

**INTERNATIONAL ASSOCIATION OF PLUMBING
AND MECHANICAL OFFICIALS**

MATERIAL AND PROPERTY STANDARD

FOR

LEAD FREE SEALING COMPOUNDS

FOR

THREADED JOINTS

IAPMO PS 36-90

1. PURPOSE

- 1.1** The purpose of this Standard is to establish a generally acceptable standard for lead free sealing compounds for threaded joints for use in drain, waste and vent, potable water and gas lines. Its purpose is to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors, and users; to promote understanding regarding materials, manufacture, and installation; and to provide for identifying sealing compounds that conform with the Standard.

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 of this Standard.

2. SCOPE

- 2.1** This Standard covers physical requirements and tests for leakage and other significant properties in addition to general description of materials not to be used. The methods of marking and identification are also outlined.

3. GENERAL REQUIREMENTS

- 3.1** The compound shall be lead free, non-hardening, lubricating, non-corrosive to ferrous metals and suitable for use in metallic and/or plastic pipelines carrying drain, waste and vent, potable water and natural gas. Compounds for use with LPG shall be so labeled and listed. Compounds for use with plastic piping shall be non-reactive.
- 3.2** The compound shall be furnished ready for use without thinning. When tested in accordance with Section 4, the compound shall prevent galling, leaks and seizing of threaded parts. The compound shall be a smooth, homogeneous mixture, free from lumps.

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- 3.3** The compound shall contain no shellac, glycerol, lead or lead compounds. Materials used shall cause no deleterious or injurious effects upon the health of those consuming potable water flowing through the pipes to which the compound has been applied.
- 3.4** The compound shall be capable of being applied at temperatures ranging from 20°F to a maximum of 140°F. When tested in accordance with Section 4.3, it shall form a flexible, non-shrinking bond that will inhibit rust and corrosion. In addition, it shall not gall or seize.

4. INSPECTION AND TEST METHODS

- 4.1 Sampling.** One (1) pint sample of compound shall be selected at random from a batch for testing. Failure of any test shall be cause for rejection of the batch from which the sample was taken. A batch shall consist of a quantity of compound produced in one operation prior to packaging.
- 4.2 Threaded Joint Test.** A test manifold shall be assembled for each test condition. Each test manifold shall consist of two short lengths of standard weight 1-1/2" metallic pipe (ANSI B1.20.1-83, 1-1/2-11.5 NPT) joined together with a tapered threaded coupling. Prior to assembly, all threads shall be inspected visually for defects and mechanically with ring and plug gauges. Threads shall be free of dirt, grease, oil and corrosion. Apply thread sealing compound uniformly to the male threads only in accordance with the manufacturer's instructions. Assemble joints to hand tight and then to no more than wrench tight in accordance with ANSI/ASME B1.20.1, Pipe Threads, General Purpose (Inch).
- 4.2.1** Each test manifold shall be filled with tap water and pressurized to 150 psi for 30 ± 5 minutes and checked for leakage.
- 4.2.2** One manifold each and pipe thread compound shall be conditioned for four (4) hours prior to assembly at the following temperatures:
- (a) $73 \pm 3.6^\circ\text{F}$;
 - (b) $20 \pm 3.6^\circ\text{F}$; and
 - (c) $140 \pm 3.6^\circ\text{F}$.
- Each manifold shall be assembled immediately after conditioning period and allowed to set at room temperature for a time period in accordance with the manufacturer's recommendations, prior to testing.
- 4.2.3 Performance Requirement.** There shall be no evidence of leakage in any manifold. If leakage occurs in any manifold, that specific test condition shall be repeated, using a new manifold. If leakage reoccurs, that shall be cause for rejection of the compound batch.
- 4.3 Plastic Pipe Non-Reactive Test.** Where thread sealing compound is to be recommended for use on plastic pipe, the following test shall be performed: