



**INTERNATIONAL ASSOCIATION OF MECHANICAL  
AND PLUMBING OFFICIALS**

**TRAILER STANDARD  
FOR  
MECHANICAL SEAL TOILETS  
WITH OR WITHOUT INTEGRAL WASTEWATER TANKS  
FOR USE IN RECREATIONAL VEHICLES**

**IAPMO TS 1-2011<sup>e1</sup>**

**1. PURPOSE**

- 1.1** The purpose of this Standard is to
- (a) establish generally acceptable criteria for manufacturing of mechanical seal toilets, with or without integral wastewater tanks, for use in recreational vehicles;
  - (b) serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors, and users;
  - (c) promote understanding regarding materials and manufacturing of mechanical seal toilets, with or without integral wastewater tanks, for use in recreational vehicles; and
  - (d) provide for markings that identify mechanical seal toilets that comply with this Standard.
- 1.2** The requirements of this Standard are not intended to prevent the use of alternate materials or methods of construction, provided such alternates meet the intent of this Standard.
- 1.3** Amendments to this Standard will be made after processing according to the standards writing procedures of IAPMO.

**2. SCOPE**

- 2.1** This Standard covers mechanical seal toilets, with or without integral wastewater tanks, for use in recreational vehicles and specifies physical requirements and test methods for materials, components, design, operation, construction, finish, as well as installation of the finished product and markings and identification.
- 2.2** The mechanical seal toilets covered by this Standard, are intended to be connected to the potable water system, the sanitary drainage system, or both.

### 3. REFERENCE PUBLICATIONS

This Standard refers to the following publications, and where such reference is made, it shall be the current edition of those publications, including all amendments published thereto.

|                          |                                                                                                                               |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| ASME A112.19.2/CSA B45.1 | Ceramic Plumbing Fixtures                                                                                                     |
| ASSE 1001                | Pipe Applied Atmospheric Vacuum Breakers                                                                                      |
| ASSE 1014                | Performance Requirements for Backflow Prevention Devices for Hand-Held Showers                                                |
| ASTM D2661               | Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings |
| ASTM D2665               | Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings                        |
| IAPMO/ANSI Z124.4        | Plastic Water Closet Bowls and Tanks                                                                                          |
| IAPMO TS 2               | Wasteholding Tanks                                                                                                            |

### 4. BASIC REQUIREMENTS

#### 4.1 Materials

Vitreous china components shall conform to grading and dimensional requirements of ASME A112.19.2/CSA B45.1, except as to size.

4.2 Component parts and fasteners shall be made of corrosion resistant materials.

### 5. DETAILED REQUIREMENTS

#### 5.1 Outlet Construction

The waste outlet and passages shall have

- (a) a diameter that will allow a solid ball with a diameter of 2.75 in (70 mm) ballot pass; and
- (b) smooth impervious surfaces, and shall be free of obstructions, recesses or chambers that would permit fouling.

The design and materials for construction of the mechanical seal and its seat shall provide a positive seal.

#### 5.2 Fixture Mounting

The fixture base or the fixture mounting area shall be designed to assure a proper water and gas tight seal to the waste connection.

#### 5.3 Flushing

5.3.1 The flushing mechanism design shall assure proper and adequate cleansing of interior surfaces during the full flushing cycle at the minimum operating flow rate.

5.3.2 The refill shall place a minimum of 1 in (25 mm) of water depth in the bowl to maintain a gas tight seal.