IEC System for certification to standards relating to equipment for use in Explosive Atmospheres (IECEx System)

Collection of IECEx / ExTAG Decision

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| Standard:  IEC 60079-0, Ed. 7.0  IEC 60079-0, Ed. 6.0  IEC 60079-31, Ed. 3.0  IEC 60079-31, Ed. 2.0 | Clause:  26.5.1.3  26.5.1.1  6.1.2  6.1.2 | Date:  2024-07-31 |
| Subject:  Thermal conductivity of dust | Key words:  Conductivity  Dust | Originator of proposal:  UL Solutions |
| Status of document:  Approved | TC/SC involved:  WG22 and WG28 |
| Background:  During peer assessments of ExTLs, IECEx assessors will often request evidence that the dust used for thermal testing has a thermal conductivity in compliance with IEC 60079-0. However, WG22 was unable to find a test specification for measuring the thermal conductivity of dust to include as a normative reference in Ed. 7.0 of IEC 60079-0. The solution was to include Note 2 of Clause 26.5.1.3, which suggests materials that could comply with the requirement.  This requirement was discussed during the 2024 TC31/WG22 meeting in Split. | | |
| Question 1:  Is it required to verify the thermal conductivity of the dust used for thermal testing? | | |
| Answer 1:  No, because there is no unified standard for measuring the thermal conductivity of dust, verification is not required. The CDV for IEC 60079-0, Ed. 8.0, 31/1781/CDV, clarifies this in Clause 26.5.1.3 by moving the thermal conductivity specification to NOTE 3.  NOTE 3 The test dusts shown typically have a thermal conductivity of no more than 0,10 W/(m´K) measured at (100 ± 5) ºC. It is not a requirement of this document that the thermal conductivity be verified. | | |
| Question 2:  How will the suitability of the dust used for testing be verified if there is no thermal conductivity requirement? | | |
| Answer 2:  The CDV for IEC 60079-0, Ed. 8.0, 31/1781/CDV, clarifies this by replacing the existing seventh paragraph of Clause 26.5.1.3 with the following requirement for test dust:  For electrical equipment of Group III, EPL Da, the test is conducted with the electrical equipment surrounded by at least a 200 mm thick layer of dust on all sides.  Dusts used for this test include wood flour, cocoa powder, diatomaceous earth, calcium silicate, glass beads, expandable polystyrene beads. It is recommended that organic dusts are replaced after 10 tests due to the property changes resulting from the heating. | | |
| This DS is applicable to only for the new certifications (Issue No. 0) and their subsequent revisions. | | |