

MATERIAL SAFETY DATA SHEET

NAME OF PRODUCT: Ultraviolet Lamp – 4 inch

FILE NO.: BSI_10-04XXX

MSDS DATE: 2015-11-23



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: BioZone Scientific 4 inch Ultraviolet Lamp
SYNONYMS: UV, UVC, Lamp
PRODUCT CODES: 10-04010, 10-04025, 10-04050, 10-04100

MANUFACTURER: BioZone Scientific International, Inc.
ADDRESS:

Americas:
7616 Southland Blvd.
Suite 114
Orlando, FL 32809 USA

Europe:
Linnoitustie 4 B
02600 Espoo
Finland

EMERGENCY PHONE: 800-255-3924 (United States, Canada, Puerto Rico, and the U.S. Virgin Islands)
ChemTel 24 hour response + 01 or +001-813-248-0585 (all other countries not listed above)

FAX PHONE: Americas: +1 407-876-7630 Europe: +44 1392 860 862

CHEMICAL NAME: Intact Sealed Article, Mercury; Metallic Mercury; Quicksilver; Hydrargyrum
CHEMICAL FAMILY: Transition metal (elemental mercury)
CHEMICAL FORMULA: Hg

PRODUCT USE: 4 inch lamps are used in the following BioZone Scientific models: Closed Loop IceZone® 05, Closed Loop IceZone® 10, Closed Loop IceZone® 20, MobiZone1, MobiZone2.

SECTION 1 NOTES: Contact information above provided for use in the Americas, Oceania and Africa. For BioZone Scientific matters in Europe please contact + 358 (0)20 743 6622 (Finland). For BioZone Scientific matters in Asia please contact + (852) 2372 0218 (Hong Kong).

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT:

Mercury
Quartz Glass

<u>CAS NO.</u>	<u>WT</u>	<u>WT Percentage</u>	<u>Component</u>
7439-97-6	15mg	Approximately 0.04%	Mercury
14808-60-7	N/A	Approximately 99.96%	Quartz glass (inert)

EXPOSURE LIMITS:

Mercury-

	<u>mg/m³</u>
OSHA PEL-TWA (8hr)¹:	0.1 mg/m ³
OSHA PEL CEILING¹:	0.1 mg/m ³
ACGIH TLV-TWA (8hr)²:	0.025 mg/m ³
NIOSH REL-TWA (10hr)²:	0.05 mg/m ³

Quartz Glass-
None

SECTION 2 NOTES: The ultraviolet radiation 8 hour TWA is 0.1 µw/cm². UV lamps are sealed articles and no material contained in a lamp is released during normal use and operation. However, breakage may result in exposure, including mercury. Lamps are exempt from the RoHS requirement and from the HazCom requirement of OSHA. Lamps are not designed or intended for illumination.

The mercury and lead in this product are substances known to the state of California to cause reproductive toxicity if ingested. [California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).]

SECTION 3: HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES: Conjunctivitis from overexposure to the light source; eye irritation from inhalation of ozone.
SKIN: Erythema (sunburn) which may be exaggerated with the use of sensitizing pharmaceutical and herbal products.
INHALATION: None from lamp; inhalation of ozone may irritate the nose and lungs or cause nausea and headache.
ORAL: None from lamp; inhalation of ozone may irritate the throat.

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SECTION 3: HAZARDS IDENTIFICATION



ACUTE HEALTH HAZARDS:

Elemental mercury, liquid and vapor, is toxic due to its liquid solubility, lack of charge, and membrane permeability. Inhaled vapors (80%) diffuse rapidly through alveolar membranes into the blood and are systemically transported to body tissues, including the brain. Exposure to high concentrations of vapors (>1.2 mg/m³) for even brief periods can cause pneumonitis, chest pains, dyspnea, coughing; later stomatitis, gingivitis, and salivation occurs. Mercury can be absorbed slowly through the skin. Chronic symptoms involved the CNS with tremors and various neuropsychiatric disturbances. The TLV would be exceeded if the contents of a small Hg clinical thermometer were dispersed in a closed 100' x 15' room. GI uptake of HG is low (5%).

CHRONIC HEALTH HAZARDS:

No data available.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

CARCINOGENICITY

OSHA:

None

ACGIH:

None

OTHER:

None

SECTION 3 NOTES:

This item is a glass light lamp. The mercury is inside the lamp, chemical characteristic of the lamp are not applicable. This lamp can crack if dropped or hit by a heavy object.

SECTION 4: FIRST AID MEASURES

EYES: Welders flash treatment.

SKIN: Conjunctivitis.

INGESTION: No first aid should be needed due to ultraviolet exposure.

INHALATION: No first aid should be needed due to ultraviolet exposure.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:

SECTION 4 NOTES:

Normal first aid procedure for glass cuts if such occur through lamp breakage. Effects of overexposure to skin and eyes usually disappear in 48 hours. Some individuals may have an abnormally increased sensitivity to the effects of UV light. This may be the result of a sensitizing chemical or prescribed drug. Sensitization will result in an exaggerated sunburn response. Further occupational exposure to UV should be limited and the individual should be referred to a physician.

SECTION 5: FIRE-FIGHTING MEASURES

FIRE AND EXPLOSION DATA NOT APPLICABLE. UNDER EXTREME HEAT, GLASS ENVELOPE MIGHT MELT OR CRACK.

SECTION 5 NOTES: Glass is not combustible, melting point is over 900°F (482°C).

SECTION 6: ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Broken lamps should be placed in a sealed container and handled / disposed as hazardous waste.

SECTION 6 NOTES:

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SECTION 7: HANDLING AND STORAGE



HANDLING: A small amount of mercury is contained in the quartz tube of UV lamps. Due to the toxicity of mercury, lamps should be handled so that breakage is minimized.

STORAGE: Used lamps may be stored one year.

SECTION 7 NOTES: Normal precautions should be taken for collection of broken glass.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Install lamps following manufacturer's guidance. Operators should be trained to fully understand the recommended operating and safety procedures. Ozone generated by the process requires negative pressure exhaust.

PERSONAL PROTECTIVE EQUIPMENT FOR ROUTINE HANDLING:

Safety glasses with side shield with protection against ultraviolet light. Contact lenses should not be worn. Barrier creams or polyethylene skin protection are recommended. Industrial processes must be evaluated for additional safeguards.

SECTION 8 NOTES:

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Not applicable. This item is a light lamp, glass tube four inches long with ceramic end caps.

SECTION 9 NOTES: Please note that lamp surfaces may become hot during and for a brief period after operation.

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Lamps are stable.

CONDITIONS TO AVOID (STABILITY):

Photosensitizing agents.

INCOMPATIBILITY (MATERIAL TO AVOID):

Glass will react with Hydrofluoric Acid.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

Will not occur.

HAZARDOUS POLYMERIZATION:

Will not occur.

CONDITIONS TO AVOID (POLYMERIZATION):

Will not occur.

SECTION 10 NOTES:

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

No data available.

SECTION 11 NOTES:

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SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:

No data available.

SECTION 12 NOTES:

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

A used mercury-containing lamp becomes a waste on the date the generator/handler permanently removes it from its fixture. An unused mercury-containing lamp becomes a waste on the date the handler decides to discard it. Once a lamp becomes waste it is subjected to the current Toxic Characteristic Leaching Procedure (TCLP) prescribed by the Environmental Protection Agency. This test is used to determine whether an item is a hazardous waste or a non-hazardous waste under current EPA definition. These lamps would fail the TCLP test and would be considered hazardous under the Universal Waste Rules. Handler should evaluate all of the disposal options, which may be available in the particular state in which the handler's facility is located. The handler should check with federal, state and local officials for their guidance. BioZone Scientific International encourages recycling of its products by qualified recyclers.

RCRA HAZARD CLASS:

Lamps that are not recycled must be handled/disposed in accordance with RCRA regulations. Each state has specific regulations that apply to the management of spent lamps. Lamp recycling must be in accordance with the Universal Waste rule.

SECTION 13 NOTES:

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION:

Not regulated.

SECTION 14 NOTES:

These mercury containing lamps shipped in the original packaging are not regulated by air, truck, rail, or ocean shipment.

SECTION 15: REGULATORY INFORMATION

U.S. ENVIRONMENTAL PROTECTION AGENCY:

RCRA / Universal Waste - lamps that are to be recycled should be placed in the original container or packaged to prevent breakage. The outer container should be dated and marked "Universal Waste."

U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

Ultraviolet exposure is limited to 1 milliwatt per centimeter squared. Ozone exposure is regulated at 0.1 parts per million (ppm).

SECTION 15 NOTES:

National and International regulations have been consulted and considered in the preparation of this document³⁻⁷.

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:

Photosensitizing.

DISCLAIMER:

Information contained herein has been obtained from recognized technical sources. Compliance with all federal, state, and local laws and regulations remains the responsibility of the user. This Material Safety Data Sheet (MSDS) may also be commonly referred to as Product Safety Data Sheet (PSDS), Safety Data Sheet (SDS), or by various other names.



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REFERENCES:



1. U.S. Department of Labor- Occupational Safety & Health Administration: PARTICULATE MERCURY IN WORKPLACE ATMOSPHERES <http://www.osha.gov/dts/sltc/methods/inorganic/id145/id145.html>
2. U.S. Department of Labor- Occupational Safety & Health Administration: Occupational Safety and Health Guideline for Mercury Vapor <http://www.osha.gov/SLTC/healthguidelines/mercuryvapor/recognition.html>
3. Regulation (EC) No 1907/2006 (REACH)
4. Regulation (EC) No 1272/2008 (CLP)
5. Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200
6. The OSHA Hazard Communication Standard (HCS) (Subpart Z, Toxic and Hazardous Substances, 29 CFR 1910.1200)
7. Globally Harmonized System of Classification and Labeling of Chemicals (GHS)