

DAMAR[®]

LAMP MATERIAL INFORMATION SHEET

MATERIAL SAFETY DATA SHEETS (MSDS)

Information and Applicability

The Material Safety Data Sheet (MSDS) requirements of the Occupational Safety and Health Administration (OSHA) for chemicals do not apply to manufactured articles such as lamps. During normal use and operation no materials contained in a lamp are released.

The following contains applicable Material Safety Data Sheet Information

I. PRODUCT IDENTIFICATION

DAMAR[®] Safe-Shield[®] Fluorescent

DAMAR Worldwide 4 LLC
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Sarasota, FL 34230-2347

II. DAMAR[®] FLUORESCENT LAMPS

A. LAMP MATERIALS AND HAZARDOUS INGREDIENTS

1. **PHOSPHOR:** The fluorescent product line uses two different phosphor systems. One phosphor system (halophosphate) uses calcium chloro-fluoro-phosphate, with small amounts (less than 1-2% by weight the phosphor) of antimony and manganese, both of which are tightly bound in the phosphor matrix. The second phosphor system (triphospher) uses a mixture of rare earth elements such as lanthanum, and yttrium as either an oxide or as a phosphate, along with a barium/aluminum oxide. These phosphors produce better lamp efficiency and color rendition. A T12 fluorescent lamp has approximately 1-1.25 grams of phosphor per foot of lamp. A standard 4-foot lamp contains 4-5 grams of phosphor coating. A T8 lamp has proportionally less phosphor due to its smaller size.
2. **MERCURY:** Mercury is present in small amounts in all fluorescent lamps. The amount of mercury will vary in any given lamp depending on the design life and size of the lamp. Shorter life and smaller size lamps generally have lower mercury content.
3. **GLASS AND METAL:** The glass tube used in this fluorescent lamp is manufactured from soda-lime glass and is essentially similar but not identical to that used throughout the glass industry for bottles and other common consumer items. The end-caps on the lamp are generally aluminum while the wires in the lamps are made of tungsten.

B. HEALTH CONCERNS

1. PHOSPHOR: Except for small modifications, the halophosphor is essentially the same material that has been in use in fluorescent lamps for decades. OSHA characterizes antimony, manganese, yttrium and barium compounds as hazardous chemicals. However, due to their insolubility, relatively low toxicity and small amount present in the phosphor and the lamp, these materials do not present a significant hazard in the event of lamp breakage.
2. MERCURY: Not applicable for an intact lamp. No adverse effects are expected from occasional exposure to phosphor powder dust and elemental mercury vapor due to lamp breakage. However, breaking a large number of lamps for disposal should only occur with sufficient ventilation. Ventilation and personal protective equipment such as respirators may be needed.

C. DISPOSAL CONCERNS

TCLP: A toxicity test on these lamps would likely list these lamps as hazardous waste. Disposing of small quantities of these lamps will not appreciably affect the environment or pose a hazard. State and/or local regulations may regulate disposing of large quantities of mercury-containing products. To check state regulations or to locate a recycler, go to www.lamprecycle.org

III. DAMAR® FLUORESCENT SAFE-SHIELD® MATERIAL

A. INFORMATION ON INGREDIENTS

1. Composition is not hazardous.

B. HEALTH CONCERNS

1. INGESTION: Not a probable route of exposure.
2. SKIN: Molten material will cause thermal burns.
3. EYE: Mechanical irritation only.
4. INHALATION: Stock shapes are not respirable, avoid breathing dust, fine particles can be inhaled and retained in the lungs.

C. FIRE FIGHTING MEASURES

1. FLASH IGNITION TEMPERATURE: 350°C / 662°F
2. METHOD: ASTM D-1929
3. HAZARDOUS COMBUSTION PRODUCTS: At temperatures above 350°C / 662°F, heavy fuming, carbon dioxide and carbon monoxide will occur.
4. SPECIAL FIRE FIGHTING INSTRUCTIONS: Fire fighters and others exposed to products of combustion should wear full protective clothing including self-contained breathing apparatus. Fire fighting equipments should be thoroughly decontaminated after use.
5. EXTINGUISHING MEDIA: Water spray or any class A extinguishing agent.

D. ACCIDENTAL RELEASE MEASURES

1. SPILL OR RELEASE: Clean up by vacuuming or sweeping to prevent slips and falls.

E. EXPOSURE CONTROLS/PERSONAL PROTECTION

1. EYE: Safety glasses are recommended to prevent particulate matter from entering eyes while grinding or machining.
2. SKIN: Protective gloves are required when handling hot polymer. Also, long sleeve cotton shirt and long pants if handling molten polymer.
3. VENTILATION: Local exhaust at processing equipment to assure that particulate levels are kept at recommended levels.
4. RESPIRATOR: None under normal processing, if ventilation is adequate.

F. PHYSICAL/CHEMICAL PROPERTIES AND STABILITY

1. APPEARANCE: Stock shape is a tube form.
2. ODOR: Odorless.
3. MELTING POINT: 225-260°C / 437-500°F
4. WATER SOLUBILITY: Insoluble.
5. PERCENTAGE VOLATILE CONTENT: Less than 1%.
6. SPECIFIC GRAVITY: 1.33-1.43
7. STABILITY AT ROOM TEMPERATURE: Stable.
8. MATERIALS TO AVOID: Strong oxidants and bases.
9. CONDITIONS TO AVOID: None known.

G. ECOLOGICAL / TOXICOLOGICAL INFORMATION

1. AQUATIC TOXICITY: Toxicity is expected to be low based on insolubility of polymer in water.
2. CHRONIC TOXICITY: PET does not appear to possess any toxicological properties.
3. MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: None known.
4. CARCINOGENICITY: None known.

H. DISPOSAL CONSIDERATIONS

1. SPILL OR RELEASE: Clean up by vacuuming or wet sweeping to minimize dust exposure.
2. WASTE DISPOSAL: Landfill or incineration in compliance with federal, state, and local regulations.

I. FIRST AID MEASURES

1. Move to fresh air if exposed to fumes from overheating. Flush eyes with water. Consult a physician if symptoms persist. Wash skin with soap and plenty of water. If molten material contacts skin, cool rapidly with cold water. Do not attempt to peel material from skin. Obtain medical attention to thermal burn.
2. CHRONIC EFFECTS: None known.