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INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

IAPMO GUIDE CRITERIA

FOR

WATER CLOSET WITH MECHANICAL TRAP

IAPMO IGC 247-2007

1. PURPOSE

- 1.1** The purpose of this standard is to establish a generally acceptable performance standard for a water closet tanks with mechanical trap. Its purpose is also to serve as a guide for producers, distributors, architects, engineers, contractors, installers and inspectors; to promote understanding regarding materials, manufacture and installation; and to provide for identifying such products that conform to this standard.
- 1.2** The provisions of this standard are not intended to prevent the use of any alternate material, or method of construction provided any such alternate meets the intent and requirements of this document and changes are amended to this standard.

2. SCOPE

- 2.1** This standard includes reference standards, definitions, material requirements, performance requirements, dimensions, identification, and marking for a water closet tanks with mechanical trap.

3. REFERENCE STANDARDS

- 3.1** All standards referenced herein shall be the current edition of that standard.
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| ASME A112.19.2 | Vitreous China Plumbing Fixtures |
| ASME A112.19.5 | Trim for Water Closets, Bowls, Tanks and Urinals |
| ASME A112.19.14 | Six-Liter Water Closets Equipped with Dual Flushing Device |
| ASSE 1002 | Anti-Siphon Fill Valves (Ballcocks) for Gravity Water Closet Flush Tanks |
| EPA WaterSense | Tank-Type High Efficiency Toilet Specification |

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4. GENERAL REQUIREMENTS

- 4.1 Water Closets.** Water closet dimensions and materials shall comply with the applicable requirements in ASME A112.19.2 excluding for the trap seal depth which is covered in Section 4.3 of this standard.
- 4.2 Tank Components.** The flush and fill valve shall comply with the requirements in 1002 and A112.19.5, respectfully. Dual flushing device shall comply with Section 3 of ASME A112.19.14
- 4.3 Mechanical Trap.** The mechanic trap shall be made of materials complying with the following requirements:

Property	Value	ASTM Test
a) Tensile Strength	7.6 MPa	D 412 (Die C)
b) Ultimate Elongation	610 %	D 412 (Die C)
c) Durometer Hardness (A Type)	51	D 2240
d) Immersion (23±2°C, 72h, 1% NaClO)	-	D 471
e) % Change in Tensile Strength	-2.6 %	D 471
f) % Change in Ultimate Elongation	-5.0 %	D 471
g) Durometer Hardness (A Type)	1	D 471
h) Change in Volume	1.4	D 471

- 4.3.1** The trap seal depth for water closet bowl shall not be less than 2 in. (50 mm) when determined in accordance with Section 5.3 of this standard.

5. PERFORMANCE REQUIREMENTS

- 5.1** The water closet shall comply with all the applicable requirements within ASME A112.19.2.
- 5.2 Component Seal Test.** The mechanic trap components shall subjected to 10,000 cycles of full flush mode. At the completion of the cycle test, the trap shall be tested in accordance with the acceleration test in Section 4.4.2.2 of ASME A112.19.5.
- 5.2.1 Performance Requirements.** At the completion of both tests, the mechanical trap and components shall show no sign of deterioration that would affect the performance of the water closet or leak to provide a proper seal.
- 5.3 Seal Restoration.** Flush the water closet allowing bowl to fill. Mark the top of water in bowl as L3 (see Figure 1). Remove tank but keep mechanical trap component in place to maintain water seal. Mark the top of the water seal as L2. Remove mechanical trap component to allow water out and measure dip of trap as L1. The residual trap seal value (H_R) shall be the distance between L2 to L1.

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