this test is to ensure that when the device is under continuous pressure it does not adversely affect any other means of backflow protection upstream of the device.*~~

~~*3.1.2 Procedure*~~

~~*With the dispensing device installed per the manufacturer's instructions with a shutoff valve and pressure gauge installed on the inlet of the device, turn the water supply on for one (1) minute minimum and start the dispensing mode on the unit until all air is purged. Regulate the pressure across the device to 20.0 psig (137.9 kPa) in the dynamic (flowing) condition. Stop the dispensing mode. Visually verify and measure the free flow of the water through the atmosphere to drain.*~~

~~*Regulate the supply pressure to 20.0 psig (137.9 kPa). Turn the water supply valve to the off position and record the time it takes for the pressure at the faucet outlet to equal 0 psig (0 kPa).*~~

~~*A pressure bleeding device shall be provided which will visually free flow water through the atmosphere from the faucet connection to a sink or drain. The bleed rate shall be at least 0.1 GPM (0.4 L/m) at 20.0 psig (137.9 kPa) minimum dynamic working pressure. When the system supply pressure is shut off, the pressure at the water faucet shall bleed to 0 psig (0 kPa) within one (1) minute.*~~

~~*3.1.3 Criteria*~~

~~*Failure of the device to perform the following criteria shall result in a rejection of the device:*~~

~~*1) Provide a visual free flow of water through the atmosphere from the faucet connection to the facility sink/drain.*~~

~~*2) Have a minimum discharge rate through the atmosphere of at least 0.1 GPM (0.4 L/m) at 20.0 psig (137.9 kPa) minimum dynamic working pressure; and*~~

~~*3) Allow the pressure at the inlet side of the device to bleed to 0 psig (0 kPa) within one (1) minute when the system supply pressure is shut-off.*~~

Section 3.2, Deterioration at Extremes of Manufacturer's Rated Temperature and Pressure Ranges and Endurance Test: Changed the test procedure from 5000 cycles over 10, 8-hour days to cycling 5000 times (35 s per cycle is about 6, 8-hour days), then maintain a continuous flow for 4, 8-hour days as follows:

~~*3.3*~~ *3.2 Deterioration at Extremes of Manufacturer's Rated Temperature and Pressure Ranges and Endurance Test*

~~*3.3.2*~~ *3.2.2 Procedure*

a) ~~With the device~~ Install~~ed in accordance with~~ the device according to the manufacturer's installation instructions. ~~flow water through~~ Cycle the device 5000 times using water at the temperature and pressure specified in Section ~~3.3.1~~ 3.2.1 (a) . ~~for eight (8) continuous hours per day for a total of ten (10) days. During this procedure the devices shall be cycled 5,000 times.~~ One (1) cycle shall consist of operating the ~~discharge control~~ device to allow flow (on time) and then stop~~ping~~ flow (off time) ~~from the device~~. The "on" time shall not be less than five (5) seconds, and the "off" time shall not exceed thirty (30) seconds.

b) Check the device for any failures.

c) Immediately after checking the device, operate the device to allow it to flow for eight (8) hours per day for four (4) days.

d) Check the device for any failures.

Section 3.4, Backpressure: Changed the maximum backpressure to apply during the test from 10.0 ft water column to a pressure dependent on the length of the dispensing hose as follows:

~~*3.5.2*~~ *3.4.2 Procedure*

Install the device with a transparent tube connected to the inlet of the device. The dispensing hose of the device shall be filled with colored water, and the outlet shall be pressurized to produce pressure equal to 6 inches of water column (1.5 kPa). Hold for five (5) minutes and observe for the presence of colored water in the transparent tube at the inlet.

Repeat the test with the pressure increased in increments of 24 inches of water column (6.0 kPa) until a ~~minimum of 10.0 feet (29.9 kPa) of water column is reached~~ pressure equal to the backpressure created by the maximum possible height of the dispensing hose of the device is reached.

Section 4.1, Materials in Contact with Water: Removed the requirements limiting lead content as follows:

~~*4.1 Materials in Contact with Water*~~

~~*Solder and fluxes containing lead in excess of 0.2% shall not be used in contact with potable water. Metal alloys in contact with potable water shall not exceed 8% lead.*~~

Section 4.1, Markings: Added additional marking requirements for devices with an ASSE 1001 atmospheric vacuum breaker and clarified the direction of flow marking for devices with ASME B1.20.1 threads as follows:

~~*4.2*~~ *4.1 Markings*

Each device shall have the following information marked on it. The information shall be visible after the device has been installed:

(a) Name or trademark of manufacturer.

(b) Model number of the device.

~~*(c) ASSE 1055 Type A or B*~~

(~~d~~c) Date of manufacture or serial number or other marking consistent with the manufacturer's standard practice.

(~~e~~d) Rated working pressure range for which the device is designed.

(~~f~~e) Water temperature range for which the device is designed.

(f) A device that has an atmospheric vacuum breaker (AVB) conforming to ASSE 1001 as its method of backflow protection shall indicate the critical level of the AVB at least 1 inch (25.4mm) below the actual critical level. Text near the critical level mark shall read, "Outlet shall be no higher than critical level." Both mark and text shall be visible after installation on the outside of the device.

(g) The direction of water flow, if part of the outlet uses an NHT hose thread per ASME B1.20.1

Section 4.4, Installation for Devices Plumbed to a Faucet with a Vacuum Breaker: Added additional installation requirements for devices installed in systems with integrated ASSE 1001 or ASSE 1011 vacuum breakers as follows:

4.4 Installation for Devices Plumbed to a Faucet with a Vacuum Breaker

In cases where an installation involves a water source coming from a faucet with an integrated vacuum breaker device conforming to ASSE 1001 or ASSE 1011, a pressure bleed device conforming to IAPMO PS-104 shall be used to protect the vacuum breaker device.

The purpose is so that continuous pressure does not adversely affect the vacuum breaker device upstream of the pressure bleed device. This also protects against a cross-connection between hot and cold water migration by encouraging the user to turn off the water supply at the faucet.

Figure 1: Updated the symbols used to designate components and revised the component callouts to clarify the backsiphonage test set-up .