

IAPMO PS 94-2012<sup>e1</sup>

# Insulated Protectors for P-Traps, Supply Stops, and Risers



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# ***IAPMO Standard***

## **IAPMO PS 94-2012<sup>e1</sup>**

### **Insulated Protectors for P-Traps, Supply Stops, and Risers**

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## Insulated Protectors for P-Traps, Supply Stops, and Risers

### 1 Scope

- 1.1 This Standard covers insulated protectors for P-traps, supply stops, and risers, including full under-sink guards, intended to cover plumbing parts and equipment, and specifies requirements for materials, physical characteristics, performance testing, and markings.
- 1.2 The requirements of this Standard are not intended to prevent the use of alternative materials or methods of construction, provided such alternatives meet the intent of this Standard.
- 1.3 Proposals for amendments to this Standard will be processed in accordance with the standards writing procedures of IAPMO.
- 1.4 The user's attention is called to the possibility that compliance with this Standard may require use of an invention covered by patent rights. By publication of this Standard, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, then details can be obtained from IAPMO.

### 2 Reference Publications

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

ANSI/ICC A117.1 Accessible and Usable Buildings and Facilities

ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

CSA B651 Accessible design for the built environment

### 3 Abbreviations

The following abbreviation shall apply in this Standard:

**NPS** — nominal pipe size

## 4 General Requirements

### 4.1 Dimensions

Insulated protectors shall be capable of accommodating P-traps and piping in sizes NPS-1-1/4, NPS-1-1/2, and NPS-2.

### 4.2 Fasteners

#### 4.2.1 Insulated protectors shall have at least two fasteners at each end to allow secure fastening to P-traps, supply stops, and risers. Fasteners

- (a) shall be spaced not more than 100 mm (4 in);
- (b) may consist of a single, continuous seam; and
- (c) shall not have sharp edges or abrasive surfaces.

#### 4.2.2 Under-sink guards shall have a means for securely attaching them to walls or cabinets. Fasteners used on under-sink guards shall not protrude above the guard surface.

### 4.3 Surface Characteristics

Outside surfaces of insulated protectors and under-sink guards shall

- (a) be smooth;
- (b) be non-absorbent;
- (c) not have protrusions;
- (d) not have sharp edges; and
- (e) not be abrasive.

### 4.4 Materials for Under-Sink Guards

Under-sink guards shall be made of impact resistant, stain resistant, and chemically resistant rigid materials.

### 4.5 Accessible Design for Under-Sink Guards

Under-sink guards shall comply with the applicable requirements of ANSI/ICC A117.1 or CSA B651.

### 4.6 Fire Resistance Rating

When a fire resistance rating is requested by the manufacturer, insulated protectors shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450, determined in accordance with ASTM E84.

## 5 Testing Requirements

### 5.1 Heat Penetration Test

#### 5.1.1 General

The heat penetration test shall be conducted at an ambient laboratory temperature of  $23 \pm 2$  °C ( $73 \pm 4$ °F). When the manufacturer produces the same kind of insulated protectors or under-

sink guards in different sizes, the largest size shall be tested.

### 5.1.2 Test Procedure

The heat penetration test shall be conducted as follows:

- (a) Install an insulated protector or an under-sink guard (i.e., the test specimen) in accordance with the manufacturer's installation instructions.
- (b) Attach thermocouples to the outside surface of the test specimen, on the hottest spots. For supply stops, the thermocouples shall be at least 50 mm (2 in) from the wall.
- (c) Fill the P-trap, supply stop, riser, or offset grid drain strainer with water at  $60 \pm 1$  °C ( $140 \pm 2$ °F).
- (d) Maintain the water temperature for 5 h.
- (e) Record the temperature of the outside surface of the test specimen every 15 min over the duration of the test.

### 5.1.3 Performance Requirement

The temperature of the outside surface of the test specimen shall not exceed 35 °C (95°F).

## 5.2 Surface Deflection and Load Test

### 5.2.1 Test Procedure

The surface deflection and load test shall be conducted as follows:

- (a) Apply a 45 N (10 lbf) force using a metal rod with a diameter of 13 mm (0.5 in) at a right angle against the outside surface of an insulated protector or under-sink guard.
- (b) Hold the force in place for 10 s.
- (c) Examine the surface of the test specimen for cracks and voids.
- (d) Remove the load.
- (e) Examine the surface for indentations 5 min after removal of the load.

### 5.2.2 Performance Requirements

The test specimen outside surface shall not crack or show signs of voids. Five minutes after removal of the load, the outside surface shall have no indentations where the load was applied.

## 5.3 Water Resistance Test

### 5.3.1 Test Procedure

The water resistance test shall be conducted as follows:

- (a) Cut four 100 mm x 100 mm (4 in x 4 in) samples from an insulated protector or under-sink guard.
- (b) Place three samples against the portholes of a non-reactive vessel and keep the remaining sample as the control sample. The area of the portholes shall be at least 40 cm<sup>2</sup> (6.2 in<sup>2</sup>).
- (c) Fill the vessel with distilled water at  $82 \pm 1$  °C ( $180 \pm 2$ °F) and ensure that the test surfaces of the samples are submerged during the test.
- (d) Maintain the temperature for 24 h.
- (e) Remove the three samples from the vessel and, within 4 h, rate them against the control sample for the following four defects, in accordance with the rating procedure specified in Section 5.3.2:
  - (i) blistering;
  - (ii) color change;

- (iii) cracks; and
- (iv) holes.

### 5.3.2 Rating Procedure

The water resistance rating shall be determined by adding, for each sample, the numerical designation for each of the four defects specified in Section 5.3.1(e) and, for each defect, averaging the numerical designation obtained by the samples, using the following scale:

- (a) 0: No change;
- (b) 1: Minor gradation of change;
- (c) 2 to 4: Increased gradation of change; and
- (d) 5: Extreme change.

The rating procedure shall be conducted independently by three qualified individuals, and the final rating shall be the average of the ratings of the three individuals.

**Note:** See Table 1 for a rating example.

### 5.3.3 Performance Requirements

The water resistance rating shall be

- (a) 7 or less for each of the three samples, and
- (b) 3.5 or less for each of the four defects.

### 5.4 Surface Examination

The surface of the test specimen shall be examined for defects and blemishes with the unaided eye from a distance between 300 and 610 mm (1 and 2 ft) using a light source of partially diffused artificial light giving an illuminance on the surface of  $1615 \pm 540$  lx ( $150 \pm 50$  foot-candles)

## 6 Markings and Accompanying Literature

**6.1** Insulated protectors and under-sink guards complying with this Standard shall be marked with the:

- (a) manufacturer's name or trademark;
- (b) model number, when applicable; and
- (c) fire resistance rating, when applicable.

**6.2** Markings shall be permanent, legible, and visible after installation.

**6.3** The size or sizes of the plumbing parts and equipment for which the insulated protectors or under-sink guards are intended shall be marked on the packaging.

**Table 1**  
**Water Resistance Rating Example**  
(See Section 5.3.2)

| Defect       | Rating   |          |          | Average    |
|--------------|----------|----------|----------|------------|
|              | Sample A | Sample B | Sample C |            |
| Blistering   | 2        | 4        | 1        | <b>2.3</b> |
| Color Change | 3        | 2        | 1        | <b>2.0</b> |
| Cracks       | 2        | 0        | 1        | <b>1.0</b> |
| Holes        | 0        | 1        | 4        | <b>1.7</b> |
| <b>Sum</b>   | <b>7</b> | <b>7</b> | <b>7</b> |            |