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

**Title: Compilation of Comments and observations on** **ExTAG/675/CD –** **Draft ExTAG Decision Sheet – The test sample used for the dielectric strength test on the compound.**

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

**INTRODUCTION**

This document contains the compilation of comments, as well as observations, from the originators NEPSI, CN, received on ExTAG/675/CD – Draft ExTAG Decision Sheet – The test sample used for the dielectric strength test on the compound.

**Christine Kane**

**ExTAG Secretariat**

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

***Christine Kane***

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| **ExCB/****ExTL** | **Clause/ Sub-clause** | **Paragraph Figure/****Table** | **Type of****comment****General/****technical/****editorial** | **COMMENTS** | **Proposed change** | **Observation****(to be completed by the originator)** |
| --- | --- | --- | --- | --- | --- | --- |
| **CCCMT****CN** |  |  | **General** | **We support NEPSI without comments.** |  | Noted. |
| **CMD****In consultation with****Intertek India, Karandikar Laboratories Pvt. Ltd., and KL Certification Services** |  |  |  | **After a consultation with members of the National forum and ExCBs/ExTLs from India participating in ExTAG, it is hereby stated that we have 'no comments' on draft ExTAG/675/CD.** |  | Noted. |
| **DEK****NL** |  |  | **General** | **Clauses 8.1.1 and 8.1.2 both state their own requirements and there is no link between them. This implies that these are independent and can be carried out on separate samples.** **This decision sheet would add requirements, which is not allowed.** | **Withdraw the DS.****If required, IEC/TC 31 MT 60079-18 should make a corrigendum to make this change.****8.1.2. should then state:** **The sample shall be circular with a diameter of 50 mm ± 1 mm and a thickness of****3 mm ± 0,2 mm. The one sample tested according clause 8.1.1. shall be symmetrically placed between electrodes 30 mm ± 1 mm****in diameter, within a temperature controlled oven, set to achieve the maximum service****temperature of the compound.** | Not accepted to withdraw, but thanks for comments.The draft DS does not intend to make technical changes to the requirements of the standard.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs.The suggestion to IEC/TC31 MT 60079-18 will be transferred via IECEx secretariat. |
| **DNV****NO** |  |  | **technical** | **We disagree with the proposal:- the dielectric strength test can be omitted if the material is specified acc to clause 5.2 e). The standards IEC 60243-1 does not require water absorption test, and this will be inconsequent if the material is not specified acc to IEC 60243-1- If the same sample should be used, the water content in the samples and/or drying time before dielectric strength test need to be specified.**  | **Answer: No, the water absorption test and the dielectric strength test shall be carried out on different samples.** | Not accepted, but thanks for comments.The draft DS is based on the consideration that both tests need to be performed.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **Eurofins CML****GB** |  | **N/A** | **General** | **Answer no.****A fresh sample can be used. The standard does not say that subsequently the same sample shall be used for the dielectric test, or it would all be in the same clause.** | **Answer yes, a separate sample can be used.** | Not accepted, but thanks for comments.Your proposed change makes us a little confused. You might want to say the answer should be no, if a separate sample can be used.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **FIDITAS****HR** | **-** | **-** | **T** | **Fiditas does not support Decision Sheet ExTAG/675/CD because answer is not in line with requirement of standard IEC 60079-18.****Testing required in IEC 60079-18, clauses 8.1.1 and 8.1.2 are testing of material properties and standard does not specify any schedule / order of tests.** **So, the Dielectric strength test according to cl. 8.1.2 can be made on new sample which was not subjected to test according to 8.1.1.**  | **Withdrawal of ExTAG DS proposal** | Not accepted to withdraw, but thanks for comments.The draft DS does not intend to make technical changes to the requirements of the standard.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **FME****GB** |  |  | **Technical** | **The proposed answer would result in a technical change to the standard as there is no requirement in 8.1.2 of IEC 60079-18 to use one of the samples previously used for water absorption for the dielectric strength.**  | **Do not issue this DS** | Not accepted, but thanks for comments.The draft DS does not intend to make technical changes to the requirements of the standard.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
|  **FMG****US** |  |  | te | The proposed answer is a technical change to the standard as there is no requirement in 8.1.2 of IEC 60079-18 to use one of the samples previously used for water absorption for the dielectric strength.  | Do not issue this DS | Not accepted, but thanks for comments.The draft DS does not intend to make technical changes to the requirements of the standard.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **IBE****DE** | **ANSWER** |  | **te** | **We believe that the two tests in IEC 60079-18 on the potting compound are 2 independent tests and should not necessarily be performed on the same samples.** **The proposal in this Decision Sheet is an additional requirement and requires further specifications. It would also be necessary to define the interval between the tests and how the samples are to be treated in the meantime.** | **We reject this Decision Sheet completely** | Not accepted, but thanks for comments.The draft DS does not intend to make technical changes to the requirements of the standard.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **ITL****IL** | IEC 60079-18:20148.1.1 |  |  | **N/A** | **N/A** | / |
| **NANIO CCVE****RU****ExCB/****ExTL** | **background** | **The second paragraph**  | **editorial** | **Clause 8.1.2 IEC 60079-18:2014 specify the requirements to the dielectric strength test.** | **In the second paragraph of the background water absorption test shall be changed to dielectric strength test: «The requirements of the dielectric strength test have been given in Clause 8.1.2 of IEC 60079-18:2014»** | Accepted. |
| **NANIO CCVE****RU****ExCB/****ExTL** |  | **answer** |  | **IEC 60079-18:2014 does not specify the guidance regarding the sequence of tests, different CB and TL can define test schemes and requirements for the preparation of samples (compound materials) for one test or other in different ways. It leads to the prerequisites for obtaining inconsistent test results according to IEC 60079-18:2014 of the same samples, but carried out in different TL.** | **The following wording of the answer is proposed:** **«No. The tests should be carried out on different samples if there is no basis in the manufacturer's technical documentation for testing on the same samples in any particular sequence»** | Accepted in part.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **NCC****BR** | **8.1.1****8.1.2** |  |  | **We agree** |  | Noted. |
| **NEPSI****CN** |  |  | **G** | **We support the draft decision sheet ExTAG/675/CD.** |  | Noted. |
| **PTB****DE** |  |  |  | PTB disagrees with the suggested answer. PTB has the opinion that each test shall be performed with unstressed test samples. Compared to tests performed individually, the combination of tests on the same specimen may lead to incorrect results, which could be in some cases more critical from a safety point of view. | Change answer to *No* | Accepted in Part.These 2 tests can be performed with the same sample(s) if desired by the manufacturer, in order to save samples. The situation could be negotiated between manufacturer and ExTL.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **PTB****DE** |  |  | **editorial** | Incorrect naming of the clause 8.1.2:The requirements of water absorption test have been given in Clause 8.1.2 of IEC 60079-18:2014: | Replace *water absorption test* by *dielectric strength test* | Accepted. |
| **QPS****CA** | **-** | **-** | **Technical** | **The standard does not require or state anywhere that the same sample be use for the water absorption test and dielectric test. Annex B provides the test sequence and allocation of samples and does not state the water absorption test** | **Reject proposed DS . Recommend for discussion with IEC/TC 31 MT 60079-18** | Not accepted, but thanks for comments.Annex B describes the samples allocation for the whole apparatus instead of compound.The draft DS does not intend to make technical changes to the requirements of the standard.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs, which is also in-line with TC31’s proposed change. |
| **Simtars****AU** |  |  |  | **Simtars has no comments.** |  | Noted. |
| **TC 31** |  |  |  | It is important to correct the Background:The first sentence in the second paragraph needs to be corrected to: | The requirements of ~~water absorption~~ dielectric strength test have been given in Clause 8.1.2 of IEC 60079-18:2014: | Accepted. |
| **TC 31** |  |  |  | The recommendation to use the same sample used for the water absorption test (8.1.1) subsequently for the dielectric strength test (8.1.2) is not a clarification but an increase of the requirements. If the intention of the originator is to allow to do these tests subsequently with the same samples, if desired by the manufacturer to save samples, the question and the answer should be re-worded | Question:Is it possible to use the sample for the water absorption test (Clause 8.1.1) also for the dielectric strength test (Clause 8.1.2)?Answer:Yes, when both of the water absorption test and dielectric strength test are required to be carried out on samples of the compound(s) used in “m” equipment, these tests can be performed with the same sample(s) subsequently if desired by the manufacturer. | Accepted.The proposed change perfectly reflects the original intention of the originator. |
| **TestSafe****AU** | 8.1.2 |  | editorial | Second paragraph in background section refer to incorrect test name for the clause 8.1.2. | The requirements of Dielectric strength test have been given in Clause 8.1.2 ….  | Accepted. |
| **TestSafe****AU** | 8.1.18.1.2 |  | technical | Clauses 8.1.1 & 8.1.2 are for two individual tests and the standard does not specify them to be done in sequence. The Dielectric strength test can be done on the same sample after water absorption test or on a separate sample. Less than 1% water absorption would not affect the Dielectric strength result. Do we need this decision sheet? | The Dielectric strength test can be done with the same sample after water absorption test or with a separate sample. | Accepted.These tests can be done with same sample(s) especially on request by manufacturer.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **UL LLC****US** | ExTAG DS | Answer | Technical | We do not support the proposed answer. The text of the standard makes no statement or implication that the water absorption test and the dielectric test must be done sequentially on the same sample. In some cases, one or both of these tests may not be required. Therefore, per the current wording of the standard, the tests should be considered independent of one another. If the manufacturer requests that both tests be performed on the same sample, this would be permitted, but it is not mandatory.   | Change answer to the following: No. The standard does not require the tests to be done sequentially on the same sample. If the manufacturer would like to conduct both tests on the same sample, this is permitted, but is not required. | Accepted in part.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **CQM****CN** | IEC 60079-18:2017cl 5.3.1IEC 60079-18:2017cl 5.3.2IEC 60079-18:2017cl 8.1.2 |  | Technical | Not support.The water absorption property of compound is required by IEC 60079-18:2017 cl 5.3.1.The dielectric strength property of compound is required by IEC 60079-18:2017 cl 5.3.2.There is not specification of sequence between these two clauses. As specified in IEC 60079-18:2017 cl 5.3.2. , the dielectric strength test in cl 8.1.2 is only required to be conducted where the dielectric strength of compound according to IEC 60243-1 at the maximum service temperature according to 8.2.2 a) is not available. Extend to the cl 6 Conditioning before tests in IEC 60243-1:2013, Where a specification is available for the material to be tested, this shall be followed, otherwise, the specimens shall be conditioned for not less than 24h at (23±2)℃, (50±5)%RH. Since there isn’t any precondition specified in clause IEC 60079-18:2017 cl 5.3.2 and cl 8.1.2, separate samples may be used for cl 8.1.1 and 8.1.2. considering the requirement of normal precondition in the cl 6 conditioning before tests in IEC 60243-1:2013, separate samples used for water absorption and dielectric strength test will be better.  |  | Not accepted, but thanks for comments.The draft DS is based on the consideration that both tests need to be performed.These tests can be done with same sample(s) especially on request by manufacturer.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |
| **LOM****ES** |  |  | **GENERAL** | **LOM disagrees with this DS as these two tests shall be independent in different samples for the following reasons:****The ExTL can test a compound for water absorption and the datasheet of the compound can include compliance regarding dielectric strength test in accordance with IEC 60243-1. In this case the samples subjected to dielectric strength test were not subjected to water absorption test as per 8.1.1** |  | Not accepted, but thanks for comments.The draft DS is based on the consideration that both tests need to be performed.The draft DS will be revised while reflecting manufacturers’ concerns about number of samples and their costs. |