

JIS

JAPANESE INDUSTRIAL STANDARD

**Lead and lead alloy tubes
for common industries**

Ⓒ **JIS H 4311—1993**

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.



1. Scope This Japanese Industrial Standard specifies lead and lead alloy tubes (hereafter, referred to as "tubes") used for common industries which are manufactured by extrusion.

Further, lead pipes for water supply shall be in accordance with JIS H 4312.

Remarks: The following standards are cited in this Standard.

JIS H 0321 General rules for inspection of non-ferrous metal materials

JIS H 1121 Methods for chemical analysis of lead metal

JIS H 1123 Methods for emission spectrochemical analysis of lead metal

JIS H 1501 Methods for chemical analysis of white metal

JIS H 4312 Polyethylene lining lead pipes for water supply

JIS K 0050 General rules for chemical analysis

JIS K 0121 General rules for atomic absorption spectrochemical analysis

2. Classes and symbols The classes and symbols of tubes shall be as given in Table 1.

Table 1. Classes and symbols of tubes

Class	Symbol	Informative reference
		Characteristics and uses
Lead tube for industries class 1	PbT-1	PbT-1 is a lead tube containing lead at least 99.9 %, is thick in wall thickness, suitable for chemical industry, 10.5 N/mm ² in tensile strength, and about 60 % in elongation.
Lead tube for industries class 2	PbT-2	PbT-2 is a lead tube containing lead at least 99.60 %, is good in corrosion resistance, excellent in workability, thin in wall thickness, suitable for general drainage, 11.7 N/mm ² in tensile strength, and about 55 % in elongation.
Tellurium lead tube	TPbT	TPbT is dispersion hardening lead alloy tube containing an extremely small quantity of tellurium, which has the same wall thickness as that of lead tube for industries class 1, and is excellent in creep resistance, capable of being used at high temperature (100°C to 150°C), suitable for chemical industry, 20.5 N/mm ² in tensile strength, and about 50 % in elongation.
Hard lead tube class 4	HPbT4	HPbT4 is an lead alloy tube containing 4 % of antimony, which shows high strength and high hardness as lead alloy in the service region from ordinary temperature to 120°C, is capable of being applied to apparatuses for chemical industries and fields requiring hardness for general use, 25.5 N/mm ² in tensile strength and about 50 % in elongation.
Hard lead tube class 6	HPbT6	HPbT6 is an lead alloy sheet and plate containing 6 % of antimony, which shows high strength and high hardness as lead alloy in the service region from ordinary temperature to 120°C, is capable of being applied to apparatuses for chemical industry and fields requiring hardness for general use, 28.5 N/mm ² in tensile strength and about 50 % in elongation.

3. Quality

3.1 Appearance Tubes shall be practically near perfect circle and free from defects harmful to use.

3.2 Chemical compositions Chemical compositions of tubes shall be as given in Table 2 and Table 3.