

Recycling and Reuse: Batteries and Accumulators: European Union Directive

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The 2006 European Union (EU) Directive on Batteries and Accumulators establishes rules for the collection, recycling, treatment, and disposal of batteries. The Directive restricts the marketing of most batteries containing mercury or cadmium. Collection rates of at least 25% and 45% must be reached by September 26, 2012, and September 26, 2016, respectively. Recycling targets are defined in terms of average weight: 65% for lead-acid batteries, 75% for nickel-cadmium batteries, and 50% for others. The Directive establishes minimum rules for producer responsibility, as well as provisions for labeling batteries and for their removal from equipment. This fact sheet is not comprehensive; rather, it provides a starting point for readers interested in investigating the topic.

[Outline of document with links to sections]

EU Directive on Batteries and Accumulators

Batteries

Batteries fall into two basic groups: lead acid batteries and dry cell batteries. Lead acid batteries commonly are used to power automobiles, industrial equipment, emergency lighting, and alarm systems. Dry cell batteries power radios, toys, cellular phones, watches, laptop computers, portable power tools, and other consumer goods. Dry cell batteries are found in a number of forms, including: alkaline and carbon zinc (9-volt, D, C, AA, AAA); mercuric-oxide (button, some cylindrical and rectangular); silver-oxide and zinc-air (button); and lithium (9-volt, C, AA, coin, button, rechargeable). Every year, approximately 800,000 tons of automotive batteries, 190,000 tons of industrial batteries, and 160,000 tons of consumer batteries enter the European Community market. Batteries may contain heavy metals such as mercury, lead, cadmium, silver, nickel, or lithium that can contaminate the environment if not recycled or if disposed of improperly. Virtually every type of battery currently in common use can be recycled to some extent.

Summary of EU Directive on Batteries and Accumulators

The September 2006 Batteries Directive (2006/66/EC) [<http://europa.eu/scadplus/leg/en/lvb/l21202.htm>] is aimed at reducing mercury, cadmium, and lead and other metals in the environment by minimizing the use of these substances in batteries and by treating and re-using old batteries. The Directive applies to all types of batteries except those used to protect Member States' security, for military purposes, or sent into space. The Directive prohibits:

* "Battery" or "accumulator" under the Batteries Directive means any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or consisting of one or more secondary battery cells (rechargeable)

- portable batteries and accumulators, including those incorporated in appliances, with a cadmium content by weight of more than 0.002% (portable batteries and accumulators for use in emergency and alarm systems, medical equipment, and cordless power tools are exempted)
- batteries and accumulators containing more than 0.0005% by weight of mercury (except for button cells, which must have a mercury content of less than 2% by weight)

EU Member States must transpose the Directive into national law so that end-users may discard spent batteries and accumulators at local collection points for no charge. Producers of batteries and accumulators must be registered and bear the costs of collecting, treating, and recycling industrial, automotive, and portable batteries and accumulators, as well as the costs of campaigns to inform the public of these arrangements. Small producers may be exempt from this obligation. Product markings are required for batteries and accumulators to provide information on capacity and to facilitate reuse and safe disposal. Member States also must take actions to ensure that manufacturers design appliances so that batteries and accumulators may be removed readily and safely.

By September 26, 2009, Member States must ensure that collected batteries and accumulators are treated and recycled using the best available techniques, unless a detailed assessment of environmental, economic, and social impacts concludes that recycling is not the best alternative. Incineration or landfilling of waste from industrial and automotive batteries is prohibited; only residues from treating and recycling them may be disposed of in these ways. At a minimum, treatment must include removal of all fluids and acids. Member States must send the European Commission reports on the implementation of the Directive. The first report will cover the period until September 26, 2012; subsequent reports must be produced every three years. On the basis of these reports, the Commission will publish its own report on the implementation of the Directive, including its impacts on the environment and the economy.

Development and Implementation of the Directive

The 2006 Directive repeals and replaces a directive from 1991 (91/157/EEC) [http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=Directive&an_doc=1991&nu_doc=157] following a public consultation phase, an extended impact assessment, and a special conciliation process in order to ensure the appropriate collection and reuse of batteries. Collection and Recycling Organizations used by EU Member States take three major forms:

- systems in which industry is responsible for collection, sorting, recycling, awareness program, and achieving mandatory collection targets
- systems in which municipalities and industry share collection responsibilities, but in which industry is responsible for meeting collection targets
- systems in which retailers and municipalities share responsibility for collection from consumers

National battery associations are in place in most European countries to support this work. The European Portable Battery Association (EPBA) [<http://www.epbaeurope.net/>] has developed a compliance blueprint to assist countries in implementing the Battery Directive.

Further Information

For further background information on the 2006 Battery Directive and its implementation, see:

- 2003 European Commission press release [<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/03/1596&format=HTML&aged=0&language=EN&guiLanguage=en>]
- European Union stakeholder consultation [<http://ec.europa.eu/environment/waste/batteries/consultation.htm>]

- Euractiv – European Union Battery Directive summary [<http://www.euractiv.com/en/environment/batteries-directive/article-117445>]
- information on European Union Member State battery legislation [http://www.epbaeurope.net/legislation_national.html]

Country Examples

Belgium. In 1995, Belgium formed Bebat [<http://www.bebat.be/pages/en/main.html>] to collect used batteries in compliance with Belgian regulations. Costs of the program are financed through an environmental fee per battery to the consumer. Today, more than 800 companies are registered with Bebat. Used batteries may be returned at more than 20,000 Bebat locations at retail establishments, schools, and elsewhere. Recycling rates are high in Belgium relative to other Member Nations.

Netherlands. Under the Batteries Disposal Decree in 1995, producers and importers of batteries have formed an organization called Sibat. Batteries are labeled as household hazardous waste. Public information campaigns are employed to encourage consumers to keep batteries separate from municipal waste, and schools participate in battery collection initiatives. Through collection fees paid to Sibat by industry members, local authorities finance battery collection at municipal facilities and retail outlets, while Sibat members bear the costs of transport, storage, sorting, retreating, and recycling used batteries. For a summary of Dutch policies on batteries, see: <http://international.vrom.nl/pagina.html?id=7387>

Poland. Reba Organizacja Odzysku [<http://www.reba.com.pl/pg?id=93>] is a national battery recovery organization in Poland established and owned by manufacturers and importers of batteries to perform the functions necessary to implement the 2006 EU Battery Directive and two subsequent Polish ordinances. Reba has established a system of collection and recovery for waste batteries and portable accumulators, in collaboration with a broadly expanded network of partner entities and institutions. Prizes are awarded to schools for their battery collection efforts.

Germany. The German Battery Decree of 2001 obligates manufacturers to take back portable and rechargeable batteries free of charge from retailers or municipalities, and to recycle them (or dispose of non-recyclable batteries) in accordance with the provisions of the German Waste Management and Recycling Act. Batteries are labeled as hazardous when they contain hazardous chemicals. GRS Batterien [<http://www.grs-batterien.de/home.html>], the organization of German battery manufacturers and importers, prepares an annual report on battery circulation, collection, and recycling.

Some U.S. Activities and Additional Resources

Americans purchase nearly three billion dry cell batteries every year to power radios, toys, cellular phones, watches, laptop computers, and portable power tools. Nearly 99 million lead-acid car batteries are manufactured annually.

Federal Laws and Policy

The Act Mercury-Containing and Rechargeable Battery Management Act of 1996 [<http://www.hss.energy.gov/nuclearsafety/nsea/oepa/laws/battery.html>] makes it easier for rechargeable battery and product manufacturers to collect and recycle Ni-CD batteries and certain small sealed lead-acid (SSLA) batteries. The Act:

- establishes national, uniform labeling requirements for Ni-Cd and certain SSLA rechargeable batteries
- mandates that Ni-Cd and certain SSLA rechargeable batteries be "easily removable" from consumer products

- makes EPA's Universal Waste Rule [<http://www.epa.gov/epaoswer/hazwaste/id/univwast/battery.htm>] effective immediately in all States for the collection, storage, and transportation of batteries covered by the Battery Act. The rule streamlines the regulatory process for businesses and excludes rechargeable batteries from hazardous waste handling requirements
- requires EPA, in consultation with manufacturers and retailers, to establish a public education program on battery recycling and proper handling and disposal of used batteries
- prohibits, or otherwise conditions, the sale of certain types of mercury-containing batteries (i.e., alkaline-manganese, zinc-carbon, button cell mercuric-oxide, and other mercuric-oxide batteries) in the United States

Some State and Non-Governmental Activities

Many U.S. States have regulations in place regarding lead-acid batteries [<http://bci.dev.web.sba.com/states.html>], and other State laws [<http://www.rbrc.org/call2recycle/popups/detailedlaws.html>] also have been passed in addition to Federal requirements. In California, for example, it is illegal to dispose of alkaline batteries in the trash. Authorities in some other States treat alkaline batteries as household hazardous waste, while State law elsewhere does not distinguish these batteries from domestic waste.

Non-governmental organizations that promote battery recycling include:

- Rechargeable Battery Recycling Corporation [<http://www.rbrc.org/call2recycle/>] (RBRC). RBRC is a nonprofit, public service organization funded by rechargeable product and battery manufacturers to administer a voluntary battery take-back program and promote rechargeable battery recycling
- Portable Rechargeable Battery Association [http://www.prba.org/About_PRBA/Default.ashx]. The Portable Battery Association is a nonprofit trade group that helps States establish battery recycling programs
- Battery Council International [<http://www.batterycouncil.org/>] (BCI). BCI is the trade association for the lead-acid battery industry
- Big Green Box [<http://www.biggreenbox.com/faqAll.php>]. The Big Green Box is a private national program that offers companies, consumers, municipalities, and other generators a low cost and easy way to recycle their batteries and portable electronic devices through prepaid collection services
- Battery Solutions [<http://www.batteryrecycling.com/>]. Battery Solutions provides battery recycling services nationwide for government, business, and residential customers

Additional Resources

For more information on U.S. policies and laws on recycling, see:

- EPA - batteries [<http://www.epa.gov/garbage/battery.htm>]
- EPA - product stewardship: batteries [<http://www.epa.gov/epr/products/bat-legislation.htm>]
- EPA - battery laws and enforcement [<http://www.epa.gov/oecaerth/civil/ba/baenfstatreg.html>]
- Earth 911 – helpful links and resources [<http://earth911.org/blog/2007/04/02/helpful-links-resources/>]
- Environmental Health and Safety Online – battery recycling and disposal [<http://www.ehso.com/ehshome/batteries.php>]