

INCH-POUND

A-A-59949

25 February 2014

Superseding

MIL-P-15742C

2 September 1988

## COMMERCIAL ITEM DESCRIPTION

## PLUGS, PLASTIC (HEAT-EXCHANGER TUBE)

The General Services Administration has authorized the use of this commercial item description as a replacement for heat-exchanger tube plugs of MIL-P-15742C for all federal agencies.

1. **SCOPE.** This commercial item description covers heat-exchanger tube plastic plugs which are driven into both ends of leaking condenser or other heat-exchanger tubes to prevent contamination of the fluid surrounding the tubes.

2. **CLASSIFICATION.** Plugs covered by this specification are designated in the following form (see 3.3 and 7.1).

2.1 **Sizes.** The plug sizes (in inches) shall be as follows:

- a.  $\frac{1}{4}$
- b.  $\frac{3}{8}$
- c.  $\frac{1}{2}$
- d.  $\frac{5}{8}$
- e.  $\frac{3}{4}$

3. **SALIENT CHARACTERISTICS.**

3.1 **Material.** Plugs shall be made of laminated phenolic-material consisting of layers of cotton fabric impregnated with natural-color phenolic resin and pressed under controlled conditions of temperature and pressure.

3.2 **Physical properties.** The material from which the plugs are made shall conform to the following physical properties.

3.2.1 **Tensile strength.** The material from which the plugs are made shall demonstrate a tensile strength of 6,500 flatwise pounds per square inch (lb/in<sup>2</sup>) (min) when tested in accordance with ASTM D638.

3.2.2 **Compressive strength.** The material from which the plugs are made shall demonstrate a compressive strength of 25,000 flatwise lb/in<sup>2</sup> (min) when tested in accordance with ASTM D695.

3.2.3 **Impact strength.** The material from which the plugs are made shall demonstrate an impact strength of 2.3 flatwise, Izod, foot pounds (ft lb) per inch of notch (min) when tested in accordance with ASTM D256.

3.3 **Sizes.** Plugs shall be of the following sizes, and shall conform to the dimensions shown on [figure 1](#). Plugs shall not be out of round by more than 0.010 inch at any cross-section along two-thirds of the length starting from the largest diameter end.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to [CommandStandards@navy.mil](mailto:CommandStandards@navy.mil), with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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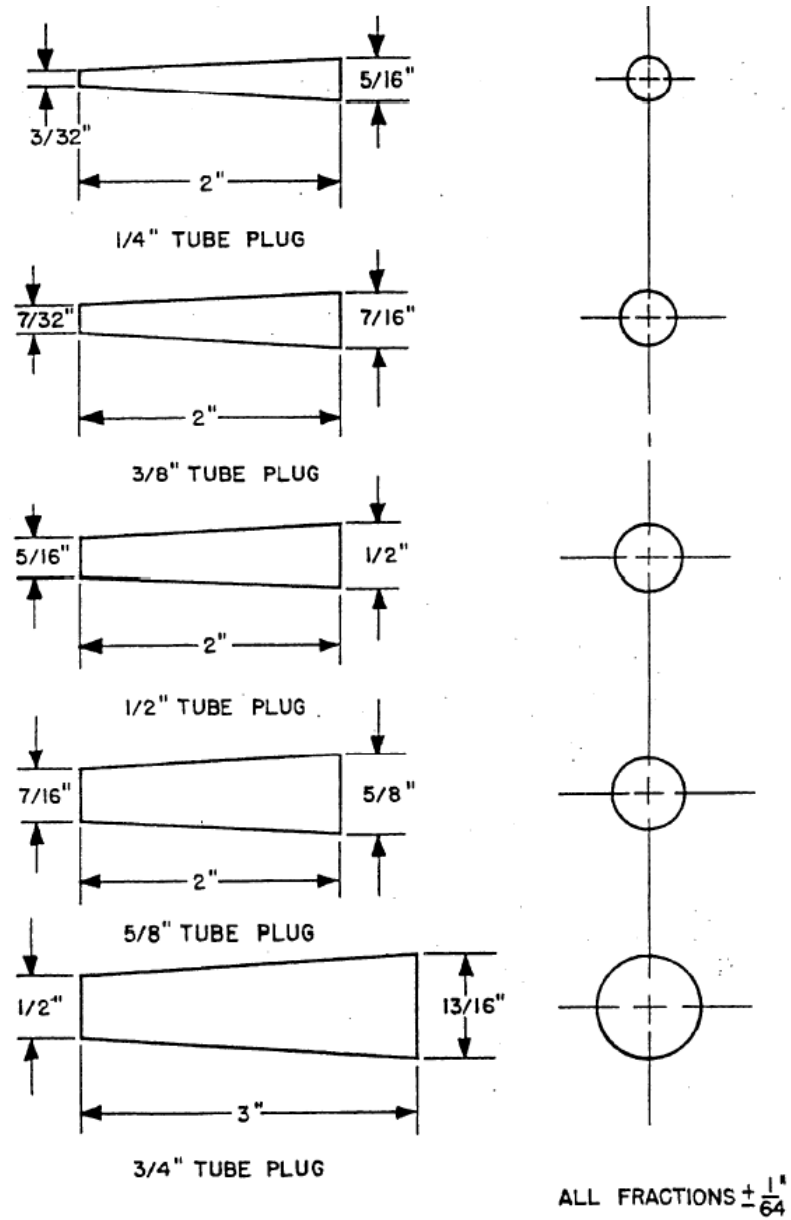


FIGURE 1. Tube plug dimensions.

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3.4 Surface. Plugs shall be machined from laminated phenolic-material in such a manner that the long dimension of the plugs will lie parallel to the laminations. The edges shall be free from burrs or other defects. The surfaces shall be free from scratches, cracks, dents, or other imperfections which may prevent watertight seals between the plugs and the tube.

3.5 Water absorption. Plugs shall not show an increase in weight of more than 2.50 percent when tested in accordance with the following procedures. The sample plugs shall be weighed and placed in a container containing approximately double the amount of 3 percent salt (sodium chloride) solution necessary to cover the plug. The solution shall be boiled continuously for 90 hours, the plugs remaining in the solution during the boiling period. The container shall be fitted with a reflux condenser to maintain a constant salt concentration during the boiling period. At the conclusion of the boiling period, the solution shall be allowed to cool for 4 hours and the plugs removed from the container. The water shall be wiped from the surface of each plug and the plug weighed immediately. The water absorption shall be determined as the difference between the final and original weights.

3.6 Loss on drying. The loss in weight of the plugs shall be not more than 4.0 percent of their original weight when tested in accordance with the following procedures. The sample plugs shall be weighed as received, and dried in an oven at 212 °F (100 °C) for 16 hours. The plugs shall then be allowed to cool in a dessicator and weighed. The loss in weight shall be calculated from the difference of the original weight and the weight of the plugs after the drying period.

3.7 Expansion. The diameter of the plug at the large end shall increase not more than 4.40 percent when tested in accordance with the following procedures. The diameter of the sample plugs shall be measured at their large ends, both parallel and perpendicular to the plane of the laminations. The plugs shall be boiled for 90 hours in the same container as that employed for the water absorption test. The diameters of the plugs shall again be measured at the points at which the initial measurements were taken. The change in diameter of the large end shall be determined both parallel and transverse to the laminations.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

4.1 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this commercial item description. As of the dating of this document, the U.S. Environmentally Protection Agency (EPA) has a list of 31 priority chemicals. The list of chemicals is available on their website at <http://www.epa.gov/wastes/hazard/wastemin/priority.htm>. Further information is available at the following EPA site: <http://www.epa.gov/wastes/hazard/wastemin/index.htm>. Included in the EPA list of 31 priority chemicals are cadmium, lead, and mercury. Use of the materials on the list should be minimized or eliminated unless needed to meet the requirements specified herein (see section 3).

## 5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description; conform to the producer's own drawings, specifications, standards, and quality assurance practices; and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance.

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order.

## 7. NOTES.

7.1 Part or identification number (PIN). The following part or identification numbering procedure is for government purposes and does not constitute a requirement for the contractor.

