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Umwelt Bundes Amt
For our Environment

Energy saving lamps: Airing out upon breakage is be-all and end-all

UBA points to safety information on packaging

New research by the Federal Environment Agency (UBA) has shown that airing a room immediately and thoroughly when an energy saving lamp breaks can avert any health risks posed by mercury. Manufacturers should include this safety advice on all packaging, says UBA, whose President Jochen Flasbarth also sees a need for improving the break resistance of energy saving lamps. Flasbarth comments, "Splinter shield models with a plastic or silicone jacket now offer an advantage in that they make safe clean-up of broken lamps easier. Yet there is still a need for lamps from which mercury does not escape upon breakage in the first place." UBA also found evidence in its latest findings that considerably less mercury escapes from energy saving lamps engineered with amalgam than from those containing liquid mercury. UBA still believes the phase-out of light bulbs resolved by the European Union (EU) is appropriate. Says Flasbarth, "The light bulbs in use to date waste too much energy." Starting 1 September 2011 standard light bulbs of more than 40 watts—which includes the popular 60-watt lamp- may no longer be marketed.

UBA tested four new lamp types as to the health risks of mercury vapour escaping after breakage. Experiments in an office space confirmed that speedy and thorough airing for 15 minutes after a lamp breaks provides adequate protection. While leaving windows opened, any remaining shards can then be disposed of appropriately. If rooms are not aired, indoor vapour concentrations which may impact health can build up for a period of several hours- or even for up to one to two days.

The investigated products contained mercury in quantities ranging from 1.5-2 milligrammes (mg) and present in either liquid form, as mercury-containing iron pills, or as amalgam. In the UBA trials, new energy saving lamps with amalgam emitted far less mercury vapour than lamp types with other mercury technologies. A study by the Bavarian State Office for Health and Food Safety has confirmed these findings.

UBA also tested the energy saving lamps for breakage resistance. Result: as of yet there is no lamp which is 100% break-proof; the standard protective jackets do not prevent mercury leakage. Energy saving lamps that have a splinter shield or a silicone jacket are not as prone to break, however. They are also better shatter-proofed, which makes for easier clean-up of glass in these lamps.

The down side is that there is only a limited offer of lamps with splinter shields. Flasbarth is therefore calling upon industry to increase their range of break-proof lamps: "If lamps do break mercury simply may not escape. Break-proof jackets and splinter shields are two ways of

achieving this", he said. UBA recommends in the long termer term that lamps be developed that contain no mercury at all—such as those in the LED systems already on the market.
Energy saving lamps will replace conventional light bulbs, which by and large do not meet the new EU efficiency regulations (EC 244/2009) and are therefore due to be phased out of the market. As of 1 September 2011 conventional light bulbs with more than 40 watts power may no longer be sold. As of Autumn 2012 the same regulation applies to lamps of over 10 watts. Any lamps with lower wattage, such as Christmas lighting, can continue to be used. The Regulation aims to help reduce the considerable consumption of electric power by household lamps, which amounted to about 112 billion kilowatt hours in the EU in 2007. In the best case electricity consumption could be reduced by 39 billion kilowatt hours by the year 2020 – equivalent to the annual capacity of about 10 large-scale power plants (of 800 megawatts capacity each).

The background paper *Energiesparlampen in der Diskussion [Focus of Discussion: Energy Saving Lamps]* can be downloaded here http://www.uba.de/uba-info-medien-e/3964.html**. The 2010 version of the paper is available in English.**
Detailed information and safety tips for handling broken lamps are here:
http://www.umweltbundesamt.de/energie/licht/hgf.htm.
The collection point for energy saving lamps nearest you can be found here:
http://www.lichtzeichen.de/

Dessau-Roßlau, 25 August 2011