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

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

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

**INTRODUCTION**

This document, ExTAG/718/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 02 22**

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**ExTAG Secretariat**

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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:  2024-01-05 |
| 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 powder 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. | | |
| Question 1:  Is it required to verify the thermal conductivity of the dust used for thermal testing or is it sufficient to use one of the suggested materials from Note 2? | | |
| Answer 1:  Because there is no unified standard for measuring the thermal conductivity of dust, verification is not required at this time if the dust used falls under one of the types specified in Note 2.  Note: Per Step 1.1 of IECEx OD 035, this ExTAG DS does not affect existing certified products. | | |
| Question 2:  Because there is no unified standard for measuring the thermal conductivity of dust or powder, if the thermal conductivity of the solid form of the test dust complies with IEC 60079-0 requirement of no more than 0,10 W/(m×K) measured at (100 ± 5) ºC, will the thermal conductivity in powdered form also comply? | | |
| Answer 2:  Yes. The entrapment of air between the dust particles will lower the thermal conductivity, making the powdered form of the solid material a better insulator, and in compliance with the IEC 60079-0 requirement for thermal conductivity of the test dust. | | |

NOTE: The following should be noted when developing ExTAG Decision Sheets:

* The development process should be in compliance with IECEx OD 035.
* The purpose for development of ExTAG Decision Sheets is to unify the application of the Standards used in the IECEx System and is not intended to modify or "interpret" Standards.