

MATERIAL SAFETY DATA SHEET

SECTION 1 - IDENTIFICATION OF SUBSTANCE AND COMPANY

Product Name: Microwave Excited Bulb
Chemical Name: Intact Sealed Article

Manufacturer For: Image Group Phone: 905 825-5600
2284 Speers Road Fax: 905 825-8833
Oakville, ON L6L 2X8

Emergency Phone Numbers: Nordson Corporation 800-321-2881
Canutec 613-992-4624

SECTION 2 - INFORMATION ON COMPONENTS

Hazardous and regulated components

CAS	Wt	Component	USA OSHA PEL	UK WEL
1480860-7		Quartz glass	N/A	N/A
7439-976	Up to 150mg	Mercury (Vapour)	TLV 0.05 mg/m ³ IDLH 10	Typical TLV / TWA 0.05 mg/m ³ Typical PEL 0.1 mg/m ³
7487-947	Up to 3mg	Mercury Chloride (HgCl ₂)	TLV 0.05 mg/m ³	NO UK WEL

Additional components in specifically doped lamps:

Gallium/Indium Doped Lamps:

CAS	Wt	Component	USA OSHA PEL	UK WEL
1345091-4	Up to 10mg	Gallium (III) Iodide (GaI ₃)	No Information Available	NO UK WEL
1351035-5	Up to 4mg	Indium (III) Iodide (InI ₃)	TLV 0.1 mg/m ³	WEL Long term exposure limit (8hr TWA) is 0.1mg/m ³ Short term exposure limit (15 minute) is 0.3mg/ m ³

Iron Doped Lamps:

CAS	Wt	Component	USA OSHA PEL	UK WEL
7774-290	Up to 10mg	Mercury Iodide (HgI ₂)	0.05 mg/m ³	NO UK WEL
7783-860	Up to 10mg	Iron Iodide (FeI ₂)	1 mg/m ³	NO UK WEL
7439-896	Up to 2mg	Iron (Fe)	No Information Available	NO UK WEL

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Lead Doped Lamps:

CAS	Wt	Component	USA OSHA PEL	UK WEL
1010163-0	Up to 5mg	Lead Iodide (PbI ₂)	ACGIH – TLV 0.15 mg/m ₃ OSHA-PEL 0.05 mg/m ₃	WEL Long term exposure limit (8hr TWA) is 0.10mg/m ₃ in relation to lead alkyls
7789-471	Up to 1mg	Mercury Bromide (HgBr ₂)	0.05 mg/m ₃	NO UK WEL

Ultraviolet radiation -8 hour TWA is 0.1 microwatt / cm².

UV discharge lamps are sealed articles and are exempt from the HazCom requirement of OSHA.

SECTION 3 -HAZARDS IDENTIFICATION

Effects of Overexposure:

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

SECTION 4 -FIRST AID MEASURES

Skin: Conjunctivitis
Eyes: Welders flash treatment
Inhalation: No first aid should be needed due to ultraviolet exposure.
Ingestion: No first aid should be needed due to ultraviolet exposure.
Comments: Additional hazards may be created from exposure to the coating.

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 -EXPLOSION AND FIRE FIGHTING MEASURES

Flash Point: N/A
Extinguishing Media: N/A
Special Fire Fighting Procedures: N/A
Unusual and Explosion Hazards: None known
Hazardous Decomposition Products: None Known

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SECTION 6 -ACCIDENTAL RELEASE / SPILL PROCEDURES

Steps to be taken in case material is released or spilled:

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

SECTION 7 -HANDLING AND STORAGE

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

Storage: Scrap UV discharge lamps may be stored for one year before being shipped for recycling.

SECTION 8 -EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Install UV discharge 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 and with protection against ultraviolet light are recommended. Contact lenses should not be worn. Barrier creams or polyethylene skin protection are recommended. Industrial processes must be evaluated for additional safeguards.

SECTION 9 -PHYSICAL AND CHEMICAL PROPERTIES

Physical form:	Solid
Colour:	Clear
Odour:	None
Specific Gravity @25°C:	N/A
Viscosity:	N/A
Freezing/Melting Point:	N/A
Boiling Point:	N/A
Vapour Pressure @25°C:	N/A
Solubility in Water:	Insoluble
pH:	N/A
Volatile content:	N/A

Note: Energized UV discharge lamp surfaces are hot.

SECTION 10 -STABILITY AND REACTIVITY

Stability:	UV discharge Lamps are stable
Conditions to avoid:	Photosensitizing agents when UV discharge lamps are energized.
Hazardous Polymerization:	Will not occur.
Incompatible materials:	None

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SECTION 11 -TOXICOLOGICAL INFORMATION

Acute Toxicology Data for Product:

No data available.

SECTION 12 -ECOLOGICAL INFORMATION

Environmental Fate and Distribution:

No data available.

SECTION 13 -DISPOSAL CONSIDERATIONS

Waste Disposal Methods:

Used UV discharge lamps should be handled / disposed in accordance with federal, state, and local regulations. UV discharge lamps may be returned for recycling with prior authorization.

Resource Conservation and Recovery Act (RCRA) / Universal Waste:

UV discharge lamps that are not recycled must be handled / disposed in accordance with Resource Conservation and Recovery Act (RCRA). Each state has specific regulations that apply to the management of spent UV discharge lamps. Recycling in the US must be in accordance with the Universal Waste rule.

SECTION 14 -TRANSPORTATION INFORMATION

DOT Shipping Name -Not Regulated **IATA Shipping Name** – Mercury contained in manufactured articles
-Hazard class 8.0 (Corrosive Substances), UN 2809, Packaging Group III. Applies to articles with greater than 100 mg of mercury.

SECTION 15 -REGULATORY INFORMATION

Risk phrases for Mercury

R21 -Harmful in contact with skin
R22 – Harmful if swallowed
R23 – Toxic by inhalation
R33 -Danger of cumulative effects

EPA: -RCRA / Universal Waste – UV discharge 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"

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

SECTION 16 -OTHER INFORMATION

Energized UV discharge lamps are photosensitizing.

NOTICE

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.