**Central Marks Department - 3**

**Ref: CMD-3/16:15627** **23-09-2016**

**Sub: Implementation of Amendment No. 2 and STI (Doc: STI/15627/2 Sep 2016) for Automotive vehicles - Pneumatic Tyres for two and three wheeled motor vehicles and quadricycles**

Amendment No. 2 to IS 15627 has been issued which shall be implemented with immediate effect.

Consequent to the above amendment, the existing STI has been revised and replaced by Doc:STI/15627/ 2 SEP 2016 wherein only the headings of the STI and table 1 has been modified. The revised STI is enclosed herewith for immediate implementation by all BOs.

(A.Chatterjee)
Sc –E, CMD-3

Head (CMD-3)
Circulated to all ROs/BOs
CC: ITS for hosting on intranet

**<u>केन्द्रीय मुहर विभाग 3</u>**

**संदर्भ- केन्द्रीय मुहर विभाग-3/ 16: आई एस - 15627** **23 सितम्बर 2016**

**विषय- संशोधन नंबर दो के कार्यान्वयन और एसटीआई (DOC:STI/15627/2 सितम्बर 2016) के अनुसार स्वचल वाहन - दुपहिया और तिपहिया एवं क्वाडरीसाईकिल मोटर वाहनों के लिए वातिल टायर**

आई एस 15627 का संशोधन नंबर 2 तत्काल प्रभाव से लागू करने के लिए जारी किया गया है ।

उपरोक्त संशोधन के फलस्वरूप मौजूदा एसटीआई संशोधित किया गया है **(DOC:STI/15627/ 2 सितम्बर 2016)** जिसमें केवल एसटीआई और तालिका 1 के शीर्षकों को संशोधित किया गया है । संशोधित एसटीआई सभी शाखाओं द्वारा तत्काल लागू करने के लिए इसके साथ संलग्न है।

**(ए चटर्जी)**
**वैज्ञानिक ई (सी एम डी-3)**

**प्रमुख (सी एम डी-3)**
**सभी श्रेत्रिय/ शाखा कार्यालय/ भारतीय मानक ब्यूरो प्रयोगशाला/एम एच डी/एफ.एम.सी.डी**
**आई टी एस विभाग - BIS Intranet एवं BIS website पर डालने हेतू**

# SCHEME OF TESTING AND INSPECTION FOR CERTIFICATION OF AUTOMOTIVE VEHICLES – PNEUMATIC TYRES FOR TWO AND THREE WHEELED MOTOR VECHICLES AND QUADRICYCLES ACCORDING TO IS 15627:2005

1. **LABORATORY** – A laboratory shall be maintained which shall be suitably equipped and staffed where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

2. **TEST RECORDS** - All records of tests, inspection and calibration shall be kept in suitable forms approved by the Bureau.

2.1 All testing apparatus/measuring instruments shall be periodically checked and calibrated and records of such checks/calibration shall be maintained.

2.2 Copies of any records and other connected papers that may be required by the Bureau shall be made available at any time on request.

3. **QUALITY CONTROL** – It is recommended that, as far as possible, Statistical Quality Control (SQC) methods may be used for controlling the quality of the product during production as envisaged in this Scheme [See IS 397(Part I), IS 397(Part 2) and IS 397(Part 3)].

3.1 In addition, effort should be made to gradually introduce a Quality Management System in accordance with IS/ISO 9001.

4. **STANDARD MARK** – The Standard Mark, as given in Column (1) of the first Schedule of the licence, shall be embossed on each tyre, provided always that each tyre to which this mark is thus applied conforms to every requirement of the specification.

4.1 **OTHER MARKING** - In addition the information given in Annex I shall be marked on each tyre.

5. **LEVELS OF CONTROL** - The tests, as indicated in Table 1 attached and at the levels of control specified therein, shall be carried out on the whole production of the factory which is covered by this scheme and appropriate records and charts maintained in accordance with paragraph 2.0 above. All the production which conforms to the Indian Standards and covered by the licence shall be marked with certification mark of the Bureau.

5.1 Only those finished product which meet all the requirements of the specification shall be considered fit to be covered under the BIS certification Marks Scheme.

5.2 **RAW MATERIAL CONTROLS** – All the incoming raw materials shall be tested and proper records maintained before releasing material for production. Alternatively, the raw material shall be accompanied by the test certificate of the supplier. Recommended list of various raw materials is given in Annexure II.

5.3 **PROCESS CONTROL** – The frequency of inspection and parameters shall be according to the approved plant quality audit programme. The areas of manufacturing given in Annex-III shall be covered in this programme. During each stage, the given parameters and equipment set up shall be controlled, audited and recorded.

5.4 **TYPE APPROVAL/TYPE TEST** : For type approval/type test procedure stipulated under clause 6 and Table 20 of IS 15627 shall be followed for each family of Tyres before permission is granted for covering the tyres under BIS. Certification Marks Scheme. when there are changes in the technical specification of already approved tyres or for extension of type approval. Procedure given under clause 6.2.3 to 6.2.5 of IS 15627 shall be followed

5.5 **CONFORMITY OF PRODUCTION TEST/ACCEPTANCE TEST** : During operation of licence, for conformity of production test/acceptance test, procedure stipulated under cl. 7.1 to 7.4 of Table 21. of IS 15627 shall be followed.

6.0 **REJECTIONS** – A separate record shall be maintained giving information relating to the rejection of the production not conforming to the requirements of the specification and the method of its disposal. Such material shall in no circumstances be stored together with that conforming to the specification.

7.0 **SAMPLES** – The licensee shall supply, free of charge, the samples required in accordance with the Bureau of Indian Standards (Certification) Regulations, 1988, as subsequently amended, from the factory or godowns. The Bureau shall pay for the samples taken by it from the open market.

8.0 **REPLACEMENT** – Whenever a complaint is received soon after the goods with Standard Marks have been purchased and used, and if there is adequate evidence that the goods have not been misused, defective goods or their components are replaced or repaired free of cost by the licensee in case the complaint is proved to be genuine and the warranty period (where applicable) has not expired. The final authority to judge the conformity of the product to the Indian Standard shall be with the Bureau. The firm should have own complaint investigation system as per IS 15400.

8.1 In the event of any damages caused by the goods bearing the Standard Mark, or claim being filed by the consumers against BIS Standard Mark and not “conforming to” the relevant Indian Standard, entire liability arising out of such non conforming product shall be of licensee and BIS shall not in any way be responsible in such cases.

9.0 **STOP MARKING** – The marking of the product shall be stopped under intimation to the Bureau if, at any time, there is some difficulty in maintaining the conformity of their product to the specification, or the testing equipment goes out of

order. The marking may be resumed as soon as the defects are removed under intimation to Bureau.

9.1 The marking of the product shall be stopped immediately if directed to do so by Bureau for any reason. The marking may then be resumed only after permission by the Bureau. The information regarding resumption of markings shall also be sent to the Bureau.

10.0 **PRODUCTION DATA** – The licensee shall send to BIS as per the enclosed proforma-1 to be authenticated by a Chartered Accountant or authenticated vide an undertaking of the manufacturer, giving a statement of quantity produced, marked and exported by him and the trade value thereof at the end of each operative year of the licence.

**IS 15627:2005**
**AUTOMOTIVE VEHICLES – PNEUMATIC TYRES FOR TWO AND THREE WHEELED MOTOR VEHICLES AND QUADRICYCLES**
**TABLE 1 LEVELS OF CONTROL**
**(Para 5 of the Scheme of Testing and Inspection)**

| TEST DETAILS | | | | LEVELS OF CONTROL | | |
|---|---|---|---|---|---|---|
| **Cl.** | **Requirement** | **Test Methods** | | **No. of samples** | **Frequency** | **Remarks** |
| | | **Clause** | **Reference** | | | |
| 4.1 | Tyre Dimensions | Annex C&D Table 5 to 10 | IS 15627: 2005 | 3 | Once a month for each size. | 1. In case of failure in any requirement, the marking shall be Suspended, reasons for failure investigated and corrective actions taken, double the no. of samples indicated shall then be tested marking & original frequency restored only if both samples pass.<br>2) Samples may be drawn and tested for these requirements in such a way that all families of tyres manufactured are covered in a year. |
| 4.2 | Load/speed performance test | Annex E Table 12 | -do- | 1 | Once in three months | |
| 4.3 | Dynamic growth of Tyres (as applicable) | 4.3 Annex F. | -do- | 1 | Once in Three months | |
| 4.5 | Endurance test (as applicable) | Annex H Table 17 | -do- | 1 | Once in three months | |
| 4.4 | Tyre strength test (plunger test) | Annex G Table 14 & 16 | -do- | 1 | Once in a month | |
| 4.6 | Tread wear indicators | 4.6 | -do- | 3 | Once in a month | |
| 5 | Marking | 5 Annex J | -do- | Each Tyre | | |
| 6 | Type Approval/ Type Test | 6.1 to 6.2.5 Table 20 Annex K. | -do- | one | Each family of Tyre | At the Time of initial Approval or whenever There is any change in already approved family of tyres. |

## Annexure - I

**MARKINGS** - (Cl.5 of IS 15627:2005)

5.1 Tyre shall be permanently and legibly marked at least on one sidewalls of the tyre following markings:

(a) Make or trade_mark.

(b) Tyre size designation as given in 3.29.

(c) Load index and/or maximum load carrying capacity and ply rating (if applicable). In case of ISO designated tyres the marking of load index is mandatory.

NOTE-Example of tyre sizes designations for code designation and ISO designation tyres in Annex j (see Table 18 and 19).

(d) The indications of the tyre structure are as follows:

(1) In the case of diagonal or bias ply (crossply) tyres, no marking or the character '-' or the letter 'D' preceding the rim diameter code;

(2) In the case of belted-bias tyres, the letter 'B' preceding the rim-diameter code and, optionally, the words 'BELTED-BIAS'; and

(3) In the case of radial-ply tyres, the letter 'R' preceding the rim-diameter code and, optionally, the word 'RADIAL'.

(e) Speed categories of the tyre, expressed by the symbol given in 3.20.

(f) Load index are given in Annex A or maximum load carrying capacity and ply rating (if applicable ) at the designated speed.

(g) Word 'TUBELESS' where the tyre is intended for use without an inner tube.

(h) Symbol 'REINFORCED' or 'REINF' in the case of a reinforced tyre.

(j) Week and Year code (code only in the form of '2504' which indicates 25$^{th}$ week of year 2004) or Month and Year code of manufacture (Code only in the form of 'MAR 04' which indicates March month of year 2004).

(k) Tread wear indicators at minimum six/four (as applicable) places along the circumference.

(m) Tyres suitable for speeds above 240 km/h shall be marked with the appropriate letter code 'V' or 'Z', as applicable [see 3.7(c)] within the tyre size designation and in front of the indication of the structure [see 5.1(d)].

(n) Tyres suitable for speeds above 240 km/h (or 270 km/h respectively) shall bear, within parentheses, the marking of the load capacity index
[see 5.1(f)]
applicable at a speed of 210 km/h (or 240 km/h respectively) and a reference speed category symbol [see5.1(e)] as follows:
'V' in case of tyres identified with the letter code 'V' within the size designation.
'W' in case of tyres identified with the letter code 'Z' within the size designation

(p) An arrow marking to indicate the direction in which the tyre should rotate in service in the case of directional type tyres.

(q) Permissible tyre pressure, in kPa or bar or $kg/cm^2$ or any combination of these units.

5.2 An example of tyre marking is given in Annex J.

NOTE – The marking given in 5 shall be moulded into or on the tyres. Marking shall be clearly legible.

## ANNEXURE II

### RAW MATERIAL TEST
**(see Clause 5.2)**

| Sl. No. | Item | | Test |
|---|---|---|---|
| 1. | Natural rubber | a) | Visual inspection |
| | | b) | Moisture content |
| | | c) | Ash content |
| | | d) | Dirt content |
| | | e) | Viscosity |
| 2. | Synthetic rubber | a) | Moisture content |
| | | b) | Ash content |
| | | c) | Viscosity |
| | | d) | Compound testing |
| 3. | Lattices | a) | contents |
| | | b) | Viscosity |
| | | c) | TSC |
| 4. | Carbon black | a) | Moisture contents |
| | | b) | Ash content |
| | | c) | DBP value |
| | | d) | Iodine number |
| | | e) | Sieve residue |
| 5. | Activators | a) | Moisture content |
| | | b) | Sieve residue |
| | | c) | ASSAY |
| | | d) | Ash content |
| | | e) | HCL insoluble |
| | | f) | Acid number |
| 6. | Vulcanising agents | a) | Melting point |
| | | b) | Acetone insolubles |
| | | c) | Specific gravity |
| | | d) | Softening point |
| | | e) | Solubility |
| 7. | Process oil | a) | Aniline point |
| | | b) | Viscosity |
| | | c) | Specific gravity |

| Sl. No. | Item | Test |
|---|---|---|
| 8. | Tyre cord | a) Warp sheets<br>i) Breaking strength<br>ii) Percentage elongation<br>iii) Twist<br>iv) Moisture content<br>b) Nylon square woven fabric<br>i) Strip and grab strength<br>ii) Adhesion<br>iii) EPI |
| 9. | Bead wire | a) Breaking strength/<br>b) Percentage elongation<br>c) Torsion<br>d) Bend test<br>e) Adhesion<br>f) Copper coating |
| 10. | Solvent | a) Specific gravity<br>b) Distillation range |

Note : The list of raw materials to be tested and proper records maintained (See clause 5.2). The list is not exhaustive.

# Annex III

| | Area | Parameters to be controlled |
|---|---|---|
| 1. | Compounding | Ingredient weights. |
| 2. | Mixing | Time/Temperature or Energy, sequence |
| 3. | Dip Preparation | Ingredient weights, time, temperature sequence |
| 4. | Dipping | Temperature, stretch/tension, speed/time, width. |
| 5. | Extrusion | Stock identification, temperature, width, dimensions. |
| 6. | Calendering | Stock/fabric identification, temperature, width, gauge. |
| 7. | Bead making | Stock/wire identification, diameters, No. of strands, No. of turns. |
| 8. | Stock preparation | Stock identification, width, angle. |
| 9. | Tyre building | Component identification, sequence. |
| 10. | Tyre curing | Time, temperature/pressure, sequence. |
| 11. | Final Inspection : | Every tyre shall be visually inspected for defects and appearance. |
| 12. | In process Testing | In process materials shall be tested as given below : |
| a) | COMPOUND | |
| | Final batch | Sp, Gravity<br>Rapid Modulus Rheometer Test<br>Physical Properties |

| | **Area** | **Parameters to be controlled** |
|---|---|---|
| b) | DIP SOLUTION | |
| | Final | Total solids<br>PH value |
| c) | DIPPED FABRIC | |
| | Tyre Cord warp sheet | Breaking strength<br>% Elongation<br>Adhesion & Dip pick up |
| | Sq. woven nylon fabric | E.P.I.<br>Strength<br>Adhesion and dip pick up |
| d) | CALENDERED FABRIC | |
| | Tyre cord warp sheet | E.P.I.<br>Gauge<br>Sq. metre weight |
| | Sq. woven fabric | Gauge<br>Sq. Metre weight |