

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Power Units Other Than Class 2, UL 1012, are being proposed for preliminary review and comment only:

- 1. For Preliminary Review Only: New requirements for batteries with integral chargers***
- 2. For Preliminary Review Only: New requirements for power units for installation in air-handling spaces***

COMMENTS DUE: APRIL 10, 2009

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author will be asked to review the comments and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before they advance to the next stage in UL's standards development process.

In some cases, the author of the proposals may choose to discontinue them. In this case, the author need not do anything after preliminary review has ended. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments posted during the STP ballot and stakeholder review process will be provided with a response in CSDS.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. For Preliminary Review Only: New requirements for batteries with integral chargers

RATIONALE

Proposal submitted by: Kent Donohue, Underwriters Laboratories

UL proposes new requirements for batteries with integral chargers. The proposal clarifies requirements applicable to batteries with integral chargers, and includes new requirements applicable to units with a solar cell feature.

PROPOSAL

RECHARGEABLE BATTERIES WITH INTEGRAL CHARGERS

92 Scope

92.1 These requirements supplement and in some cases modify the requirements of Sections 7 – 61. These requirements apply to indoor use, household, and commercial rechargeable battery packs (RBP's) of the alternating current supplied type, solar cell supplied type, or combination supplied type.

92.2 These requirements do not apply to a rechargeable battery for recharging from a separable battery charger. Requirements for this type of rechargeable battery are specified in the Standard for Household and Commercial Batteries, UL 2054.

92.3 These requirements do not apply to a rechargeable battery intended for use in uninterruptible power supply applications. Requirements for this type of rechargeable battery are specified in the Standard for Uninterruptible Power Supply Equipment, UL 1778.

92.4 These requirements do not apply to a rechargeable battery with an integral load, such as a rechargeable night light, rechargeable flashlight, a rechargeable shaver, a rechargeable screwdriver, and the like. Requirements for these types of products are specified in other Standards appropriate to the intended use.

93 Glossary

93.1 For the purpose of the requirements in Sections 92 – 98, the following definitions apply.

93.2 ALTERNATING CURRENT SUPPLIED – During recharge, the RBP is connected to a nominal 120 or 240 V, 15 or 20 A branch circuit receptacle. The RBP may be either direct plug-in or cord- and plug-connected.

93.3 COMBINATION SUPPLIED – A direct plug-in or cord- and plug-connected RBP that also employs a solar cell integral to the RBP enclosure. During recharge, the RBP receives energy from either an alternating current supply, from sunlight, or from both sources.

93.4 RECHARGEABLE BATTERY PACK (RBP) – A unit with an enclosure housing a battery charger circuit, a rechargeable battery, control circuitry, and a polarized output connector integral to the enclosure or terminating on an output cord. During recharge the energy source is via an alternating current supply, or a solar cell. During discharge the output is connected to the load equipment.

93.5 SOLAR CELL – A photovoltaic assembly that converts sunlight directly into electricity.

93.6 SOLAR CELL SUPPLIED – During recharge, the RBP receives energy via a solar cell integral to the RBP enclosure.

94 General

94.1 The RBP shall comply with the applicable requirements of Sections 7 – 61, modified by the construction and performance requirements for secondary battery packs specified in the Standard for Household and Commercial Batteries, UL 2054.

95 Construction

95.1 Enclosure

95.1.1 Polymeric enclosure materials of a solar cell or combination supplied RBP shall comply with the ultraviolet light exposure requirements of the Standard for Polymeric Material – Use in Electrical Equipment Evaluations, UL 746C.

95.2 Battery

95.2.1 A battery intended for installation and replacement by other than trained technicians shall employ a rigid mechanical enclosure that complies with the enclosure construction and test requirements of the Standard for Household and Commercial Batteries, UL 2054.

95.2.2 A RBP with a battery intended for installation and replacement by other than trained technicians shall:

- a) Be designed to prevent misalignment, reverse polarity, damage upon connection, and accessibility of uninsulated parts during use; and
- b) Provide a battery securement means to prevent inadvertent disconnection or damage during use.

95.3 RBP's with a lithium battery

95.3.1 Compatibility between a lithium-ion battery and the charging system shall be verified and documented by the RBP manufacturer. Verification documentation shall include:

- a) The battery manufacturer's specifications noted in 95.3.2; and
- b) Failure modes and effects analysis determining that the battery manufacturer's specifications noted in 95.3.2 are not exceeded.

95.3.2 The RBP manufacturer shall address in the product design the following specifications from the lithium-ion cell manufacturer:

- a) Rated charging current, charging voltage and cutoff current, with compliance verified in the RBP under normal and single fault conditions within the system;
- b) Rated discharge current/rate and endpoint voltage, with compliance verified in the RBP under normal and single fault conditions within the system;
- c) Maximum charging current and charging voltage limit (established as part of the battery abnormal charging test), with compliance verified in the RBP under double fault conditions within the system; and
- d) The upper and lower ambient temperature ranges for charging and discharging, with compliance verified in the RBP.