

Environmental information on D headlight lamps

1 Composition

The composition of D1 and D2 lamps is as follows:

Lamp with	
Bulb	UV-STOP quartz
Electrodes	Tungsten with the addition of 0.7% thorium oxide
Power supply	Nickel or molybdenum pins/foil
Ceramic tube	Engineering grade sintered ceramic
Lamp filler	Total compact material 0.21 mg (Mixture of sodium iodide and scandium iodide)
Mercury additive	Approx. 0.5 mg mercury metal
Filler gas	Xenon
Base for D1 with integrated igniter	Plastic housing, PVC-free 1 or 3 capacitors 1 resistor 1 diode 1 coil 1 transformer 1 spark gap
Base for D2	Stainless steel and PVC-free plastic

2 Environmental impact

The lamp itself and the materials contained in the lamp pose no threat to the environment or health, either in normal use or if the lamp breaks.

Small quantities of mercury are released if the lamp breaks.

2.1 Lamp filler

Toxicity of mercury ¹⁾

Lethal concentration for humans	not known
Concentration for acute poisoning	1.2 to 8.5 mg/m ³
Maximum workplace concentration	0.1 mg/m ³

The above-mentioned concentrations and threshold values for industrial use show that the materials contained in the lamp are present in such low concentrations that they pose no health risks. This applies even if there is direct contact with glass splinters from a broken lamp, for example.

1) Metalle in der Umwelt (Metals in the Environment) -
Ernst Merian
Verlag Chemie, Weinheim 1984

2.2 Electrode

In the D lamp, tungsten electrodes with 0.7 to 0.8% added thorium oxide are used to improve ignition and guarantee stability throughout the service life of the lamp. Thorium is a naturally occurring radioactive element that emits alpha radiation.

Alpha radiation is radiation of extremely short range and cannot pass through the quartz bulb. Even if the lamp breaks there is no risk attached in touching the electrode with bare hands.

The activity of the thorium additive is 50 Bq; given the weight of the lamp, this produces a specific activity of 2.6 Bq/D2 lamp and 0.5 Bq/D1 lamp

Threshold for thorium

According to the German Radiation Protection Regulations (StrlSchV) Table IV, 1, Column 4, the threshold for thorium-nat. is 50,000 Bq.

According to StrlSchV, Annex III, Part A No. 2, there is no need for approval or notification with regard to handling radioactive material of natural origin with an activity of less than 500 Bq/g.

According to StrlSchV, Annex III, Part A No. 7, our lamps do not require approval or notification in terms of their use, storage or disposal owing to their low level of radioactivity.

2.3 Igniter

The igniter integrated in the base of the D1 lamp is of lead frame design, which means it does not have a pc board.

The materials used, including the plastic, are of no relevance to the environment in terms of their disposal.

3 Disposal

In accordance with the rules applicable throughout the EU with regard to the disposal of lamps containing mercury, these lamps are disposed of under

EWC Code 20 01 21*	Fluorescent tubes and other mercury-containing waste or
EWC- Code 06 04 04*	Mercury- containing waste

For further information on disposal see the OSRAM brochure entitled "Environmentally friendly disposal of vehicle lamps".

Subject to change