

Mercury-containing lamps

Sustainability Victoria's Flashback collection/recycling pilot and product stewardship

Energy efficiency and compact fluorescents or mercury-containing lamps

Considerable energy is wasted through inefficient lighting from many sources across Australia, including street lighting, homes, and office buildings. As a result, incandescents will be phased out in 2010, delivering considerable savings to the environment.

Across the country, the move to more efficient lighting, such as compact fluorescent lamps (CFLs), is expected to save around 30 terawatt hours of electricity and 28 million tonnes of greenhouse gas emissions between 2008 and 2020. This is equivalent to permanently decommissioning a small coal-fired power station or taking more than 500,000 cars off the road permanently. It is expected to result in savings to the Australian economy of around \$380 million per year by 2020 and result in net savings of more than \$50 per year for each household that changes all of its incandescent light globes to CFLs.ⁱ

Mercury-containing lamps

Generally all fluorescent lamps including CFLs contain very small amounts of elemental mercury. Generally the higher the power usage, the more mercury is required in the operation of the lamp. Mercury-containing lamps include:

- high pressure discharge (HID) lamps such as mercury vapour lamps, which typically contain about 30 milligrams (mg) of mercury, as used for street and road lighting
- linear fluorescent tubes, which are required by an Australian standard to contain less than 15 mg, as used in most commercial and public buildings
- CFLs, which will be required to contain less than 5 mg of mercury under a new Australian standard to be introduced in 2009, mostly used in homes
- some neon tubes, as used in signs.ⁱⁱ

While Australian's are currently annually disposing about 70 million fluorescent tubes, HID Lamps and CFL's, 98% of all mercury containing lights actually end up in landfill, representing about 2,000 kg of mercury, and up to 20,000 mt of glass, 500 mt of aluminium and about the same weight of other metals and plastic.

Over time in landfill, the mercury is converted by the action of heat and bacteria into a volatile and much more toxic form of Methyl Mercury, which evaporates and is dispersed by the action of wind into our environment and can contribute to the dangerous heavy metal contamination of compostable materials.ⁱⁱⁱ

Sustainability Victoria's Flashback collection and recycling pilot

Sustainability Victoria's objectives for the Flashback pilot was to allow the following to occur:

- undertake the a pilot program for the collection and recycling of end-of-life household lamps (incandescent, halogen and fluorescent/mercury containing)
- determine costs associated with collection and recycling of the above category of lamps
- develop process efficiencies associated with the collection and recycling of above category of lamps
- provide data to support the merits of a long-term commercially viable national lamp collection and recycling program
- gain knowledge and understanding of the collected material types, quantities and the issues involved in the productive utilisation of end-of-life lamp materials
- gain knowledge and understanding of the collection, processing and handling of mercury, especially Occupational Health & Safety (OH&S) related issues
- divert end-of-life lamps products from landfill.

Flashback ran from June 2008 to June 2009, and was a free service available to Victorian householders to drop off mercury-containing lamps at partner stores including Beacon Lighting and Coles.

The life cycle partnership consisted of a number of stakeholders in the supply chain to run the Flashback pilot:

- government (Sustainability Victoria)
- industry association (Lighting Council of Australia),
- brands (Philips Lighting, GE Lighting, Osram, Sylvania)
- collection sites (Beacon Lighting, Coles Supermarkets)
- recycler (CMA Ecocycle)
- product collector and data capture (Big Recyclers).

Product stewardship

Government and industry continue to work together to minimise the mercury content and since 2007 Governments have committed to commence investigating the management of CFLs to identify end of life management issues.

In 2008, desktop research reports were provided to Environment Protection Heritage Council (EPHC) meetings on sources on mercury in our environment with a second more comprehensive study was commissioned by EPHC at a later stage.

In February 2009 UNEP released a legally binding treaty on mercury, which has sparked the Australian Government to take action with the Ministers in May 2009 agreeing to the Australian Government establishing a pilot targeting commercial and industrial mercury lamp users.

A new standard will be introduced for CFLs that includes a maximum mercury content aligned with the European Commission standard at five milligrams (one two-hundredth of a gram) per bulb. The ordinary fluorescent tubes in current use contain approximately 15 mg per tube of mercury, consistent with the Australian Standard; these have been used safely in most commercial and public buildings in Australia and around the world for over 40 years.^{iv}

References

ⁱ Source:
<http://www.environment.gov.au/settlements/energyefficiency/lighting/publications/fs.html>

ⁱⁱ Source: <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

ⁱⁱⁱ Source: Submission to the draft Metropolitan Waste and Resources Recovery Strategic Plan – May 2008

^{iv} Source:
<http://www.environment.gov.au/settlements/energyefficiency/lighting/publications/fs.html>

For more information

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