**INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC) SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)**

**Title:** **ExTAG/718A/CD Draft ExTAG Decision Sheet –** **Thermal conductivity of dust.**

**Circulated to: ExTAG – IECEx Testing and Assessment Group**

**INTRODUCTION**

This document, ExTAG/718A/CD, *Draft ExTAG Decision Sheet Thermal conductivity of dust* has been prepared by UL Solutions, US, is issued for consideration by ExTAG.

In accordance with OD 035 this document is issued for a six week comment period.

Please submit comments on this new Draft DS using the comments table, a separate document, by –

**2024 06 10**

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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:  2024-04-08 |
| Subject:  Thermal conductivity of dust | Key words:  Conductivity  Dust | Originator of proposal:  UL Solutions |
| Status of document:  Draft | 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 will clarify this in the seventh paragraph of 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 will clarify 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**.** Organic dusts shall be 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. | | |