



PRODUCT MANUAL FOR CYCLES- RETRO-REFLECTIVE DEVICES ACCORDING TO IS/ISO 6742-2: 2023

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 6742-2:2023
	Title	:	Cycles- Retro-Reflective Devices
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	--
b)	Grouping guidelines	:	Please refer <u>ANNEX – A</u>
c)	Sample Size	:	8 Pieces
3.	List of Test Equipment	:	Please refer <u>ANNEX – B</u>
4.	Scheme of Inspection and Testing	:	Please refer <u>ANNEX – C</u>
5.	Possible tests in a day: None		
6.	Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS/ISO 6742-2:2023 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. 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. Batch 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 below.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

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

1.3.2 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 sub-contracted 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) also is 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/empaneled 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. (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. LABELLING AND MARKING – As per the requirement of IS/ISO 6742-2: 2023. The Standard Mark, as given in the Schedule of the licence, shall be marked on each reflector provided always that the product thus marked conforms to all the requirement of the specification. In addition, the licence no. CM/L-_____ and details of BIS website shall be marked at an appropriate place on product or package as follows: “For details of BIS certification please visit www.bis.gov.in”.

4. REJECTION - All the production which conforms to the Indian Standard and covered under scope of the licence shall be marked with 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

(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	
6	Colorimetric requirements	6, 9	IS/ISO 6742-2	S	Six		
7	Physical requirements						
7.1	Reflector					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.	
	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	