

# Science for Environment Policy

## Batteries in Germany exceed new EU toxic metal limits

**Levels of toxic metals in batteries** were not immediately reduced in line with new limits imposed by EU regulations, according to a survey from Germany. The study focuses on concentrations of toxic metals contained in batteries sold in Germany in 2010 and 2011, but its authors say the results are relevant to other EU countries.

**The EU Batteries Directive<sup>1</sup>** sets limits for the content of hazardous substances in batteries. The limits for mercury, cadmium and lead in batteries sold in the EU are 5, 20 and 40 milligrams per kilogram respectively, with certain exemptions and labelling requirements if limits are exceeded. In Germany, the EU Batteries Directive is implemented via the Batteries Act, which came into force in 2009.

In this study, researchers surveyed the toxic metal contents of household batteries. The results of a previous 2007 study showed that all but two of 147 batteries surveyed complied with the old regulations, and the two batteries that were not compliant only exceeded the limit for mercury. However, the levels found in many of the batteries sampled at that time would have exceeded the new limits. Therefore, the authors decided to undertake a new survey to establish whether manufacturers have since brought levels down in line with the stricter regulations.

The researchers tested 146 household batteries of different types, brands and sizes, all sold in Germany. The batteries, collected in 2010 and 2011, included some of the same types surveyed previously, as well as rechargeable lithium-ion batteries, which are used in mobile phones, and 9V zinc-carbon batteries used, for example, in smoke detectors.

The results showed that a number of zinc-carbon and zinc chloride batteries exceeded cadmium limits and should not have been on the market. Several types of batteries also violated labelling restrictions. For example, zinc-carbon batteries, contained, on average, the highest levels of toxic metals, with some containing over 25 times the limit for lead without displaying the requisite label. Most button batteries (such as those used in watches) contained levels of mercury that meant they should have been displaying a 'mercury-containing' label, but nearly half did not.

Compared to 2007 levels, mercury levels had not changed in general, while lead and cadmium levels were slightly higher in some types of batteries and slightly lower in others. Although this study is restricted to Germany, its authors say the results of their survey are relevant to the whole of the EU, since the same brands of batteries are sold in other countries. They also suggest that consumers could consider buying higher capacity alkaline-manganese rather than zinc-carbon batteries. Alkaline-manganese batteries contained low toxic metal concentrations and did not exceed any of limits, in contrast, zinc-carbon batteries very often exceed the new limits.



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