

STANDARD INFORMATION

Standard: UL 1989

Standard ID: Valve Regulated or Vented Batteries with Aqueous Electrolytes [UL 1989:2023 Ed.6]

Previous Standard ID: Standby Batteries [UL 1989:2013 Ed.5+R:09Nov2018]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **November 21, 2025**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes:

- Revisions to the Scope
- Modifications to the Flame Arrester Vent Cap Tests
- Modifications to Flame Arrester Vent Cap Tests
- Modifications to Capacity Rating Tests
- Modifications to the Discharge test

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

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 <u>underlined</u> and deletions are shown lined-out below.</i>
1	Info	Scope
1.1		<p>These requirements cover valve regulated or vented batteries that can be used as instrument batteries, enclosed batteries, emergency lighting and power batteries and uninterruptible power supply batteries. A battery system composed of vented or valve regulated types with battery management controls and other battery system components, and other chemistries or battery types are covered by the Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications, UL 1973.</p> <p><u>These requirements cover valve regulated or vented batteries with aqueous electrolytes that can be used in various applications including stationary applications such as instrument batteries, enclosed batteries, emergency lighting batteries, emergency power batteries and uninterruptible power supply batteries, portable applications such as portable power tool batteries, and mobile applications such as industrial truck batteries.</u></p>
1.4		<p><i>New clause added;</i></p> <p>A battery system composed of vented or valve regulated types with battery management controls and other battery system components, and other chemistries or battery types used in stationary and motive auxiliary power applications are covered by the Standard for Batteries for Use in Stationary and Motive Auxiliary Power Applications, UL 1973.</p>
9	Info	Flame Arrester Vent Cap Tests
9.1	Info	General
9.1.2		<p>At least six vent caps (three sets of two each) and three <u>six</u> simulated battery covers, to which the vent caps are intended to be attached, are to be provided for the conditioning procedure and vent cap tests as described in 9.2.1 – 9.6.3.</p>



CLAUSE	VERDICT	COMMENT
9.5	Info	Test for sustained burning
9.5.2		One each of the conditioned samples are to be installed in the hydrogen test fixture, described in Figure 9.2, without the test enclosure cover, described in Figure 9.3, in place. The hydrogen test fixture is to be located in a protective room or test chamber as considered necessary for safety purposes. A mixture of hydrogen and oxygen gas is to be caused to flow through the fixture and vent cap and is to be adjusted to the appropriate maximum value as indicated in Table 9.1 <u>and allowed to flow for at least 1 min before ignition attempts are made.</u> As the gas flow continues, six attempts are to be made to ignite the gas mixture venting from the cap using the spark ignition source. Each attempt to ignite the gas is to consist of a single spark, and there is to be a 10-s interval between each ignition attempt. <u>The gas lines should be cleared after each sample is tested.</u> Since hydrogen gas can burn without visible flame, sustained burning is to be determined by using paper as an indicator.
9.6	Info	Test for flame propagation
9.6.1		After the test described in 9.5.2 for sustained burning, one of each of the conditioned vent caps is to be installed as described in 9.5.2 with the test enclosure cover shown in Figure 9.3, in place as shown in Figure 9.4. The gas mixture is to be allowed to flow into the test fixture <u>for at least 1 min before ignition attempts are made.</u> As the gas flow continues, six attempts are to be made to ignite the gas venting from the cap, approximately 12.7 mm (1/2 in) from the vent cap opening, using the spark ignition source located in the path of the gas flow. Each attempt to ignite the gas is to consist of a single spark, and there is to be a 10-s interval between each ignition attempt.
9.6.2		The test described in 9.6.1 is to be repeated for each of the samples at each of the appropriate gas mixture flow rates as indicated in Table 9.1. <u>The gas lines should be cleared after each sample is tested.</u>
10	Info	Capacity Rating Tests
10.3		The charging and discharging tests are described in Table 10.1. <u>Depending on the difference in the charging system specified by the manufacturer, a battery sample is subjected to one of the test sequences as follows:</u> a) Controlled current charge test: I, II, III, IV, I, V, I, II. <u>This test method applies to batteries having controlled current charging systems.</u> b) Controlled voltage charge test: VI, II, VII, IV, VI, V, VI, II. <u>This test method applies to batteries having controlled voltage charging systems.</u> c) Combination controlled current charge and controlled voltage charge test: I, II, III, IV, VII, IV, VI, V, I, V, VI, II. <u>This test method applies to batteries with charging systems with a combination of controlled current and controlled voltage.</u>



CLAUSE	VERDICT	COMMENT
13		Overcharge and Discharge Test
13.3		Discharge test
13.3.1		<p>The terminals of three samples of a primary or secondary battery supply shall be short-circuited continuously until <u>the sample is completely discharged (battery energy is totally depleted), or the temperature on the sample has peaked and return to room ambient, or a noncompliance result has occurred as noted in 12.1.1.</u> The batteries shall be in a fully charged state prior to the test. The batteries shall be short circuited by connecting them with a minimum length of 16 AWG (1.31 mm²) copper wire <u>or with a circuit load having a total circuit resistance not exceeding 5 mΩ.</u> Tests are to be conducted at room temperature. The short circuit may be applied at the load side of an overcurrent or thermal protective device if:</p> <ul style="list-style-type: none">a) The device has been evaluated for the purpose; andb) Circuitry between the battery supply and the protective device has been evaluated to preclude short-circuiting.