

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 60079-11
Edition 6.0 2011-06

EXPLOSIVE ATMOSPHERES –

Part 11: Equipment protection by intrinsic safety "i"

INTERPRETATION SHEET 4

This interpretation sheet has been prepared by subcommittee 31G: Intrinsically-safe apparatus, of IEC technical committee 31: Equipment for explosive atmospheres.

The text of this interpretation sheet is based on the following documents:

DISH	Report on voting
31G/293/DISH	31G/296/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

<https://standards.iec.ch/catalogue/standards/iec/60079-11-2011-06/iec-60079-11-2011-ish4-2019>

<https://standards.iec.ch/catalogue/standards/iec/60079-11-2011-06/iec-60079-11-2011-ish4-2019>

The wording in the intrinsic safety standard, IEC 60079-11 (2011), with respect to the enclosure requirements for intrinsically safe apparatus for Group III where the separation is accomplished by meeting the requirements for clearance or creepage distances of Table 5 or Annex F, according to Subclause 6.1.3a), is ambiguous. This observation may lead to different interpretation by different test laboratories.

This issue was discussed at the Busan, Republic of Korea meeting of the MT in October 2018. The MT agreed at that meeting that this interpretation should also be applied to IEC 60079-11:2011.

Because the title of Subclause 6.1.2.3 is "Apparatus complying with Annex F", an interpretation has been made that the additional tests required by 6.1.2.3a) only apply when Annex F is used. The potential for compromising infallible creepage and clearance distances exists when Annex F is applied, but also exist when Table 5 is applied.

The wording of IEC 60079-11 is:

6.1.3 Enclosures for Group III apparatus

Where the intrinsic safety of intrinsically safe apparatus can be impaired by ingress of dust or by access to conducting parts, for example if the circuits contain infallible creepage distances, an enclosure is necessary by one of the following:

- a) Where separation is accomplished by meeting the requirements for clearance or creepage distances of Table 5 or Annex F, the enclosure shall provide a degree of protection of at least IP5X, according to IEC 60529. For such enclosures the [requirements of] 6.1.2.3 a) shall additionally apply.

The text of the referenced clause is:

6.1.2.3 Apparatus complying with Annex F

Apparatus meeting the separation requirements of Tables F.1 or F.2 shall be provided with protection to achieve pollution degree 2. This can be achieved by one of the following:

- a) an enclosure meeting the requirements of IP54 or greater according to the intended use and environmental conditions in accordance with IEC 60529. For such enclosures the clauses of IEC 60079-0 identified in Table 1 additionally apply.

Question

For Groups IIIA, IIIB, and IIIC, where Annex F is not applied and the creepage or clearance distances of Table 5, Column 2 or Column 5 are relied upon for intrinsic safety, do all the applicable enclosure requirements of IEC 60079-0 listed in Table 1, including thermal endurance and resistance to impact, apply?

Interpretation

Yes, for Groups IIIA, IIIB, IIIC, the “Tests of enclosures” requirements of IEC 60079-0 apply for intrinsically safe apparatus for which the creepage and clearance distances are assessed against either Table 5 or Annex F.

This does not apply where the separations are protected by means other than an enclosure, such as encapsulation or conformal coating as described in 6.1.3b) of IEC 60079-11.

NOTE These tests are specified in the following subclauses of IEC 60079-0:2011; 6.2, 6.5, 7.1.1, 7.1.2.1, 7.1.2.2, 7.1.2.3, 7.2, 7.3, 12, 16, 26.4.1, 26.4.1.1, 26.4.1.2, 26.4.1.2.1, 26.4.1.2.2, 26.4.2, 26.4.3, 26.4.4, 26.5.2, 26.7, 26.8, 26.9, 26.10, 26.16, as well as Annex C and Annex F.