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

**TITLE: Compilation of comments on -** **ExTAG/718/CD** **Draft ExTAG Decision Sheet – Thermal conductivity of dust.**

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

**INTRODUCTION**

This document ExTAG/721A/CC has been revised and now contains the compilation of comments, as well as observations from the originators UL Solutions, US, received on ExTAG/718/CD Draft ExTAG Decision Sheet – Thermal conductivity of dust.

As a result of comments received and considered, the originator prepared a further revised Draft Decision Sheet *ExTAG/718A/CD – Draft ExTAG Decision Sheet* *Draft ExTAG Decision Sheet – Thermal conductivity of dust* for consideration.

***Please inform the Secretariat immediately of any omissions or errors at-***

Christine Kane

***ExTAG Secretariat***



| **ExCB/****ExTL** | **Clause/ Sub-clause** | **Paragraph Figure/****Table** | **Type of****comment****General/****technical/****editorial** | **COMMENTS** | **Proposed change** | **Observation****(to be completed by the originator)** |
| --- | --- | --- | --- | --- | --- | --- |
| **BIS (applicant ExCB)****IN** |  |  | **General** | **No comments** |  | **Noted** |
| **CATRICN** |  |  |  | **We have discussed the ExTAG/718/CD Draft ExTAG Decision Sheet – Thermal conductivity of dust. We endorse the content of the decision sheet without the proposed changes.** |  | **Noted** |
| **CNEX-Global BV** | **-** | **-** | **G** | **CNEX-Global has no problem accepting this draft DS, because no standard requirement is changed:**1. **The proposed materials can still be applied**
2. **The specific max. value for the thermal conductivity is unchanged.**
 | **None** | **Noted** |
| **CSA****CA** |  |  |  | **CSA support the decsion sheet** | **none** | **Noted** |
| **CSAE** |  |  |  | **CSAE support the decsion sheet** | **none** | **Noted** |
| **DNV** |  |  |  | **We have no comments to the proposal** |  | **Noted** |
| **FMG****US** |  |  | **ge** | **Support DS as drafted** |  | **Noted** |
| **FTZU****CZ** |  |  | **G** | **We agree with this draft ExTAG Decision Sheet.** |  | **Noted** |
| **ITS (ExTL)****IN** |  |  | **General** | **No comments** |  | **Noted** |
| **KLCS****(ExCB & ExTL)****IN** |  |  | **General** | **No comments** |  | **Noted** |
| **KRH** |  |  |  | **KR Hellas has no comments for following draft decision sheet.****- ExTAG/718/CD** |  | **Noted** |
| **LCIE****FR** |  |  | **General** | **We support this Draft ExTAG DS.** |  | **Noted** |
| **LOM****ES** |  |  | **T** | The list of dust in NOTE 2 may be vague, such as "...and the like" at the end of the note, but note that there may be other materials that meet these characteristics.In the absence of a standardized test, information from datasheets and technical literature may be adequate.The second question would not be necessary. The IEC 60079-0 standard does not contemplate it and the method with which the conductivity of the dust must be determined must be defined, which would correspond to WG22**.** | In the absence of a standardized test, information from datasheets and technical literature may be appropriate. These materials must be stable at the maximum expected temperature.Dusts and beads up to 1 mm in diameter are suitable. | **Not accepted.****TC31 WG22 discussed these requirements during the 2024 Spilt meetings and there was consensus on the following for the CDV of IEC 60079-0, Ed. 8.0.*** **The list of dusts will be moved from NOTE 2 to normative text.**
* **The thermal conductivity of dusts will move to a note.**
* **There will be no requirements for diameter of dust particles.**
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| **NANIO CCVE (RU)** |  |  | **General** | **We support DS ExTAG/718/CD without any comments.** |  | **Noted** |
| **NCC****BR** | **26.5.1.3****26.5.1.1****6.1.2****6.1.2** |  |  | **We agree** |  | **Noted** |
| **NEPSI****CN** |  |  | **T** | **We don’t support the draft ExTAG decision sheet because the draft seems to have changed the technical requirements of the standard.****The context of a “note” in a standard is not a part of standard requirement. The Note 2 of Clause 26.5.1.3 just indicates the dust materials that may comply with the requirement of the standard, and doesn’t imply that their thermal conductivities definitely meet the required value given by the standard IEC 60079-0.** **Regarding the test methods of materials’ thermal conductivity, ISO or ASTM standards can be referred for measurement and/or verification, e.g., ISO 8301.****Our investigations show some of the dust materials given in the Note 2 of Clause 26.5.1.3 can meet the requirement of a thermal conductivity of no more than 0.10 W/(m.K) if their density is properly controlled.** | **It is recommended to transfer this draft DS to TC 31/WG 22&28 for further considerations to include a suitable test method/standard of thermal conductivity, or in other ways to specify the detailed technical specifications for the dusts used for the test in the next edition of IEC 60079-0.**  | **Accepted in principle.****TC31 WG22 discussed these requirements during the 2024 Spilt meetings and there was consensus on the following for the CDV of IEC 60079-0, Ed. 8.0.*** **The list of dusts will be moved from NOTE 2 to normative text.**
* **The thermal conductivity of dusts will move to a note.**
* **Organic dusts will have a restriction as to the maximum number of times can be used.**
 |
| **PTB** **DE** | **General**  |  |  | **PTB doesn’t support the DS.****The test powder mentioned in Note 2 must also be verified regarding the thermal conductivity. It is a normative requirement to be no more than 0,10 W/(m×K). A normative requirement cannot be changed by an IECEx DS.****Note 2 gives just some examples of powder which may be able to fulfil the requirements. A qualification by datasheet of the test powder seems to be sufficient.** **An example of a test specification for measuring the thermal conductivity of powder is ISO 22007-2:2022(en). Several suppliers of measuring equipment to determine the thermal conductivity of powder exist. See the following examples:**1. [**https://www.c3-analysentechnik.eu/hersteller/hot-disk-m1/**](https://www.c3-analysentechnik.eu/hersteller/hot-disk-m1/)
2. [**https://www.hotdiskinstruments.com/products-services/instruments/tps-3500/**](https://www.hotdiskinstruments.com/products-services/instruments/tps-3500/)
3. [**https://m.civil-testing-equipments.com/analytical-instruments/thermal-analysis-instrument/tps-thermal-conductivity-meter-iso-22007-2.html**](https://m.civil-testing-equipments.com/analytical-instruments/thermal-analysis-instrument/tps-thermal-conductivity-meter-iso-22007-2.html)

 | **Withdraw the DS**  | **Not accepted.****TC31 WG22 discussed these requirements during the 2024 Spilt meetings and there was consensus on the following issues for the CDV of IEC 60079-0, Ed. 8.0.*** **The list of dusts will be moved from NOTE 2 to normative text.**
* **The thermal conductivity of dusts will move to a note.**
* **Organic dusts will have a restriction as to the maximum number of times can be used.**

**The scope of the ISO 22007-2 standard is restricted to the thermal conductivity and resistivity measurement of plastics. It would not cover all possible dusts used under the IEC 60079-0 and -31 standards.****Without having a reference standard for the thermal conductivity measurement, it is not possible to evaluate the suitability of the proposed measuring equipment.** |
| **QPSCA** |  |  |  | **QPS has no comments and agrees with the proposed DS.** |  | **Noted** |
| **Simtars****AU** |  |  |  | Simtars has no comments. |  | **Noted** |
| **TC31****WG22** |  |  | ge | Support DS as drafted | None | **Noted** |
| **TC31****WG28** |  |  | te | Revise ExTAG-718-CD to not use the word powder as that is not the term used in IEC 60079-0.  | Where used in the DS, revise the word “powder” to “dust”. See attached proposed revisions to ExTAG-718-CD. | **Accepted** |
| **TestSafe****AU** |  |  |  | **We support this draft decision sheet.** |  | **Noted** |
| **TIIS****JP** | **-** | **-** | **-** | **TIIS supports the draft DS.** |  | **Noted** |
| **ULBR****BR** |  |  | **General** | **ULBR support this draft DS.** |  | **Noted** |
| **UL Demko****DK** |  |  | **General** | **UL Demko support this draft DS.** |  | **Noted** |