



**PRODUCT MANUAL FOR
CYCLES- RETRO-REFLECTIVE DEVICES
ACCORDING TO IS/ISO 6742-2: 2015**

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 licence/certificate.

1.	Product	:	IS/ISO 6742-2:2015
	Title	:	Cycles- Retro-Reflective Devices
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	--
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	8 Pieces
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: None		
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS/ISO 6742-2:2015 with the following scope:		
	Name of the product	Cycles - Retro-Reflective Devices	
	Product type	As per Sl No. 1 of Annex A of this Manual, as applicable	
	Group	A	

ANNEX A

Grouping Guidelines

1. For the purpose of GoL/CSoL, Retro-Reflective Devices as per IS/ISO 6742-2:2015 are categorized based on Product Type and Color as given below:

a) Reflector

- Conventional Reflector
 - Front (White, Yellow, Red)
 - Side (White, Yellow, Red)
 - Rear (White, Yellow, Red)
- Wide Angle Reflector
 - Front (White, Yellow, Red)
 - Side (White, Yellow, Red)
 - Rear (White, Yellow, Red)
- Pedal Reflector (Yellow)
- High Value Reflector (Red)

b) Retro-reflective Tyres (White, White/Yellow)

c) Retro-reflective Spokes (White)

d) Retro-reflective Spoke Cases (White)

2. a) Samples of each product type (Reflector, Retro-reflective Tyres, Retro-reflective Spokes, Retro-reflective Spoke Cases) shall be tested to cover that particular variety of Retro-Reflective Device.

b) For Reflector, samples of Conventional Reflector/ Wide Angle Reflector/ Pedal Reflector/ High Value Reflector shall be tested separately.

c) For Conventional Reflector/ Wide Angle Reflector, samples of each color for any location (Front, Side, Rear) shall be tested separately to cover that particular color for all locations.

d) For Retro-reflective Tyres, samples of each color (White, White/Yellow) shall be tested separately.

3. The Firm shall declare the varieties of Retro-Reflective Devices intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.

4. 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.

Note: In India, Photometric requirements as per Group A only are applicable. Hence, samples shall be tested accordingly and licence shall be granted for Group A only.

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

Sr. No.	Test used in with clause reference	Test Equipment
1	Temperature resistance test Cl. 7.1.2.2, 7.2.2.2. and 7.3.2.2	Oven, Freezer or any suitable arrangement Reflection Testing Set-up
2	Colorimetric requirements Cl. 6	Master Plates, Spectrometer or Colorimeter as per Cl. 9
3	Photometric requirements, Cl. 5	Testing Set-up as per Cl. 8
4	Moisture Resistance test Cl. 7.1.2.4	Water Bath
5	Resistance to fuels, Cl. 7.1.2.5, 7.2.2.4, 7.3.2.3	Mixture of 70% of n-heptane and 30% of toluene (by volume), Reflection Testing Set-up, Cotton
6	Resistance to lubricating oils, Cl. 7.1.2.6, 7.2.2.5, 7.3.2.4	Detergent Lubricating oil, Reflection Testing Set-up, Cotton
7	Impact test, Cl. 7.1.2.3, 7.2.2.3(For Type B Reflectors)	Impact Test Set up, Polished Solid Steel ball (13 mm dia)
8	Adhesion, Cl. 7.2.2.6	Oven, Load gauge or any suitable arrangement as per Cl. 7.2.2.6
9	Abrasion resistance, Cl. 7.2.2.7	Steel-bristle brush
10	Water test, Cl. 7.2.2.8	Water Bath, Reflection Testing Set-up
11	Resistance to corrosion, Cl. 7.3.2.5	Test Set up as per ISO 9227

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 equipments.

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

3. LABELLING AND MARKING –As per the requirement of IS/ISO 6742-2: 2015.

4. 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.

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

5. 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: Subcontracting permitted	Levels of control		
Cl.	Requirements	Test Methods			No. of sample	Frequency	Remarks
		Clause	Reference				
5	Photometrical requirements	5, 8	IS/ISO 6742-2	S	Six	Once in three months for each variety as per Sl. No. 1 of Annex A of this Manual Note: In India, photometric requirements as per Group A only are applicable and hence samples shall be tested accordingly and licence shall be granted for Group A only.	
6	Colorimetric requirements	6, 9	IS/ISO 6742-2	S	Six		
7.1	Reflector						
	Construction	7.1.1	IS/ISO 6742-2	R	Six		
	General	7.1.2.1	IS/ISO 6742-2	S	Six		
	Temperature resistance test	7.1.2.2	IS/ISO 6742-2	S	Six		
	Impact test	7.1.2.3	IS/ISO 6742-2	S	Two		
	Moisture resistance test	7.1.2.4	IS/ISO 6742-2	S	Two		
	Resistance to fuels	7.1.2.5	IS/ISO 6742-2	S	Two		
	Resistance to lubricating oils	7.1.2.6	IS/ISO 6742-2	S	Two		
7.2	Retro-reflective Tyre						
	Form and location	7.2.1	IS/ISO 6742-2	R	Six		
	General	7.2.2.1	IS/ISO 6742-2	S	Six		
	Temperature resistance test	7.2.2.2	IS/ISO 6742-2	S	Six		
	Impact resistance	7.2.2.3	IS/ISO 6742-2	S	Two		

7.2	Resistance to fuels	7.2.2.4	IS/ISO 6742-2	S	Two	Once in three months for each variety as per Sl. No. 1 of Annex A of this Manual Note: In India, photometric requirements as per Group A only are applicable and hence samples shall be tested accordingly and licence shall be granted for Group A only.	
	Resistance to lubricating oils	7.2.2.5	IS/ISO 6742-2	S	Two		
	Adhesion	7.2.2.6	IS/ISO 6742-2	S	Two		
	Abrasion resistance.	7.2.2.7	IS/ISO 6742-2	S	Two		
	Water test	7.2.2.8	IS/ISO 6742-2	S	Two		
7.3	<i>Retro-reflective Spokes and Spoke cases</i>						
	Construction	7.3.1	IS/ISO 6742-2	R	Six		
	General	7.3.2.1	IS/ISO 6742-2	S	Six		
	Temperature resistance test	7.3.2.2	IS/ISO 6742-2	S	Six		
	Resistance to fuels	7.3.2.3	IS/ISO 6742-2	S	Two		
	Resistance to lubricating oils	7.3.2.4	IS/ISO 6742-2	S	Two		
Resistance to corrosion	7.3.2.5	IS/ISO 6742-2 ISO 9227	S	Two			

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in Column 3 are obligatory, to which the licensee shall comply with.