



SAFETY DATA SHEET (SDS)

for: Metal Halide Bulbs

Section 1. Identification

1.1. Company:

Damar Worldwide 4 LLC
Telephone: (800) 238-9080
805 N Carnation Dr
Aurora, MO 65605

1.2. Product:

Metal Halide Bulbs

Section 2. Hazards Identification

NOTE

Grinding, sanding and/or mechanical manipulation of this product may change and alter the hazards and information listed in all of the following sections in ways that can not be predicted.

2.1. Hazard Classification: Inert, Article

2.2. OSHA Regulatory Status:

This product, when intact, is not known to be hazardous as defined by OSHA's Hazard Communication Standard, 29 CFR 1910.1200. This product is exempt from OSHA's Hazard Communication Standard requirements for an MSDS because it meets the definition of an "article". An article is a manufactured item: (1) which is formed to a specific shape or design during manufacture (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use: and (3) which does not release, or otherwise result in exposure to, a hazardous chemical under normal conditions of use. Any product which meets the definition of an "article" is exempt from the requirements of the Standard.

2.3. Hazardous Ingredients

Ingredient	CAS Number	OSHA PEL mg/m ³	ACGIH TLV	% By Weight
Inert Materials				~99.5%
Mercury	(7439-97-6)	.01	0.025	<0.07%
Thallium Iodide	(7790-30-9)	.01	0.1	<0.02%
Calcium Iodide	(10102-68-8)		5.0	<0.25%
Sodium Iodide	(7681-82-5)			<0.06%
Cerium Iodide	(7790-87-6)			<0.01%
Krypton (Kr85)	(13983-27-2)			<25ηCi

2.4. GHS Classification:

- 2.4.1. Acute toxicity oral: unknown; unlikely
- 2.4.2. Acute toxicity dermal: unknown; unlikely
- 2.4.3. Aspiration hazard: unknown; unlikely
- 2.5. Signal Word: Not Applicable
- 2.6. Hazard Statement:
This article is essentially inert under most conditions including those most likely to be present in a fire or other emergency situation.
- 2.7. Pictograms: Not Applicable
- 2.8. Precautionary Statement:
Call a POISON CENTER if you feel unwell.
This product is an electrical device that when used in or along with appropriate equipment designed for those products and constructed for use with such products, has no special health or safety concerns.
Additional information regarding applications or technical specifications for this product may be available at <http://www.damarww.com>.
- 2.9. Description of any hazards not otherwise classified:
 - 2.9.1. Primary routes of particulate entry: Ingestion, Eye/Skin Contact.
 - 2.9.2. Skin Exposure:
 - 2.9.2.1. Minor laceration and/or abrasion may occur if product is broken, sharp objects pierce coating and then come into contact with skin. Alteration/damage to the product can result in exposure to additional unforeseen and unpredictable hazards including but not limited to electrical hazards..
 - 2.9.2.2. Refer to Sections 7 and 8 for additional information regarding Handling and Personal Protective Equipment (PPE).
 - 2.9.3. Eye Exposure:
Injury may occur if eyes are subjected to prolonged direct exposure to bright light.
 - 2.9.4. Respiratory Exposure:
Inhalable dust and particulates may be generated if product is pulverized. As with any particulate matter, respirable particles may cause mechanical irritation of the respiratory system and/or lung injury.
- 2.10. NFPA Rating: Health 1 Fire 1 Instability/Reactivity 0

Section 3. Composition/Information on Ingredients

- 3.1. Exempt article ingredients not measured

Section 4. First Aid Measures

- 4.1. Eyes: Not Applicable
- 4.2. Skin:
 - 4.2.1. Wash with soap and water.
 - 4.2.2. Treat lacerations using standard first aid procedures.

4.2.3. Seek medical attention.

- 4.3. Inhalation: Not Applicable
- 4.4. Call poison center if you feel unwell.
- 4.5. Physicians: Treat according to person's condition and specifics of exposure.

Section 5. Fire Fighting Measures

- 5.1. Flash point: Not applicable/determined
- 5.2. Lower/Upper Explosive Limit: Not applicable/determined
- 5.3. Extinguishing Media: Water, CO₂, and sand.
- 5.4. Extinguishing Media to Avoid: None
- 5.5. Protection of Firefighters
 - 5.5.1. Hazardous Decomposition Products: Not applicable/determined
 - 5.5.2. Unusual Fire and Explosion Data: Material may be electrically conductive.
 - 5.5.3. Protective Equipment and Precautions for Firefighters: Standard protective equipment and precautions – Self-contained breathing apparatus (SCBA) and full firefighting turnout gear
- 5.6. Unusual Fire Hazards: None known
- 5.7. **WARNING:** The arc tubes of metal halide lamps are designed to operate at high pressures and temperatures (up to 1200°C). If the arc tube ruptures for any reason, the outer bulb may break and shards of extremely hot glass may be discharged into the surrounding environment, with the associated risk of property damage or personal injury.

Section 6. Accidental Release Measures

- 6.1. Pieces of broken fixture components may form sharp edges and fine particulate matter can be created. Sweep up loose material while wearing eye protection, respiratory protection, and gloves as needed to prevent irritation and/or lacerations. Place gathered material in an impermeable container and label appropriately.
- 6.2. Refer to Sections 5 and 8 for personal protective equipment requirements.
- 6.3. Refer to Sections 13 and 15 for possible additional guidance regarding regulatory requirements.

Section 7. Handling & Storage

- 7.1. Use normal good material and housekeeping practices to avoid breakage.
- 7.2. Always disconnect power before installing, inspecting, removing or replacing bulbs.
- 7.3. After disconnecting power allow sufficient time for bulb to cool before attempting to make contact. Heat resistant gloves may be suggested for additional safety.
- 7.4. Follow NFPA 654 (dusts) and 484 for metal dust for managing dust hazards.

Section 8. Exposure Controls/Personal Protection

- 8.1. Appropriate Engineering Controls:
Do not use any light bulb in applications where humans and/or animals will be subjected to direct long-term uncomfortable visual exposure to light emissions as this could result in eye injury. If bulb appears damaged, remove power and then repair or replace the product before returning it to service. If any materials are to be processed in such a manner as to create particulates (mechanical breaking as part of end of product life disposal and recycling), use exhaust ventilation and/or wet working methods to minimize release of particulate to workroom air and employee breathing
- 8.2. Personal Protective Equipment
 - 8.2.1. Respiratory:
None required under normal use conditions. Appropriate local ventilation or an air purifying respirator should be used if the articles are being abraded or reduced in size using mechanical methods.
 - 8.2.2. Skin Protection:
 - 8.2.2.1. If risk of breakage is present impermeable and/or cut resistant gloves should be worn.
 - 8.2.2.2. Operating light bulbs are hot. Use of temperature resistant gloves is recommended.
Always allow sufficient time for product to cool prior to touching.
 - 8.2.3. Eye/Face Protection:
Wear safety glasses with side shields to avoid chance of product getting into unprotected eye. If service personnel need to work with a lit bulb without light diffusers and/or filters installed, appropriate light filtering eye wear should be used.
- 8.3. General Hygiene Considerations:
Workers should wash their face and hands prior to eating, drinking, or smoking.
- 8.4. Additional Exposure Information: Not Applicable
- 8.5. WARNING: These lamps can cause serious skin burns and eye inflammation from shortwave ultraviolet radiation if the outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes when the envelope is broken unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken are available commercially.
- 8.6. The inner envelope is composed of a ceramic material containing elemental mercury and small amounts of thallium and other iodides. In the event the inner envelope is broken, avoid inhalation of any vapors or skin contact with any of the fragments or contents.
- 8.7. Thallium is a cumulative poison. It, or its salts, can be absorbed through the skin. If they are ingested, they can be absorbed by the gastrointestinal tract. Seek

competent medical help for all exposures. Although the amount of thallium in the inner envelope is small, avoid breaking the lamps. If lamps are broken, use adequate personal protection and ventilation.

Section 9. Physical and Chemical Properties

9.1.	Physical form:	Solid
9.2.	Color:	Opaque/Translucent
9.3.	Odor	Little / none
9.4.	Odor threshold:	Not applicable/determined
9.5.	pH:	Not applicable/determined
9.6.	Sublimes at:	Not applicable/determined
9.7.	Decomposition temperature:	No vapor expected
9.8.	Evaporation rate:	0
9.9.	Relative density (g/cc):	Not applicable/determined
9.10.	Vapor density (air = 1):	No vapor expected
9.11.	Fat solubility (mg/kg, °C):	Not applicable/determined
9.12.	Water solubility (mg/kg °C):	Not applicable/determined
9.13.	Partition coefficient (low Pow):	Not applicable/determined
9.14.	Flammability:	Not applicable/determined
	Flash point (°C):	Not applicable/determined
	Explosivity limits (% v/v):	Not applicable/determined
9.15.	Auto-ignition temperature (°C):	Not applicable/determined
9.16.	Volatility by Weight:	<0.01%
9.17.	Oxidizing properties:	None known
9.18.	Other physical-chemical properties:	None known
9.19.	Viscosity:	Solid

Section 10. Stability and Reactivity

10.1.	Reactivity:	Normally stable
10.2.	Chemical Stability:	Normally stable
10.3.	Hazardous polymerization Conditions:	Will not occur
10.4.	Conditions to avoid:	Rapid temperature change may result in broken envelope.
10.5.	Materials to Avoid (incompatible):	Because of heat generated by bulb during operation flammable materials and objects adversely affected by heating or drying action should be avoided.

Section 11. Toxicological Information

11.1.	Acute toxicity oral:	None known
11.2.	Carcinogenicity:	

- 11.2.1. Some components may contain carcinogens listed by IARC, but these quantities typically are well below 0.1% of the total.
- 11.3. Acute toxicity inhalation: None known
- 11.4. Skin irritation / corrosion: None known
- 11.5. Serious damage to eyes / eye irritation: None known
- 11.6. Skin and respiratory sensitization: None known
- 11.7. Specific target organ toxicity following single or repeated exposure: None known
- 11.8. Toxicity following single exposure:
 - Oral: None known
 - Inhalation: None known
- 11.9. Toxicity repeated exposure: None known
- 11.10. Reproductive toxicity: Not applicable/determined
- 11.11. STOT - single exposure: Not applicable/determined
- 11.12. STOT - repeated exposure: Not applicable/determined
- 11.13. Aspiration hazard: Not applicable/determined

Section 12. Ecological Information

- 12.1. Air: Atmospheric contamination should not occur
- 12.2. Water: Solid; little to no solubility; may sink in water
- 12.3. Soil: Transformation in landfill unlikely
- 12.4. Degradation: not biodegradable
- 12.5. Toxicity to water organisms: unlikely/low risk
- 12.6. Toxicity to soil organisms: unlikely/low risk
- 12.7. Bioaccumulation: Solid; little to no solubility
- 12.8. Water treatment plants: Solid; little to no solubility; unlikely to affect bacteria

Section 13. Disposal Considerations

- 13.1. Normal precautions should be taken for the collection of glass particles in the event a lamp is broken.
- 13.2. Waste Disposal Method: These lamps contain some amount of mercury. When a lamp is to be disposed, it is subject to the current EPA Toxicity Characteristic Leaching Procedure (TCLP) disposal criteria. This test is used to determine if an item can be managed as hazardous or non-hazardous waste. These lamps are not TCLP compliant and should be managed as a hazardous waste under the EPA Universal Waste Rules.
- 13.3. All disposal options should be evaluated with respect to federal, state, and local requirements. Before disposing of waste lamps, check with federal, state, and/or

local officials for current guidelines and regulations. Damar encourages recycling of its products through qualified recycling facilities.

Section 14. Transport Information

- 14.1. This material is not classified as a hazardous material or dangerous good by the U.S. Department of Transportation, the International Air Transport Association, or the International Maritime Organization

Section 15. Regulatory Information

- 15.1. The contents of this SDS comply with United Nations (GHS) or Globally Harmonized System of Classification and Labeling of Chemicals.
- 15.2. U.S. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65): This product may contain chemicals or product chemicals when heated known to the state of California to cause cancer, birth defects, or other reproductive harm.
- 15.3. Section 302 Extremely Hazardous Substances (40 CFR 355): None
- 15.4. Section 304 CERCLA Hazardous Substances (40 CFR 302): None
- 15.5. Section 311/312 Hazard Class (40 CFR 370):
 - 15.5.1. Acute: No
 - 15.5.2. Chronic: No
 - 15.5.3. Fire: No
 - 15.5.4. Pressure: No
 - 15.5.5. Reactive: No
- 15.6. Section 311 Toxic Chemicals (40 CFR 372):
None present in a regulated quantity nor intentionally added
- 15.7. As an article, these mercury-containing lamps, when shipped in the manufacturer's original packaging, may be regulated for air, truck, or ocean shipment. As a waste, these lamps may be regulated in various states and local communities.

Section 16. Other Information

- 16.1. Preparer: Damar Worldwide 4 LLC, Technical and Testing Department
- 16.2. Disclaimer:
The information contained in this Material Safety Data Sheet is supplied in conformity with 29 CFR 1910.1200 of the OSHA Hazard Communication Standard. The information set forth herein is presented in good faith and believed to be correct. No representations are made as to the completeness or accuracy thereof. The purchaser is solely responsible for compliance with all applicable laws and regulations concerning the use of this product. Neither Preparer nor Company assumes any liability or responsibility for its use.