# LIGHT AND ENVIRONMENT

PRODUCT ENVIRONMENTAL INFORMATION ON METAL-HALIDE LAMPS (HQI® AND HCI®)

- **Product description and operating information**

LEDVANCE distributes under "OSRAM®" brand metal-halide lamps of HQI® and HCI® family in which the discharge arc burns at pressure in an atmosphere of halogen and mercury vapour and rare earths. HQI® lamps are available in wattages from 70 watt to 2000 watt; HCI® lamps from 20 watt to 250 watt.

**Mercury content in OSRAM HQI® and HCI® lamp family**

| Watt | Mercury [mg] |
|---|---|
| 20-35 | max. 6 |
| 50 | max. 8 |
| 70-100 | max. 13 |
| 150 | max. 28 |
| 250 | max. 32 |
| 300W to 2000 | max. 250 |

When the high-wattage lamps are in the cold state (room temperature, 21 °C), the mercury is generally present in the form of small metallic droplets in the discharge vessel (burner). When the lamp is started, the mercury vaporises as the temperature in the burner rises and heats up in the arc between the electrodes. The temperature of the outer bulb is several 100 °C. When thermal equilibrium is reached, the mercury vapour exerts a pressure of up to max. 15 bar on the burner.

In some HQI® lamps a thoriated tungsten electrode can be used to improve ignition and guarantee stability throughout the lifetime of the lamp. Small amounts of radioactive material (currently Th-232 < 1000 Bq per lamp) are deliberately added as thoriated tungsten to these kinds of lamps for functional reasons. Contamination is not possible. We are working steadily on the reduction of environmental pollutants.

- **Environmental Impact**

When used and disposed of as intended, lamps do not pose a risk to health or the environment. In case of a lamp breakage a certain quantity of mercury will be released. The environmental impact is low.

- **Health risks**

OSRAM® metal-halide lamps contain a relatively low amount of mercury. The quantity of mercury released to the air in case of a lamp breakage is so low that in general there is no substantial health risk. If such a breakage occurs indoors, it is possible that for a short period of time a certain load of mercury can be present in the inside air. This depends on different factors, e.g. the air exchange rate, the lamp type or the breakage of a hot or a cold lamp.

For more information see: www.ledvance.com/mercury

- **Protection against lamp breakages**

The only time a consumer may be exposed to mercury is if the glass of the lamp is cracked or broken. If this happens, the following rules help to minimize the exposure (see also: www.ledvance.com/brokenlamp):

- If the lamp was broken in a luminaire, make sure to disconnect the power to avoid the risk of electric shock.
- Leave the immediate vicinity to avoid inhaling mercury vapour.
- The room should be carefully ventilated (short intense airing, 10-15 minutes)
- Remove all fragments carefully once the luminaire has cooled down and certainly before it is used again, all residual mercury must be thoroughly mechanically removed from the inside of the luminaire. To avoid contact with the skin, we recommend the use of disposable gloves.
- Liquid mercury can be removing also with commercially available adsorbents (activated charcoal).
- Dispose of the lamp parts according national legislation for lamps

- **Legal requirements (EU)**

HQI® and HCI® families are covered by the EU Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("*RoHS*"). See www.ledvance.com/rohs.

Information on Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals ("REACH") see www.ledvance.com/reach.

Regarding radiation protection, these lamps are manufactured under regulatory control as a consumer product acc. to IAEA Basic Safety Standard BSS 115. Radiological consequences (radiation exposure) for members of the public are insignificant during the entire life cycle of these lamps as demonstrated in several studies e.g. IAEA safety report, and far below the natural background radiation: All affected lamps are within IAEA-10 µSv-safety-concept.

- **Disposal of used metal halide lamps**

Metal-halide lamps are covered by the EU Directive 2002/96/EC and respectively EU Directive 2012/19/EU (Recast) on waste electrical and electronic equipment ("*WEEE*"), implemented in the EU by national legislation. Lamps from private households and small commercial consumers can be disposed of free of charge at designated collection facilities in common household amounts. You can find more information under: www.ledvance.com/weee or contact your national LEDVANCE sales partner.

In other countries the relevant national regulations must be followed.

The European Waste Catalogue (EWC) classifies waste metal-halide lamps as:
EWC Code 20 01 21* (hazardous waste): "Fluorescent tubes and other mercury-containing waste"

Disposal of $^{85}$Kr-containing and/or $^{232}$Th-containing lamps according to national regulations e.g. in Europe is covered by WEEE regulations.

- **Technical Information**

Specific technical information as well as mercury content data can be found in the internet in LEDVANCE product data sheets: https://ledvance.com/products/lamps/high-intensity-discharge-lamps/index.jsp

- **LEDVANCE contact address**

If you have any queries regarding environmental protection at LEDVANCE, please contact our department Security, Environment, Health and Safety (SEHS):

Email: environment@ledvance.com

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