



**PRODUCT MANUAL FOR
CYCLE AND RICKSHAW PNEUMATIC TYRES
ACCORDING TO IS 2414:2005**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 license/certificate.

1.	Product	:	IS 2414:2005
	Title	:	Cycle and Rickshaw pneumatic tyres
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	<i>Tyre cord</i> (i) Grey cotton yarn - IS 7133 (ii) Polyamide yard/ Nylon fabric - IS 11573. <i>Bead wire</i> - IS 4824
b)	Grouping guidelines	:	Please refer ANNEX-A
c)	Sample Size	:	Two tyres
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	Possible tests in a day	:	1. Tensile strength and Elongation at break 2. Tension set 3. Adhesion test
6.	Scope of the Licence :		
	Licence is granted to use Standard Mark as per IS 2414:2005 with the following scope: “Cycle tyre and/or Rickshaw tyre, Heavy duty (Type A)/Standard duty (Type B), Material of tyre cord _____, wired edge/beaded edge, Sizes _____”		

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ANNEX A

Grouping Guidelines

1. The parameters as given below shall be considered for grouping of Cycle and Rickshaw Pneumatic Tyres as per IS 2414:2005 for GoL/CSoL:
 - (a) **Type of Tyres:**
 - Type A – Heavy duty tyres**
 - Type B – Standard duty tyres.**
 - (b) **Material of tyre cord:**
 - Grey cotton yarn or Polyamide yarn/Nylon fabric**
 - (c) **Wired edge or Beaded edge**
2. The Firm shall declare the varieties of Tyres intended to be covered in the Licence.
3. Tyres of any size from each Type, Material of cord and Edge shall be tested to cover all sizes in that particular group.
4. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX B**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sr. No.	Test Equipment	Tests used in with clause reference
1.	Tensile testing Machine	Casing strength - 6.3 Breaking load – 6.4 Tensile strength and Elongation at break, Accelerated ageing 6.5 Adhesion test – 6.6
2.	Dumb bell die and punch	Tensile strength – 6.5.1
3.	Dial thickness gauge	Thickness of tyre - 8.1
4.	Hot air Oven	Accelerated ageing - 8.6
5.	Tyre endurance machine	Tyre performance test - 8.8
6.	Vernier caliper	Dimension - 8.1
7.	Measuring scale & tape	Dimension - 8.1
8.	Rim and tube of appropriate size	Dimension - 8.1

The above list is indicative only and may not be treated as exhaustive

ANNEX C

Scheme of Inspection and Testing

1. 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 equipment.

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

3. LABELLING AND MARKING – As per the requirements of IS 2414: 2005.

4. CONTROL UNIT – All tyres of the same type and same tyre size designation manufactured from the material of the same consignment/ batch of rubber compound in a day shall constitute a control unit.

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 Standard and covered by the licence should be marked with Standard Mark.

6. 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.

Table 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
5, 8.1	Dimensions		IS 2414	R	10	Every control unit	Please see Note 1
6.1	Construction of tyre	6.1	IS 2414	R	Each tyre		
6.2	Tyre cord		IS 7133 IS 11573	S		Each Consignment	#
6.3	Casing strength	6.3, 8.3	IS 2414	R	10	Every control unit	Please see Note 1
6.4	Bead Wire		IS 4824	S		Each Consignment	#
	Breaking Load of Bead Wire Joint	6.4	IS 2414	R		Every control unit	Please see Note 1
6.5	Requirements for the Rubber compound						
	Tensile Strength and Elongation at break	6.5.1, 8.4	IS 2414	R		Every control unit	Please see Note 1
	Tension Set	6.5.2, 8.5					
	Accelerated Ageing test	6.5.3, 8.6	IS 2414	R		Once in 3 months from each type or whenever there is a change in the composition of rubber compound	If sample fails, marking shall be suspended and resumed only after samples from three consecutive control units pass

- No further testing is required, if accompanied with test certificate or ISI marked

6.6	Adhesion test	6.6, 8.7, Annex C	IS 2414	R	10	Every control unit	Please see Note 1
6.7	Tyre Performance test	6.7, 8.8, Annex D	IS 2414	R	2	Once in 3 months from each type and tyre size designation or whenever there is a change in composition of rubber compound and quality of fabric or cord.	If sample fails, marking shall be suspended and resumed only after samples from three consecutive control units pass

NOTE-1: In case of failure, 10 samples shall be tested every one hour. The earlier frequency shall be restored only samples from three consecutive set pass.

NOTE-2: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

NOTE-3: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.