



उत्पाद मैनुअल  
नलसाजी हेतु तांबे के पाइप – विशिष्टि  
IS 14810: 2000 के अनुसार

**Product Manual for  
Copper Tubes for Plumbing-Specification  
According to IS 14810: 2000**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

**This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.**

|    |                                             |   |                                                                                                                                                                                                                                                                                            |
|----|---------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | भारतीय मानक संख्या<br>IS No.                | : | IS 14810:2000                                                                                                                                                                                                                                                                              |
|    | शीर्षक<br>Title                             | : | Copper Tubes for Plumbing-Specification                                                                                                                                                                                                                                                    |
|    | संशोधनों की संख्या<br>No. of amendments     | : | 0                                                                                                                                                                                                                                                                                          |
| 2. | नमूना दिशानिर्देश<br>Sampling Guidelines    |   |                                                                                                                                                                                                                                                                                            |
| a) | कच्चा माल<br>Raw material                   | : | The copper tubes shall be manufactured from grade Cu-DHP of IS 191<br><br><b>Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance</b> |
| b) | समूहीकरण दिशानिर्देश<br>Grouping Guidelines | : | Please refer Annex-A                                                                                                                                                                                                                                                                       |
| c) | नमूने का परिमाण<br>Sample Quantity          | : | For chemical test: 5 pcs of 5 cm length<br>For Tensile Test, Drift Expanding Test, 1 m length                                                                                                                                                                                              |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>The requirements of Hydrostatic Test shall be carried out on full length of tubes during factory testing only. Also, the requirements of Dimensions and Tolerances shall also be carried out in the factory only.</p> <p><b>Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)</b></p> |
| d) | परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर<br><b>Parameters to be Declared in Test Request</b>                                                                                                                                                                                                                                                                                                                                          | <p>Condition, Outside Diameter, Wall Thickness</p> <p>: Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3. | परीक्षण उपकरणों की सूची<br><b>List of Test Equipment</b>                                                                                                                                                                                                                                                                                                                                                                                     | : <b>Please refer to Annex- B</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4. | निरीक्षण और परीक्षण की स्कीम<br><b>Scheme of Inspection and Testing</b>                                                                                                                                                                                                                                                                                                                                                                      | : <b>Please refer to Annex- C</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5. | <p>एक दिन में संभावित परीक्षण<br/><b>Possible tests in a day</b></p> <p>All Tests can be carried out in a day.</p> <p><b>Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.</b></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 6. | <p><b>लाइसेंस का दायरा /Scope of the Licence:</b></p> <p>IS 14810: 2000 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है □Licence is granted to use Standard Mark as per IS 14810: 2000 with the following scope:</p>                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 7. | उत्पाद का नाम<br><b>Name of the product</b>                                                                                                                                                                                                                                                                                                                                                                                                  | Copper Tubes for Plumbing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|    | <b>Condition</b>                                                                                                                                                                                                                                                                                                                                                                                                                             | Annealed(O), Half Hard(HB), Hard(HD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|    | <b>Size</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  | Outside Diameter from ...xx...mm to up to and including ....xx... mm, Wall Thickness from ....xx...mm to up to and including ....xx... mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**ANNEX-A**  
**TO PRODUCT MANUAL FOR**  
**Copper Tubes for Plumbing**  
**According to IS 14810:2000**

**GROUPING GUIDELINES**

1. IS 14810:2000 covers phosphorized(DHP) copper tubes for general plumbing and similar applications for the convenience of fluids including water.
2. These tubes shall be designated by the outside diameter and the wall thickness, as given in Tables W, X, Y, Z. Further, these tubes can be supplied in either of the 3 conditions namely Hard(HD), Half Hard (HB), Annealed(soft) (O).
2. In view of above, it is proposed to have the following grouping guidelines for the purpose of GoL/CSoL:-

| Group | Type of Tube/Sizes of Tube                                                                      | Condition | Grouping                                                                                                                                       |
|-------|-------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Annealed Copper Tubes of size from 6 mm to up to and including 10 mm (refer Table W)            | O         | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group                           |
| 2     | Half Hard Copper Tubes of size from 6 mm to up to and including 54 mm (refer Table X)           | HB        | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group                           |
| 3     | Half Hard Copper Tubes of size from 54 mm to up to and including 108 mm (refer Table X)         | HB        | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group                           |
| 4     | Half Hard Copper Tubes of size from 108 mm to up to and including 159 mm (refer Table X)        | HB        | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group                           |
| 5     | Half Hard Annealed Copper Tubes of size from 6 mm to up to and including 35 mm(refer Table Y)   | O, HB     | One sample of any size (Outside Diameter/Wall Thickness) of tubes for <b>each condition</b> shall be drawn to cover all sizes within the group |
| 6     | Half Hard Annealed Copper Tubes of size from 35 mm to up to and including 108 mm(refer Table Y) | O, HB     | One sample of any size (Outside Diameter/Wall Thickness) of tubes for <b>each condition</b> shall be drawn to cover all sizes within the group |

|   |                                                                                           |    |                                                                                                                      |
|---|-------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------|
| 7 | Hard Drawn Copper Tubes of size from 6 mm to up to and including 54 mm (refer Table Z)    | HD | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group |
| 8 | Hard Drawn Copper Tubes of size from 54 mm to up to and including 108 mm (refer Table Z)  | HD | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group |
| 9 | Hard Drawn Copper Tubes of size from 108 mm to up to and including 159 mm (refer Table Z) | HD | One sample of any size (Outside Diameter/Wall Thickness) of tubes shall be drawn to cover all sizes within the group |

4) However, it shall be ensured that the firm is having all the necessary manufacturing and testing facilities for manufacturing/testing of all the sizes and conditions covered in the scope of the licence.

5) During the operation of the licence, BOs shall ensure that all sizes and conditions covered in the scope of the licence are drawn for independent testing in rotation over a period of time.

ANNEX – B

LIST OF TEST EQUIPMENTS  
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Major test equipment required to test as per requirements of Indian Standard.

| Sl. No. | Tests Used in with Clause Reference                                                  | Test Equipment/Chemicals and Identification Numbers (Where applicable)                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.      | Chemical Composition (as per IS 191) , cl.7.                                         | Spectrometer, Analytical Balance(0-200gm, LC-0.1mg) ,Hot Plate, Hot Air Oven, Photometer (Absorption cell), Porcelain/Silica Crucible, Platinum Crucible, Thermometer, Filter Paper including ashless filter paper pad, Stainless steel/nickel beaker, Plastic/polyethene/SS Beaker, Pyrex beakers and other glassware                                                                                                                                                                           |
| 2.      | Copper by the Electrolytic Method                                                    | Platinum Electrodes, Plain or Perforated Sheet, Wire Gauze, Sulphuric Acid-Nitric Acid Mixture, Urea – solid, Ethanol or M ethanol , Ferric Nitrate Solution, Concentrated Ammonium Hy droxide, Ammonium Sulphate Solution, Dilute Sulphuric Acid, Concentrated Nitric Acid,General Glasswares, Burner, Electrolysis Assembly, Filter Papers                                                                                                                                                     |
| 3.      | Arsenic and Antimony by the Co-Precipitation (Iodimetric Method)                     | All glass distillation apparatus, Concentrated Nitric Acid, Concentrated Hydrochloric Acid, Ferric Nitrate Solution, Concentrated Ammonium Hydroxide, Dilute Ammonium Hydroxide, Dilute Sulphuric Acid, Carbon Dioxide – gas, Hypophosphorus Acid, Sodium Sulphite, Sodium Hydroxide Solution, Methyl Red Indicator Solution, Dilute Hydrochloric Acid, Sodium Bicarbonate, Starch Solution, Potassium Iodide Solution, Standard Iodine Solution, Tartaric Acid Solution,Hot Plate, Filter Paper |
| 4.      | Arsenic by the Hypophosphite (Alternate Method) (Applicable in absence of Se and Te) | Dilute Sulphuric Acid, Concentrated Nitric Acid, Concentrated Hydrochloric Acid, Sodium Hypophosphite, Dilute Hydrochloric Acid, Ammonium Chloride Solution, Standard Iodine Solution, Sodium Carbonate, Starch Solution, Standard Sodium Arsenite Solution-001 N, Analytical Balance, All glass distillation apparatus, Hot Plate, Paper-pulp Pad                                                                                                                                               |
| 5.      | Bismuth by the Iodide (Photometric Method)                                           | Concentrated Nitric Acid, Ferrous Ammom’um Sulphate, Concentrated Ammonium Hydroxide, Ammonium Carbonate Solution, Dilute Ammonium                                                                                                                                                                                                                                                                                                                                                               |

|            |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                                                         | Hydroxide, Dilute Sulphuric Acid, Potassium Iodide Solution, Sodium Hypophosphite Solution, Phosphoric Acid, Standard Bismuth Solution, Analytical Balance, All glass distillation apparatus, Hot Plate, Filter Paper                                                                                                                                                                                                                                                                                                                   |
| <b>6.</b>  | Iron (by the Dichromate (Volumetric) Method)            | Dilute Nitric Acid, Concentrated Nitric Acid, Perchloric Acid, Hydrobromic Acid, Concentrated Ammonium Hydroxide, Ammonium Chloride Solution, Dilute Hydrochloric Acid, Starmous Chloride Solution, Mercuric Chloride Solution, Sulphuric Acid-Phosphoric Acid Mixture, odium Diphenylumine Sulphonate Indicator Solution, Standard Potassium Bichromate Solution, Ammonium Thiocyanate Solution, Standard Iron Solution, Analytical Balance, All glass distillation apparatus, Hot Plate, Filter Paper                                 |
| <b>7.</b>  | Iron (by the Ammonium Thiocyanate (Photometric )Method) | Dilute Nitric Acid, Concentrated Nitric Acid, Perchloric Acid, Hydrobromic Acid, Concentrated Ammonium Hydroxide, Ammonium Chloride Solution, Dilute Hydrochloric Acid, Starmous Chloride Solution, Mercuric Chloride Solution, Sulphuric Acid-Phosphoric Acid Mixture, odium Diphenylamine Sulphonate Indicator Solution, Standnrd Potassium Bichromate Solution, Ammonium Thiocyanate Solution, Standard Iron Solution, Analytical Balance, All glass distillation apparatus, Hot Plate, Filter Paper, Cover Glass, Spectrophotometer |
| <b>8.</b>  | Lead by Colorimetric Method                             | Platinum Electrodes, Plain or Perforated Sheet, Wire Gauze, Dilute Nitric Acid, Hydrogen Peroxide Solution, Acidified Hydrogen Sulphide Solution, Ammonium Acetate Solution, Sucrose Solution, Standard Lead Acetate Solution, Analytical Balance, Hot Plate, Electrolysis Assembly, Titration Assembly                                                                                                                                                                                                                                 |
| <b>9.</b>  | Nickel by the dimethylglyoxime (gravimetric) method     | Concentrated sulphuric acid, concentrated nitric acid, Tartatic Acid Solution, Concentrated Ammonium Hydroxide, Dimethylglyoxime Solution, Analytical Balance, Hot Plate, General Glasswares                                                                                                                                                                                                                                                                                                                                            |
| <b>10.</b> | Selenium by the gravimetric method                      | Concentrated Nitric Acid, Ferric Nitrate Solution, Concentrated Hydrochloric Acid, Concentrated Ammonium Hydroxide, Dilute Ammonium Hydroxide, Dilute Hydrochloric Acid, Sulphur Dioxide Solution, Rectified Spirit, Analytical                                                                                                                                                                                                                                                                                                         |

|            |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                                                      | Balance, Hot Plate, General Glasswares, Filter Papers, Drying Oven                                                                                                                                                                                                                                                                                                                                       |
| <b>11.</b> | Determination of tellurium by the gravimetric method | Tartaric Acid, Concentrated Ammonium Hydroxide, Sulphur Dioxide Solution, Hydrarine Hydrochloride Solution, Rectified Spirit, Carbon Dioxide, Analytical Balance, Hot Plate, General Glasswares, Sintered Glass Crucible, Drying Oven                                                                                                                                                                    |
| <b>12.</b> | Determination of tin by the iodimetric method        | Concentrated Hydrochloric Acid, Dilute Nitric Acid, Ferric Nitrate Solution, Concentrated Ammonium Hydroxide, Ammonium Chloride Solution, Dilute Hydrochloric Acid, Antimony Chloride Solution, Test Lead, a roll of nickel sheet, Carbon Dioxide – gas, Potassium Iodide Solution, Starch Solution, Standard Potassium Iodate Solution, General Glasswares, Analytical Balance, Hot Plate, Filter Paper |
| <b>13.</b> | Determination of phosphorus by alkalimetric method   | Concentrated Nitric Acid, Potassium Permanganate Solution, Ammonium Nitrite Solution, Ammonium Nitrate, Ammonium Molybdate Solution, Potassium Nitrate Wash Solution, Phenolphthalein Indicator Solution, Sodium Hydroxide Solution, Standard Hydrochloric Acid Solution, Analytical Balance, Erlenmeyer flask, Other General Glass Wares, Hot Plate, Filter Paper, Titration Assembly                   |
| <b>14.</b> | Tensile Test, cl.11.1                                | Universal Tensile Testing Machine                                                                                                                                                                                                                                                                                                                                                                        |
| <b>15.</b> | Drift Expanding Test, cl.11.2                        | Variable Speed Pressor UTM, Conical Mandrels with angles 30 degree, 45 degree, 60 degree etc                                                                                                                                                                                                                                                                                                             |
| <b>16.</b> | Hydrostatic Test, cl.10.4.2                          | Hydrostatic Test Equipment, Pressure Gauge                                                                                                                                                                                                                                                                                                                                                               |
| <b>17.</b> | Dimensions and Tolerances, cl.10.                    | Micrometer, Vernier Caliper, Steel Tape, Straight Edge, Cord, Flat Table                                                                                                                                                                                                                                                                                                                                 |

Note: The above is an indicative list for the purpose of guidance only

## ANNEX- C SCHEME OF INSPECTION AND TESTING

### 1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

#### 1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: All copper tubes of the same size ,condition and manufactured from the same raw material shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

**2. ENSURING COMPLIANCE THROUGH TESTING-** It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website [www.bis.gov.in](http://www.bis.gov.in). (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

**2.4 TEST RECORDS-** The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

**3. PACKING AND MARKING** - The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L... ) shall be suitably incorporated on the product and on the test certificate issued along with each consignment, provided always that the product thus marked and packed conforms to all the requirement of the specification.

**3.1** Packing and Marking shall be done as per the Indian Standard.

**3.2 Additional Marking requirements:** The material shall also be marked with the following additional requirement on each Package of tube:

- a) “For BIS certification details please visit [www.bis.gov.in](http://www.bis.gov.in)”
- b) Any other requirement not specified in the Indian Standard

**4. TEST CERTIFICATE** – For each consignment of BIS Certified material conforming to IS 14810:2000 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I enclosed).

**5. REJECTION** - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**  
**(ONLY FOR GUIDANCE PURPOSE)**

| (1)          |                      |                   |                                                                         | (2)                                                                              | (3)                                                                                                |                | (4)                                                                                                                                                                                                             |
|--------------|----------------------|-------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TEST DETAILS |                      |                   |                                                                         |                                                                                  | LEVELS OF CONTROL                                                                                  |                | REMARKS                                                                                                                                                                                                         |
| Clause       | Requirements         | Test Method       |                                                                         | Test equipment requirement<br>R: required<br>(or)<br>S:Sub-contracting permitted | No. of Samples                                                                                     | Frequency      |                                                                                                                                                                                                                 |
|              |                      | Clause            | Reference                                                               |                                                                                  |                                                                                                    |                |                                                                                                                                                                                                                 |
| 6            | Freedom from Defects | —                 | IS 14810                                                                | R                                                                                | Manufacturer shall maintain adequate inspection/in-process controls to ensure freedom from defects |                |                                                                                                                                                                                                                 |
| 7            | Chemical Composition | 9.1, 9.2, Table 1 | IS 2501<br>IS 440 or any other established instrumental/chemical method | R                                                                                | One                                                                                                | Each Heat/Cast | In case of raw material procured from outside, the manufacturer shall ensure that the material is received with test certificate.<br>No further testing is required if the raw material procured is ISI marked. |
| 8            | Manufacture          | 8.1.8.2           | IS 14810                                                                | R                                                                                | The tubes shall be manufactured in accordance with the requirements of the specification           |                |                                                                                                                                                                                                                 |

|      |                           |                               |                             |   |                                                                                               |                   |   |
|------|---------------------------|-------------------------------|-----------------------------|---|-----------------------------------------------------------------------------------------------|-------------------|---|
| 10   | Dimensions and Tolerances | 8.1, 8.2, 8.2.1, 8.2.2, 8.2.3 | IS 2501<br>IS 5493          | R | Adequate inspection to ensure that the tubes conform to the requirements of the specification |                   |   |
| 11.1 | Tensile Test              | Table 2                       | IS 2501<br>IS 1608 (Part 1) | R | One                                                                                           | Each control unit | — |
| 11.2 | Drift Expanding Test      | 10.3.1, 10.3.2                | IS 2501<br>IS 2335          | R | One                                                                                           | Each control unit | — |
| 12   | Hydrostatic Test          | —                             | IS 2501                     | R | Each Tube                                                                                     | Each Tube         | — |

PM/14810/2  
September 2025

**Annexure-I**  
(Para 4 of the Scheme of Inspection and Testing)  
XYZ COMPANY  
(Registered office Address and works address)

ISI Mark  
With IS No.  
and CM/L  
no.

**Test Certificate for Copper Tubes for Plumbing**  
TEST CERTIFICATE NO. \_\_\_\_\_

To M/s \_\_\_\_\_

Dated \_\_\_\_\_

We certified that the material described below fully conforms to IS 14810:2000 Chemical composition and Mechanical properties of the product as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L \_\_\_\_\_ are as indicated below against each order No.

(PLEASE REFER TO IS 14810:2000 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

**TEST RESULTS**

| Order No. & Date | Size | Control unit No. | Quantity (in tonnes) | Chemical Composition (in %) |    |    |    |    |    |    |    |    |   |     | Tensile Strength | Tolerances | Hydrostatic Test | Drift Expanding Test | Remarks |
|------------------|------|------------------|----------------------|-----------------------------|----|----|----|----|----|----|----|----|---|-----|------------------|------------|------------------|----------------------|---------|
|                  |      |                  |                      | Cu                          | Mn | Sn | Pb | Fe | Ar | Al | Ni | Zn | P | T.I |                  |            |                  |                      |         |
|                  |      |                  |                      |                             |    |    |    |    |    |    |    |    |   |     |                  |            |                  |                      |         |

Remarks  
Wagon No.  
Truck No.

FOR XYZ COMPANY

(It is suggested that size A4 paper be used for this test Certificate)