भारतीय मानक ब्यूरो
(केंद्रीय मुहर विभाग III)

हमारा संदर्भ : सी एम डी- III/16 : आई एस / आई इ सी 60079-1 **19 08 2019**

विषय : आई एस / आई इ सी 60079-1 के अनुपालन हेतु गाइडलाइन ।

सभी शाखा कार्यालय से आग्रह है कि गाइडलाइन का अनुपालन तत्काल प्रभाव से सुनिश्चित करें।

औरोस्मिता कबिराज
वैज्ञानिक सी (सी एम डी–III)

प्रमुख (सी एम डी–III)
सभी क्षेत्रीय/शाखा कार्यालय
आई टी एस विभाग – बीआईएस इंट्रानेट पर डालने हेतू

BUREAU OF INDIAN STANDARDS
(Central Marks Department-III)

Our Ref: CMD-III/16 : IS/IEC 60079-1 **19 08 2019**

Subject: Guidelines for implementation of Revised IS/IEC 60079 (Part 1) : 2014, Explosive Atmospheres- Part 1 Equipment Protection by Flameproof Enclosures "d".

This has reference to the subject mentioned above.

BOs may kindly ensure implementation of the guidelines with immediate effect.

Aurosmita Kabiraj
Sc-C (CMD-III)

Head (CMD-III)
Circulated to: All ROs/BOs
Copy to: ITS – for hosting on Intranet please

CENTRAL MARKS DEPARTMENT III

Our Ref: CMD III/16: IS/IEC 60079 (Part 1) 19 Aug 2019

Subject: Guidelines for implementation of Revised IS/IEC 60079 (Part 1) : 2014, Explosive Atmospheres- Part 1 Equipment Protection by Flameproof Enclosures "d"

1. IS/IEC 60079 (Part 1) : 2007 has been revised as IS/IEC 60079 (Part 1) : 2014 and has been published. The last date for implementation of the revised Standard is 25 July 2020 after which the old Standard shall stand withdrawn.

2. All BOs shall inform the Applicants and Licensees under their jurisdiction about implementation of the revised Standard **within a week of issuance of these guidelines**.

3. The significant changes in the revised Standard as listed in the Table annexed is given for the purpose of general guidance. BOs shall ensure that the product conforms to all the requirements, as applicable, as per the revised Standard.

4. Consequent upon the issuance of the revised Standard, existing SIT as contained in the Product Manual has been revised and is contained in updated Product Manual Doc: **PM/ IS/IEC 60079-1/ 2/ Aug 2019**

5. The guidelines for implementation of the revised Standard is given below:

A. <u>LICENSEES</u>:

(i) All Licensees shall implement the revised Standard by 25 July 2020. BOs shall ensure that no Licences are under operation as per the old Standard after 25 July 2020. **The status of implementation of the revised Standard shall be confirmed by Head (BO) to CMD-III within two weeks of the last date of concurrent running.**

(ii) Manufacturer shall submit the technical specifications for each of the equipment covered under his scope to any Third Party Testing Lab (as defined in BIS Conformity Assessment Regulations, 2018) along with the following:

a. Copy of the BIS Licence document/Endorsement in which the equipment is indicated.

b. Copy of the earlier test report/certificate and approved drawing.

c. Declaration about the changes (modifications/additions/deletions), if any, made in the equipment in order to comply with requirements stipulated in the revised IS/IEC Standard.

It may be noted that Manufacturers are permitted to make only such changes as are required for complying with the new Standard. Any changes other than those necessary for the purpose of changeover shall call for Change in Scope of Licence (Inclusion). Changes in permissible variations, materials, gas groups etc if not warranted by this revision shall also call for Change in Scope of Licence (Inclusion).

d. Revised drawing of the equipment, in accordance with the changes mentioned above.

Revised drawing shall indicate the revision status and carry the same number as endorsed in BIS Licence.

e. Revalidation may be done by any TPTL irrespective of the Lab which has issued the original/ previous Test Report.

(iii) The laboratory shall make an assessment of the equipment based on documentation mentioned above and may call for additional information or for samples if required. If testing is necessary based on the initial assessment, the laboratory shall carry out testing on the equipment for additional/modified requirements as per the revised Standard.

(iv) A revalidation Test report shall be issued by the Laboratory which shall include the following:

a. Confirmation that the equipment meets all the requirements as per the revised standard.

b. Any design changes or revisions in drawing vis-à-vis the equipment already endorsed in BIS Licence.

c. Results of assessment and tests, if any, carried out to ensure compliance with the modified/new requirements of the revised standard. Wherever further testing is not necessary, it shall be stated so and reference to the old test report/certificate number shall be given.

d. Reference of the Drawing of the equipment as per the revised Standards in the test report. A copy of the certified drawing shall be attached to the TR.

e. Labs may consolidate certificates of similar apparatus under different certificates.

(v) Verification of implementation of the revised Standard, wherever required, may be done during the next visit **which may normally be completed within six months of the last date of concurrent running**.

(vi) If the Licensee fails to complete all actions by 25 July 2020 it shall be dealt with as per the prevailing guidelines.

B. <u>APPLICATIONS FOR GRANT OF LICENCE</u>:

(i) Existing Applications where Sample has been submitted in the Laboratory/Test Report has been issued by the Laboratory may be processed as per the old Standard. However, if the Applicant is desirous of considering the Application as per the revised Standard, a declaration may be obtained from the Applicant to that effect and the Application may be processed accordingly. An undertaking shall also be obtained from such Applicants that if the sample fails in new test requirements, Licence will not be granted by BIS as per the old version.

(ii) Applications which are recorded henceforth may be processed as per the old Standard or the revised Standard. Processing of Applications as per the old Standard shall be permitted only upto 25 July 2020 and for such cases Applicant shall give a declaration that they will implement the revised Standard by 25 July 2020.

(iii) Beyond 25 July 2020 no Licence shall be granted as per the old Standard.

C. <u>CHANGE IN SCOPE OF LICENCE</u>:

(i) For change in scope of licence, the relevant provisions as given above for Applicants shall apply.

(ii) However, processing of such applications for change in scope of licence as per the old Standard shall be permitted only upto the date of implementation of the revised Standard or upto 25 July 2020 whichever is earlier.

6. The above guidelines come into force with immediate effect.

Aurosmita Kabiraj
Scientist-C

<u>Head (CMD III)</u>
DDG (Certification)

		Type		
Explanation of the significance of the changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Normative references *(Removal of the edition date from the reference for IEC 60079-0)*	2	X		
Requirements for level of protection “da” *(Catalytic sensors of portable combustible gas detectors)*	4.2		X	
Requirements for level of protection “dc” *(“Enclosed break” devices from IEC 60079-15)*	4.4, 15.5	X		
Flameproof joints, General requirements *(Documentation clarification and examples of corrosion inhibiting grease)*	5.1	X		
Flameproof joints, General requirements *(Specific Conditions of Use that joints are not intended to be repaired)*	5.1		X	
Flameproof joints, General requirements *(Electroplating more than 0,008 mm thick)*	5.1		X	
Non-threaded joints, Gap (*i*) *(Intentional gaps between surface for flanged joints)*	5.2.2	X		
Serrated joints *(Use and test requirements)*	5.2.8	X		
Multi-step joints *(Not less than 3 adjacent segments and two path changes)*	5.2.9		X	
Minimum width of joint and maximum gap for enclosures of groups IIA and IIB *(Maximum gaps for flanged, cylindrical or spigot joints of 9,5 mm minimum width and volume greater than 2 000 cm3)*	Table 2		X	
Minimum width of joint and maximum gap for enclosures of groups I, IIA, IIB and IIC *(ISO 80000-1 for constructional value rounding)*	Table 2, Table 3	X		
Cylindrical threaded joints *(ISO 965-1 standard in respect of thread form or quality of fit)*	Table 4	X		
Taper threaded joints *(External and internal thread construction)*	Table 5	X		
Cemented joints *(Supplemental mechanical means of securement)*	6.1.2			C1
Cemented joints *(Evaluation criteria if there is leakage)*	6.1.2		X	
Fused glass joints (*Glass-to-metal joints)*	6.2		X	
Thermal tests of breathing and draining devices *(Temperature class based on external surface*	10.9.3.2	X		

temperature after the 10 min test period)				
Test of the ability of the breathing and draining device to withstand pressure *(Relocated from before thermal tests to after the non-transmission test)*	10.9.3.4	X		
Ex component certificate *(Service temperature range for non-metallic enclosures per IEC 60079-0)*	10.9.4	X		
Fasteners and openings *(Relocation of blanking element content to 13.8 and C.2.3)*	11	X		
Fasteners and openings, Property class or yield stress *(Certificate specific condition of use)*	11.3	X		
Fasteners and openings *(Openings in the wall of the enclosure)*	11.8	X		
Materials *(Material limitation in acetylene atmospheres)*	12.8			C2
Entries for flameproof enclosures, General *(Metric and NPT threaded entries)*	13.1	X		
Entries for flameproof enclosures, General *(Group I non-threaded joints)*	13.1		X	
Entries for flameproof enclosures, Non-threaded holes *(Group I application)*	13.3		X	
Entries for flameproof enclosures, Cable glands *(Group I application)*	13.4		X	
Cable glands, Conduit sealing devices *(Documentation to facilitate mounting)*	13.4,13.5	X		
Plugs and sockets and cable couplers *(Load requirement for arc-quenching test)*	13.6.4			C3
Bushings *(Documentation to facilitate mounting)*	13.7	X		
Blanking elements *(Relocated from Clause 11)*	13.8	X		
Verification and tests *(Maximum surface temperature conditions)*	Table 6	X		
Type tests *(Sequence and number of samples for tests)*	15	X		
Determination of explosion pressure, General *(Devices that can cause turbulence)*	15.2.2.2	X		
Determination of explosion pressure, General *(Number of tests for Group IIC)*	15.2.2.2	X		
Determination of explosion pressure, General *(Pressure pilling for Group IIB)*	15.2.2.4	X		
Determination of explosion pressure, General *(Equipment marked for a single gas)*	15.2.2.5	X		
Overpressure test, General *(Low ambient overpressure tests not required)*	15.2.3	X		
Overpressure test – First method (static) *(3 times option when routine batch testing)*	15.2.3.2		X	

Overpressure test – First method (static) *(Adjustment for low ambient due to small size of equipment)*	15.2.3.2		X	
Overpressure test – Second method (dynamic) *(Number of tests to be made)*	15.2.3.3	X		
Test for non-transmission of an internal ignition *(Clarification regarding grease)*	15.3	X		
Reduction in length of a threaded joint for non-transmission test *(ISO 965-1 and 965-3 standards in respect of thread form and quality of fit)*	Table 9	X		
Test factors to increase pressure or test gap *(Group IIC adjustments for elevated ambients)*	Table 10	X		
Test for non-transmission of an internal ignition, Groups I, IIA and IIB *(Number of tests to be made)*	15.3.2.3	X		
Test for non-transmission of an internal ignition, Group IIC testing by increased gap *(Number of tests to be made)*	15.3.3.2	X		
Test for non-transmission of an internal ignition, Group IIC *(Oxygen enrichment of test gases)*	15.3.3.4		X	
Thermal tests of enclosures with breathing and draining devices *(Temperature class based on external surface temperature after the 10 min test period)*	15.4.3.1	X		
Tests for “dc” devices (“Enclosed break” devices from IEC 60079-15)	15.5		X	
Routine tests, General *(Adjustment for low ambient due to small size of equipment)*	16.1.2		X	
Routine tests, General *(Options when second method is chosen)*	16.1.3	X		
Routine tests, General *(Welded joint inspection options)*	16.3		X	
Routine tests, General *(Allowance for batch testing)*	16.6		X	
Switchgear for Group I *(Clarifying need for compliance with EPL Mb types of protection)*	17.2.2, 17.2.3	X		
Non-metallic enclosures and non-metallic parts of enclosures, General *(Exception for cemented joints)*	19.1	X		
Non-metallic enclosures and non-metallic parts of enclosures, Resistance to tracking and creepage distances *(Reference to both IEC 60079-7 and or IEC 60079-15)*	19.2		X	
Non-metallic enclosures and non-metallic parts of enclosures, Requirements for type tests	19.3	X		

(Clarification of test sequence)				
Instructions *(Indication that repair of flamepaths is not intended)*	21		X	
Bushings *(Documentation regarding numbers of cores)*	C.2.1.4	X		
Bushings *(Criteria for non-transmission test)*	C.2.1.4	X		
Bushings *(Evaluation criteria if there is leakage)*	C.2.1.4		X	
Flameproof joints, Threaded joints *(Requirement options)*	C.2.2.1	X		
Flameproof joints, Non-threaded joints *(Group I application)*	C.2.2.2		X	
Constructional requirements for Ex blanking elements *(Relocated from Clause 11)*	C.2.3.1	X		
Constructional requirements for Ex blanking elements *(Metric and NPT Ex blanking elements)*	C.2.3.2, C.2.3.3	X		
Constructional requirements for Ex blanking elements *(Group I non-threaded construction)*	C.2.3.4		X	
Sealing test, General *(Allowance for re-tightening)*	C.3.1.1	X		
Cable glands and conduit sealing devices with sealing ring *(Mandrel to be corrosion-resistant metal)*	C.3.1.2	X		
Type tests for Ex blanking elements, Torque test *(Test-block to be steel)*	C.3.3.1	X		
Tightening torque values *(Addition of < 16 mm thread size)*	Table C.1		X	
Tightening torque values *(Addition of NPT thread sizes)*	Table C.2		X	
Ex component enclosure requirements *(Markings content)*	D.3.8			C4
Ex component enclosure requirements *(Certificate content)*	D.3.10		X	
Utilization of an Ex component enclosure certificate to prepare an equipment certificate, Procedure *(Devices that can create significant turbulence)*	D.4.1		X	
Acceptable primary cells *(Addition of Type B cells)*	Table E.1		X	
Acceptable primary cells *(Removal of Type T cells)*	Table E.1			C5
Acceptable secondary cells *(Addition of Lithium type cells)*	Table E.2		X	
Prevention of excessive temperature and cell damage *(Application of IEC 60079-11 requirement)*	E.4.1.2	X		
Prevention of inadvertent charging of a battery by other voltage sources in the enclosure *(Construction not requiring additional protection)*	E.4.3		X	
Recharging of secondary cells inside flameproof	E.5.1		X	

enclosures *(Additional battery options)*				
Introduction of an alternative risk assessment method encompassing equipment protection levels' for Ex equipment *(Removal of previous Informative Annex)*	Annex G	X		
Additional requirements for Flameproof enclosures with an internal source of release (containment system) *(Addition of new Normative Annex)*	Annex G		X	
Requirements for machines with flameproof "d" enclosures fed from converters *(Addition of new Normative Annex)*	Annex H		X	

Explanations:

A) Definitions

Minor and editorial changes

- Clarification
- decrease of technical requirements
- minor technical change
- editorial corrections

These are changes which modify requirements in an editorial or a minor technical way. They include changes of the wording to clarify technical requirements without any technical change, or a reduction in level of existing requirement.

Extension

- addition of technical options

These are changes which add new or modify existing technical requirements, in a way that new options are given, but without increasing requirements for equipment that was fully compliant with the previous standard. Therefore, these will not have to be considered for products in conformity with the preceding edition.

Major technical changes

- addition of technical requirements
- increase of technical requirements

These are changes to technical requirements (addition, increase of the level or removal) made in a way that a product in conformity with the preceding edition will not always be able to fulfil the requirements given in the later edition. These changes have to be considered for products in conformity with the preceding edition. For these changes additional information is provided in clause B) below.

B) Information about the 'Major Technical Changes'

C1 – Supplemental mechanical means of securing the cemented joint shall not be defeated by the opening of doors or covers that are intended to be opened during installation or maintenance.

C2 – Addition of material limitations of enclosures of equipment and enclosures of Ex components for external mounting, if constructed of copper or copper alloys, when used in explosive gas atmospheres containing acetylene (12.8).

C3 –Addition of power factor requirement for evaluating the ability of a plug and socket to remain flameproof during the arc-quenching period while opening a test circuit (13.6.4).

C4 –Addition of marking requirements for Ex component enclosures, in addition to the requirements for marking of Ex components given in IEC 60079-0 (D.3.8).

C5 – Removal of Type T cells as acceptable primary cells (Table E.1).