# केन्द्रीय मुहर विभाग -2

संदर्भ- के.मु.वि.-2/16: 4454 (भाग-1) 03 01 2019

**विषय : आई एस 4454 (भाग-1):2001 प्रमाणन हेतु एस आई टी**

इसे उपरोक्त विषय का संदर्भ प्राप्त है ।

सक्षम प्राधिकारी ने अनुपालन हेतु एस आई टी को अनुमोदित कर दिया है ।

सभी क्षेत्रीय और शाखा कार्यालयों से अनुरोध है कि उपरोक्त एस आई टी का अनुपालन तत्काल प्रभाव से सुनिश्चित करें ।

(अरुण पुछकायला)
वैज्ञानिक सी

**प्रमुख (सीएमडी-2) (हस्ता/-)**
सभी क्षेत्रीय/शाखा कार्यालय
प्रतिलिपि : आई टी एस विभाग - बी आई एस इंट्रानेट पर डालने हेतु

# CENTRAL MARKS DEPARTMENT-2

Our Ref: CMD-2/16: 4454 (Part 1) 03 01 2019

**Subject: SIT for IS 4454 (Part 1):2001**

This has reference to the subject mentioned above.

The SIT for IS 4454 (Part 1):2001 has been approved by the Competent Authority.

All ROs/BOs are requested to ensure the implementation of the SIT with immediate effect.

(Arun Pucchakayala)
Scientist C

**Head (CMD-2)(sd/-)**

All ROs/BOs
Copy to: ITS for hosting on BIS Intranet.

# SCHEME OF INSPECTION AND TESTING FOR CERTIFICATION OF STEEL WIRES FOR MECHANICAL SPRINGS PART 1 COLD DRAWN UNALLOYED STEEL WIRE According to IS 4454 (Pt-1): 2001

**LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipments.

**2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING, MARKING & PACKING** – The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L…….) shall be incorporated, and the packing & marking shall be done as per the provisions of the Indian Standard, provided always that the product thus marked conforms to all the requirement of the specification. In addition, details of BIS website shall be marked as follows: "For details of BIS certification please visit www.bis.gov.in"

**4. CONTROL UNIT –** For the purpose of this Scheme, a control unit is defined as steel wire of same cross-sectional dimensions and same grade manufactured by using steel of same heat and manufactured under uniform conditions of production in a day.

**5. LEVELS OF CONTROL -** The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

**6. TEST CERTIFICATE**-For each consignment of BIS Certified material conforming to IS 4454(Pt.1):2001 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)

**7. REJECTIONS –** 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. Any rejected material which is potentially re-salable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose except re-melting. A separate record shall be maintained giving information on quantity and cast number/coil number/control unit number, as applicable, relating to all such rejections/defective/sub-standard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

**SCHEME OF INSPECTION AND TESTING**
**FOR CERTIFICATION**
**According to IS 4454(Pt.1):2001**
**TABLE 1: LEVELS OF CONTROL**

| (1) | | | | (2) | (3) | | (4) |
|---|---|---|---|---|---|---|---|
| **TEST DETAILS** | | | | | **LEVELS OF CONTROL** | | **REMARKS** |
| **Clause** | **Requirements** | **Test Method** | | **Test equipment requirement** R: required (or) S: Sub-contracting permitted | **No. of Samples** | **Frequency** | |
| | | **Clause** | **Reference** | | | | |
| 7 | Chemical Composition | | | | | | |
| | Ladle Analysis | 7.1 , 7.1.1, Table-2 | IS 4454(Pt.1) : 2001 & IS 228 (Various Parts) / any established Chemical/ Instr. Method. | R | One | Each Heat | Applicable for manufacturers with steel making facilities |
| | Product Analysis | 7.2, 7.2.1, Table-2 & 3 | | R | i) Nil | i)Nil | i) Applicable for primary steel producers with steel making and rolling facilities, wherever traceability to the heat is ensured by manufacturer. |
| | | | | | ii)One | ii) Each Cast | ii)Applicable for manufacturers feeding to rolling mills/ drawing dies (see Note-3). |
| 8 | Freedom from Defects | 8 | IS 4454(Pt.1) : 2001 | R | Adequate inspection to ensure each item to be free from defects | | |
| 9 | Dimensions & Tolerances | 9.1, 9.2, 9.3 & Table-4 | IS 4454(Pt.1) : 2001 | R | Adequate inspection to ensure each item to be within the limits of specification.<br><br>Records shall be maintained for sizes & tolerances other than those specified in Table-4 and as agreed between manufacturer and purchaser. | | |
| 10.1 | Tensile Test | 10.1, Table-5 | IS 4454(Pt.1) : 2001 IS 1608 | R | 1 | 1 in every 5 coils or part thereof | Refer Note-5 |
| 10.2 | Wrapping Test | 10.2 | IS 1755 | R | -do- | -do- | -do- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10.3 | Torsion Test | 10.3.1, 10.3.2, 10.3.3, 10.3.4, 10.3.5 | IS 4454(Pt.1) : 2001 IS 1717 | R | 1 | 1 in every 5 coils or part thereof | Refer Note-5 |
| 10.4 | Bend Test | 10.4 | IS 4454(Pt.1) : 2001 | R | ----- | ----- | |
| 10.5 | Coiling and Stretching Test | 10.5 | IS 4454(Pt.1) : 2001 | R | ----- | ----- | |
| 10.6 | Cast of the Wire | 10.6 | IS 4454(Pt.1) : 2001 | R | 1 | 1 in every 5 coils or part thereof | Refer Note-5 |
| | | 10.6.1, Fig.1 | IS 4454(Pt.1) : 2001 | R | ----- | ----- | |
| 10.7 | Deep Etch Test | 10.7, 10.7.1, 10.7.1.1 | IS 4454(Pt.1) : 2001 | R | 1 | 1 in every 5 coils or part thereof | Refer Note-5 |
| 10.8 | Decarburization Test | 10.1, 10.2 & 10.3 | IS 4454(Pt.1) : 2001 IS 6396 | R | -do- | -do- | -do- |
| 11 | Coating and Surface Finish | 11,11.1, 11.2, 11.3 | IS 4454(Pt.1) : 2001 | R | ----- | ----- | Wherever metallic coating is required by the purchaser, records of agreed upon mass of coating and their method of test shall be maintained. |

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.

Note-3: No testing for product analysis is required if material fed to rolling mills/drawing dies is ISI marked and received with test certificate.

Note -4 : ------- means the levels of control in Column(3) of Table-1 are as agreed to between the manufacturer and purchaser.

Note-5: When any sample fails in respect of a given requirement, four previous coils of the same control unit shall be subjected to test or inspection of that requirement and the defective material so found shall be sorted out and rejected.

BIS STANDARD MARK

**ANNEXURE I**

(Para 6 of the Scheme of Inspection and Testing)

XYZ IRON AND STEEL COMPANY

(Registered office Address and works address)

**TEST CERTIFICATE FOR STEEL WIRES FOR MECHANICAL SPRINGS**

**PART 1 COLD DRAWN UNALLOYED STEEL WIRE**

TEST CERTIFICATE No._____ DATE_____

To M/s_____

We certified that the material described below fully conforms to 4454(Pt.1):2001 Chemical composition and Physical properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks LicenceNo.CM/L_____ are as indicated below against each order No.

(PLEASE REFER TO IS 4454(Pt.1):2001 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

**TEST RESULTS**

| Order No. & Date | (nom Size) | Cast/ Control Unit No. | Grade | Quantity | CHEMICAL COMPOSITION | | | | | | | | MECHANICAL PROPERTIES | Bend Test | Torsion test | Wrapping Test | Decarburization | Condition | #Coating & Surface finish |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | C % | S % | P % | Si % | Mn % | Cu % | N % | Cr % | TS | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

# as required by purchaser

REMARKS

WAGON NO.

TRUCK NO.

FOR XYZ IRON AND STEEL COMPANY

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