



**PRODUCT MANUAL FOR
EXPLOSIVE ATMOSPHERES - EQUIPMENT PROTECTION BY
INTRINSIC SAFETY "i"
ACCORDING TO IS/IEC 60079 (PART 11): 2011**

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/IEC 60079 (PART 11): 2011
	Title	:	Explosive Atmospheres – Equipment Protection by Intrinsic Safety "i"
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	-
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Please refer 2 & 3 of ANNEX – A
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 :		
	(i) Compliance of the equipment to approved drawings/ Test reports as per IS/IEC 60079-11		
	(ii) Routine verifications and tests as per Cl. 11 of IS/IEC 60079-11		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS/IEC 60079 (Part 11): 2011 with the following scope:		
	Name/ Description of the product	<i>In terms of Product group as given in Annex A, Sl No 1 for products at 1(i) – 1(iv). For products falling under 1(v), product name shall be mentioned in the scope</i>	

ANNEX A

Grouping Guidelines

1. Intrinsically safe equipment are classified in following product groups:
 - i) Intrinsically safe apparatus
 - ii) Intrinsically safe associated apparatus
 - iii) Intrinsically safe enclosures
 - iv) Handlights and caplights
 - v) Others

2. Test reports and approved drawings of at least any one type designation of Intrinsically safe equipment from each product group mentioned above is required for the purpose of Grant of Licence/ Change in Scope of Licence. Only product group shall be endorsed and no separate endorsement needs to be issued based on individual Test Certificates. However, an undertaking shall be obtained from the manufacturer to the effect that the equipment with different type designations within that group will conform to the requirements of the ISS and that the firm, at the first instance of manufacturing these types and before applying the Standard Mark, shall get the equipment tested at third party laboratory. Such test reports, in original, along with the approved drawings shall be produced to BIS for records through Manakonline. The Grant of Licence letter/ any subsequent endorsement with product group shall clearly mention the details regarding submission of independent test reports by the licensee on the first instance of manufacturing of a new variety in a product group as mentioned above.

3. For grant of licence, if the firm submits complete test reports and approved drawings from a third party laboratory, containing all the details / declarations as required by the Standard, the product shall be verified in the factory for the design compliance with drawings/ test reports and the Standard. All the possible tests shall be conducted in the factory. One Verification sample shall be drawn for routine verification and tests only.

4. Alternatively, if the firm submits the drawings/declarations of the product only, samples shall be drawn and sent for all tests at a third party testing laboratory.

5. For considering grant of licence/ Change in Scope of licence, Test report submitted shall not be more than six months old. Revalidation reports issued by labs with reference to an old type test report are acceptable for Grant of Licence/Change in Scope of licence.

6. During the operation of the licence, samples may not be drawn for independent testing. Feedback from organized buyers maybe sought in lieu of Market samples. Sample shall be tested in factory during surveillance visits

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

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Construction Cl. 6 to 9 of IS/IEC 60079-11	a) Vernier Callipers b) Scale c) Micrometer d) Feeler Gauge e) Multimeter
2.	Routine verifications and tests (Cl 11)	a) High Voltage test Apparatus

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 – The Standard Mark as given in the Schedule of the license shall be incorporated legibly and indelibly on each equipment, provided always that the product thus marked conforms to specifications of the standard.

3.1 In addition to requirements as per Cl. 29 of IS/IEC 60079-0 and Cl. 12 of IS/IEC 60079-11, the following shall be indelibly marked on the equipment:

- a) BIS Certification Marks licence number “CM/L....”
- b) The statement “For details of BIS certification please visit www.bis.gov.in”
- c) Markings required by statutory authorities.

Note: In case the space is insufficient, b) may be printed on the instruction manual.

3.2 The manufacturer shall maintain documentation as per Cl. 24, Cl. 28.2 and Cl. 30 of IS/IEC 60079-0 for each product type designation.

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: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks (Please see Note 1 also)
		Clause	Reference				
5.5	Spark ignition compliance	5.5	IS/IEC 60079-11	S	One	5 years	Applicable at the time of type tests.
5.6	Thermal ignition compliance	5.6		S	One	5 years	
6	Apparatus Construction						
6.1	Enclosures	6.1	IS/IEC 60079-11	R	Each equipment		All equipment shall be manufactured in accordance with the approved/ certified drawings and test certificates. Only the materials/ components as per details listed in the Type Test Certificate shall be used.
6.2	Facilities for connection of external circuits	6.2		R	Each equipment		
6.3	Separation distances	6.3		R	Each equipment		
6.4	Protection against polarity reversal	6.4		R	Each equipment		
6.5	Earth conductors, connections and terminals	6.5		R	Each equipment		
6.6	Encapsulation	6.6		R	Each equipment		
7	Components on which intrinsic safety depends	7		R	Each equipment		
8	Infallible components, infallible assemblies of components and infallible connections on which intrinsic safety depends						
8.1	Level of Protection "ic"	8.1	IS/IEC 60079-11	R	Each equipment		All equipment shall be manufactured in accordance with the approved/ certified drawings and test certificates. Only the materials/ components as per details listed in the Type Test Certificate shall be used. Certificate.
8.2	Mains transformers	8.2		R	Each equipment		
8.3	Transformers other than mains transformers	8.3		R	Each equipment		
8.4	Infallible windings	8.4		R	Each equipment		
8.5	Current-limiting resistors	8.5		R	Each equipment		
8.6	Capacitors	8.6		R	Each equipment		
8.7	Shunt safety assemblies	8.7		R	Each equipment		
8.8	Wiring, printed circuit board tracks, and connections	8.8		R	Each equipment		
8.9	Galvanically separating components	8.9		R	Each equipment		

(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 (Please see Note 1 also)
		Clause	Reference				
9	Supplementary requirements for specific apparatus	9	IS/IEC 60079-11	R	Each equipment		
10	Type verifications and type tests	10	IS/IEC 60079-11	S	One	5 years	
11	Routine verifications and tests			R	Each equipment		
12	Marking			R	Each equipment		
						Please also see Cl 3 of SIT.	

Note-1: All equipment shall be manufactured in accordance with the approved/ certified drawings and design. Only the materials as per details listed in the Type Test Certificate shall be used. Testing of bought out components/ raw materials is not required if the bought out components/ raw materials are ISI marked or accompanied with a Test Certificate.

Note-2: Type test to be carried out after 5 years of last type approval of any one type designation from each product group listed at SI No. 1 of Annex A. For products covered in SI No. 1(v) of Annex A, any two different products shall be tested in rotation. For a given product group, the period of 5 years for that product group may be counted from the date of Test Certificate which involves type-testing of that type/size/variety.

Note-3: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-4: Levels of control given in column 3 are obligatory in nature.