

Safety Data Sheet

Amalgam Low Pressure UV Lamp

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1 Identification of Substance / Preparation and Trade Name

Product Information

- **Trade name:** **WEDECO UV Lamp** (Hg percentage < 2.5%)
- **Vendor / Manufacturer:**
Xylem Water Solutions Herford GmbH
Boschstr. 4-14 Phone: +49 5221 930 0
32051 Herford, Germany Fax: +49 5221 930 222
- **Information contact:**
Production Dept. (Essen, Germany) Phone: +49 201 4370 135
Technical Support Phone: +49 5221 930 700

2 Composition / Component Details

Chemical characterization: (single substance)

- **Description:**
Quartz glass sleeve with small amounts of intermetallically bound mercury

Identification No.		
Mercury (Hg)	EC No. 231-106-7	CAS-No. 7439-97-6

R-Phrases (Mercury)					
23	Toxic by inhalation	33	Danger of cumulative effects	52/53	Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

According to Dangerous Preparations Directive 1999/45/EC, risk phrase R 52/53 applies due to the mercury content of the UV lamps.

3 Potential Hazards

- **Hazards identification:**
„**Dangerous to the environment**“
According to Substance Directive 67/548/EEC, materials which are only subject to R phrase 52/53 need not to be marked with a danger symbol.
- **Special hazard warnings for humans and environment:**
 - Risk of burns in case of excessive exposure of skin and eyes to UV.
 - Possible risk potentials by glass splinters and liberated mercury due to mechanical destruction of the lamp
 - Risk of dangerous concentrations in the air due to gradual vaporization of larger quantities of mercury in closed rooms
 - Mercury causes acute and chronic health effects
 - Larger quantities of mercury are harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment
 - Toxic by inhalation of higher concentrations
 - UV lamps can generate ozone, particularly when operated in air

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4 First Aid Measures

- **General notes:**
 - In case of excessive irradiation of skin and eyes: seek medical advice
 - In case of cuts due to glass breakage / glass splinters: seek medical advice
- **After inhalation of Hg:**
 - Evacuate the victim to fresh air.
(According to a latest inhalation study with volunteers who were exposed to vapor concentration of 400 µg/m³ for 15 minutes, on average 69 % of the inhaled dose was retained.
Source: IFA GESTIS Stoffdatenbank (substance database))
 - Seek medical help, if necessary
- **After skin contact (Hg):**
 - Remove affected clothing, observe self-protection
 - Immediately wash affected skin with soap under running water
 - If skin irritation continues: Consult a doctor
- **After skin contact or eye contact with UV:**
 - Cool skin / eye area
 - Consult a doctor
- **After swallowing: ---**
- **Notes for the doctor:**
 - **Possible symptoms (Hg):**
 - Irritation effect on the respiratory tract and skin
 - Eyes: reddening, burning feeling due to high vapor concentrations
 - **Possible symptoms (UV):**
 - Burns due to ultraviolet irradiation
 - Burning and hurting eyes and skin

5 Fire Fighting Measures

Use fire fighting measures that suit the environment.

- **Suitable extinguishing agents:** Depending on surrounding area : CO₂, dry powder, foam
- **For safety reasons unsuitable extinguishing agents: ---**
- **Special protective equipment: ---**

6 Accidental Release Measures

- **Person-related safety precautions:**
 - Risk of mercury release in case of breakage of the glass body!
 - Ensure adequate ventilation at the workplace
 - Avoid contact with the substance
 - Wear personal protective equipment (protective gloves, mask etc.)
 - Pick up pieces of quartz glass with pliers or protective gloves only

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- **Measures for environmental protection:**
 - Do not allow amalgam to reach sewage system or any water course
 - Do not allow to penetrate the ground / soil
 - Do not dispose of quartz glass pieces via normal domestic refuse
- **Measures for cleaning / collecting:**
 - Collect quartz glass pieces very carefully from the surfaces
 - Wipe damp surfaces and collect the cleaning / wiping cloths in a tightly closable plastic receptacle. Dispose of in accordance with regulations

7 Handling and Storage

Handling:

- **Information for safe handling:**
 - Wear dry and clean protective gloves free of grease when handling UV lamps
 - Do not machine, pressurize or put under tension (risk of breakage)
 - Install or replace UV lamps only in power-free state
- **Information about protection against explosion and fire: ---**

Storage:

- Store new UV lamps in original packing only and waste lamps in appropriate receptacles, e. g. boxes.
- Do not exert pressure to the packaging or UV lamps respectively

8 Exposure Controls and Personal Protection

- **Components with workplace-related limit values to be monitored:**
The German Technical Rules for Hazardous Materials TRGS 900 prescribe a workplace-related limit value for mercury to be monitored as follows:

STEL: 0.1 mg/m³

Personal Protective Equipment

- **General protective and hygienic measures:**
 - Change clothes contaminated with mercury immediately!
 - Do not eat, drink, smoke or store food in the workroom!
- **Breathing equipment:**
 - In case of release of mercury and if the workplace cannot be ventilated sufficiently, use a combination filter with filter effect Hg-P3
 - In case of glass breakage, use cut-resistant protective gloves
- **Eye protection:**
 - In case of glass breakage, use protective goggles
 - In case of open UV light, use protective goggles or protective face mask respectively
- **Body protection:**
 - Cover all body parts to avoid possibly direct UV irradiation

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9 Physical and Chemical Properties

	UV Lamp	Mercury
▪ Form:	compact	bound to amalgam
▪ Color:	colorless	silver color
▪ Odor:	odorless	odorless
▪ Gaseous state:		
Molar mass	:	200.59 [g/mol]
Vapor pressure at 20°C	:	0.0016 [mbar]
Density, 20°C, 1013 mbar	:	depending on amalgam
Explosion limit		no
Odor threshold value	:	odorless
▪ Solubility:		virtually insoluble
▪ Liquid state:		
Melting point		approx. 120 [°C]
Boiling point, 1013 mbar		depending on amalgam [°C]
Density at 20 °C		depending on amalgam [g/cm ³]

10 Stability and Reactivity

- **Materials to be avoided:** ---
- **Dangerous reactions:**
 - The substance may dangerously react with the following substances:
 - Calcium; aqua regia (= nitrohydrochloric acid);
 - metals; methylsilane / oxygen; sodium acetylde;
 - Oxygen (heat);
 - Bromine
 - Chlorine
 - Fluorine
 - Nitric acid

Dangerous products of decomposition: ---

11 Toxicological Information

- **Acute toxicity**
 - Red and irritated eyes in case of high Hg vapor concentrations
 - Contact with mercury may cause allergic skin reactions
- **Chronic toxicity**
 - Long permanent inhalation of mercury vapors (> 0.1 mg/m³) may lead to damage of the central nervous system. Symptoms are:

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amyostasia, degeneration of muscles, emotional lability, lack of concentration, visual disorders.

- **Additional toxicological information:**

12 Ecological Information

Resistance / degradability:


- **Elimination grade:** ---
- **Behavior in environmental compartments:** ---
- **Further ecological information:**

Mercury is harmful to aquatic organisms and may cause long term adverse effects on waters

13 Disposal Considerations

- **Disposal:**

The national implementation of the European Waste Electrical and Electronic Equipment Directive (WEEE) is realized by the law on placing on the market, taking back and the environmentally compatible disposal of electrical and electronic appliances (German Electrical and Electronic Equipment Act) of March 16, 2005. This law engages the manufacturers / importers of gas discharge lamps to organize and finance separate collection and treatment of waste lamps.

EC: The manufacturers are obliged to register the UV lamps with EAR (Waste Electrical Appliances Register). WEDECO UV Lamps are registered under WEEE No. 27790122 with EAR and marked accordingly with the prescribed symbol (crossed out waste bin ). WEDECO UV Lamps can be returned to every public receiving point free of charge.

Contact persons and receiving point in Europe can be found under:

<https://www.stiftung-ear.de/en/>

Furthermore, Xylem Water Solutions Herford GmbH offers its customers to return WEDECO UV Lamps directly to Xylem Water Solutions Herford GmbH.

14 Transport Regulations

Land transport

SV 599: Products and instruments (UV lamps) containing max. 1 kg of mercury are not subject to the regulations of ADR/RID and are therefore not regarded as hazardous goods.

Maritime transport

SV 941: Products and instruments (UV lamps) containing max. 1 kg of mercury are not subject to the regulations of the IMDG Code and are therefore not regarded as hazardous goods.

Air transport

SV A69: No hazardous good acc. to IATA with amounts less than 100 mg Hg/ lamp and if additionally

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the amount of 1g Hg is not exceeded per packing piece.
The words "not restricted" (no hazardous good) as well as the number of the special provision must be indicated in the airway bill, together with the description of the item, as requested under section 8.2.6 of SV A69. This applies only in case of using an airway bill.

Otherwise the following classification applies:

UN-No.: UN 2809

Proper Shipping Name : MERCURY CONTAINED IN MANUFACTURED ARTICLES

Class: 8

Subsidiary risk: ---

Packing group: III

Label: 8

15 Other Regulatory Information

- **Markings acc. to EU Directives:**

According to Dangerous Substance Directive 67/548/EWG, materials which are only subject to the R phrase 52/53 are not mandatory to be marked with a danger symbol.

- **R phrases**

23 Toxic by inhalation

33 Danger of cumulative effects

52/53 Harmful to aquatic organisms , may cause long-term adverse effects in the aquatic environment

- **S phrases :**

20/21 When using do not eat, drink or smoke

23 Do not breathe gas

45 In case of accident or if you feel unwell seek medical advice immediately

- **National Regulations:**

- [Elektro- und Elektronikgerätegesetz](#) (ElektroG)

- **International Regulations:**

- EC Directive 2002/96/EG - WEEE - **W**aste **E**lectrical and **E**lectronic **E**quipment
- EC Directive 2002/95/EG - ROHS - **R**estriction **o**f (the use of certain) **h**azardous substances
- EC Directive 2006/25/EG on the minimum safety and health requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation)

16 Other Provisions, Restrictions, and Prohibition Regulations

- Do not install / remove or replace UV lamps into / from the UV system unless the system is disconnected from the power supply and protected against unintended restart

17 Other Information

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- **Training:**
 - Instructions on a regular basis to the employees on hazards and protective measures when handling UV lamps are required
- **Sources of most important data:**
 - GESTIS database of hazardous materials

18 Additional Information

All national / local regulations are to be observed. It must be made sure that employees observe the risk when handling UV lamps. Prior to using the product in any new process or test, a careful study of the relevant material resistances and safety should be carried out.

IMPORTANT REMARK

The information is based on our present state of knowledge. It does not represent any warranty of product features and it does not affect any contractual agreement. The product is intended for commercial use only.

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