



Energizer

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DISPOSAL OF *Energizer* AA Lithium L91 BATTERY LITHIUM/IRON DISULFIDE (Li/FeS₂)

Energizer L91 batteries are United States Resource Conservation and Recovery Act (RCRA) non-hazardous waste.

Waste L91 batteries meet the United States Federal definition of a solid waste per 40 Code of Federal Regulations (CFR) 261.2. As such, the generator must make certain determinations relative to the waste material. Waste L91 batteries do not fall under any of the specific United States Federal RCRA F, K, P, or U lists, nor do any states specifically regulate this type of waste, to our knowledge.

This leads us to the RCRA characteristic waste criteria. Toxicity Characteristic Leaching Procedure (TCLP) listed materials are not used as battery components and may only be present in trace quantities in some of the battery parts. Based on our knowledge of the battery and battery raw materials, waste L91 batteries are not RCRA toxic. Only the characteristics of ignitability, corrosivity, and reactivity remain as possible classifications.

The batteries are solid, not liquid, which precludes their being a corrosive waste, since corrosive waste must be liquid by definition. As an inert solid, flash point is not an appropriate test for ignitability. Our batteries are a safe consumer product and, under standard temperature and pressure conditions, will not cause fire through friction, absorption of moisture, or spontaneous chemical changes. Since iron disulfide is one of the primary electrode materials of the L91, clearly the batteries do contain sulfides. The amount of reactive or releasable sulfide is substantially below the regulatory limit as established by the Environmental Protection Agency (EPA) Manual SW-846, Test Methods for Evaluating Solid Waste. The batteries contain no cyanides and they do not meet any other reactivity criteria, including the criterion "reacts violently with water." An intact scrap battery will not react in that manner.

To meet United States Department of Transportation (DOT) requirements, scrap L91 batteries are packaged per the following from 49 CFR 173.185 (h):

- 1) The limit of 12 grams of lithium per cell is not exceeded.
- 2) External short circuits are effectively prevented.
- 3) Strong outer packaging is used conforming to part 173.24 and 173.24 (a).

Since scrap L91 batteries meet the requirements of 49 CFR 173.185 (h), they are not subject to the further requirements of 49 CFR 173.185.

United States Federal hazardous waste regulations are specific about relating waste determination to the waste as generated. As generated, scrap L91 batteries are not a specifically listed waste stream and they do not meet the criteria for ignitable, corrosive, reactive, or toxic wastes. Scrap L91 batteries are not hazardous waste and they are not regulated by DOT as hazardous materials

Other nations and some US states may regulate waste based on additional criteria or different test protocols. The status of scrap lithium L91 batteries should be confirmed in the nation or US state(s) where disposal occurs.

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This document is advisory in nature and is intended to provide battery disposal guidance based on current United States federal laws and regulations. The information and conclusions set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, by United States law, waste disposal determinations are ultimately the responsibility of the generator.