

STANDARD INFORMATION

Standard Number: UL 60079-18

Standard Name: Explosive Atmospheres – Part 18: Equipment Protection by Encapsulation “m”

Standard Edition and Issue Date: 4th Edition Dated December 14, 2015

Date of Revision: December 14, 2015

Date of Previous Revision of Standard: 3rd Edition Revised October 5, 2012

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **December 14, 2020**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revise requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revise requirements.

Overview of Changes:

- Protection against inadmissible temperatures and damage to the cells
- Determination of the maximum temperature for “Da” fixed
- Stabilization of the temperature

Specific details of new/revise requirements are found in table below.

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revise paragraphs noted in the attached or explain why these new/revise requirements do not apply to your product (s).

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are underlined and deletions are shown lined out below.</i>
7	Info	Constructional requirements
7.8	Info	Cells and batteries
		Protection against inadmissible temperatures and damage to the cells or batteries
7.8.3		<p>The maximum service temperature of the cells <u>or batteries under worst case load (see 7.8.5)</u> shall not exceed either the temperature specified by the manufacturer of the cells or batteries, or 80 °C if not specified by the manufacturer and the maximum charging and discharging current shall not exceed the safe value specified by the manufacturer by one of the following means:</p> <p>a) shall be provided with one or more control devices as described in 7.8.8 to prevent unacceptable overheating or gassing inside the compound, b) <u>shall be provided with a series resistor to limit current to the cell rating and a blocking diode to preclude reverse charging.</u></p> <p><u>In either case, the requirements in 7.8.4 through 7.8.7 apply as applicable.</u></p>
8	Info	Type tests
8.2	Info	Tests on the apparatus
		Maximum temperature
		<u>8.2.2DV DR Modification of Clause 8.2.2 to replace with the following:</u>
		A sample of “m” equipment shall be subjected to a type test to ensure that:
8.2.2		<p>a) the temperature limits specified in 6.1 are not exceeded in normal operation; b) for level of protection “ma” and “mb” the maximum surface temperature is not exceeded under fault conditions as defined in 7.2.1.</p> <p>For “m” equipment without an external load, the test shall be carried out in accordance with the temperature measurements of IEC UL 60079-0 taking into account the supply conditions given in 4.4.</p> <p>For “m” equipment with an external load, the test shall be carried out for level of protection “ma” and “mb” by adjusting the current to the highest value, which does not cause the protective device to operate, and for level of protection “mc” at the specified load parameters in normal operation and in the case of regular expected occurrences.</p>



CLAUSE	VERDICT	COMMENT
		<p><u>For level of protection “ma” equipment, designed for EPL “Da” the maximum surface temperature shall be determined with the equipment mounted in accordance with the manufacturer’s instructions, and surrounded on all available surfaces by dust with a layer thickness of at least 200 mm. The final temperature shall be considered to have been reached when the rate of rise of temperature does not exceed 1 K/24 h.</u></p> <p><u>For EPL “Db”, the maximum surface temperature shall be determined with the equipment mounted in accordance with the manufacturer’s instructions with the additional requirement that the apparatus shall be covered with the maximum amount of dust that it can retain.</u></p> <p>The measurement for the maximum surface temperature shall be determined using a test dust having a thermal conductivity of no more than 0,10 W/(m.K) measured at (100 ± 5) °C. or grain dust consisting of wheat or corn dust, or both, that has passed through a USA Standard 150 Micron (100 mesh) wire cloth per ASTM-E11.</p> <p>NOTE 1 Testing, simulation and analysis is sometimes used in order to achieve the required temperature limitations under malfunction conditions for equipment with characteristics such as non-linear external loads, input power control, or difficult to define failure modes.</p> <p>NOTE 2 The IEC 60079 series only permits use of a test dust having a thermal conductivity of no more than 0,10 W/(m.K) measured at (100 ± 5) °C.</p>
		<p>CUSTOMERS PLEASE NOTE: This Table and column “Verdict” can be used in determining how your current or future production is or will be in compliance with new/revised requirements.</p>