

1. Product and Company Identification

Material name	IOVERSOL		
Version #	01		
Issue date	12-05-2014		
CAS #	87771-40-2		
Product use	Diagnostic imaging agent.		
Synonym(s)	OPTIRAY * N,N'-bis(2,3-dihydroxypropyl)-5-[N-(2-hydroxyethyl)-glycolamido]-2,4,6-triiodoisophthalamide		
Manufacturer information	Mallinckrodt		
	675 McDonnell Blvd.		
	Hazelwood, MO 63042		
	Customer Service	888-744-1414	
	24 Hour Emergency	314-654-1600	
	Chemtrec	800-424-9300	
Item code	0946, 7888, 7957, 8327, 8777		

2. Hazards Identification

Emergency overview	DANGER
	May form combustible dust concentrations in air.
	HIGHLY FLAMMABLE SOLID.
	Will be easily ignited by heat, spark or flames. High concentrations of dust may form explosive mixture with air.
	Exposure to powder or dusts may be irritating to eyes, nose and throat. Dust may form explosive mixture with air.
OSHA regulatory status	NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication). This substance is not classified as dangerous according to Directive 67/548/EEC.
Potential health effects	
Routes of exposure	Inhalation.
Eyes	Dust in the eyes will cause irritation.
Skin	Dust or powder may irritate the skin.
Inhalation	Dust may irritate respiratory system. Prolonged inhalation may be harmful. Inhalation of dusts may cause respiratory irritation. Coughing. Difficulty in breathing.
Ingestion	May cause irritation.
Chronic effects	Inhalation of powder/dust may cause lung edema.
Potential environmental effects	Ecological injuries are not known or expected under normal use. Not expected to be harmful to aquatic organisms.

3. Composition / Information on Ingredients

Components	CAS #	Percent
IOVERSOL	87771-40-2	100

4. First Aid Measures

First aid procedures

Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists.
Skin contact	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a physician if symptoms develop or persist.
Ingestion	Get medical attention if any discomfort continues. If ingestion of a large amount does occur, call a poison control center immediately. Rinse mouth. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Do not induce vomiting without advice from poison control center. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Notes to physician

Provide general supportive measures and treat symptomatically.

General advice

In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	No unusual fire or explosion hazards noted.
Extinguishing media	
Suitable extinguishing media	Water. Use any media suitable for the surrounding fires.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Protection of firefighters	
Specific hazards arising from the chemical	Decomposition of this product may emit oxides of nitrogen. Iodine.
Protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire fighting equipment/instructions	In the event of fire, cool tanks with water spray. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Specific methods	Cool containers exposed to flames with water until well after the fire is out. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. In the event of fire, cool tanks with water spray. Move container from fire area if it can be done without risk.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental Release Measures

Personal precautions	Ensure adequate ventilation. Keep unnecessary personnel away. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with spilled material. Ventilate closed spaces before entering them. Wear appropriate protective equipment and clothing during clean-up.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product.
Methods for cleaning up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Collect dust using a vacuum cleaner equipped with HEPA filter. Following product recovery, flush area with water. For waste disposal, see section 13 of the MSDS.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. Avoid dust formation. Guard against dust accumulation of this material. Provide appropriate exhaust ventilation at places where dust is formed. All equipment used when handling the product must be grounded. Do not breathe dust from this material. Avoid contact with skin and eyes. In case of insufficient ventilation, wear suitable respiratory equipment. Handle and open container with care. Practice good housekeeping. Avoid contact with eyes. Avoid breathing dust. Keep formation of airborne dusts to a minimum. Do not use in areas without adequate ventilation. Do not ingest. Wash hands thoroughly after handling. When using, do not eat, drink or smoke. Use personal protective equipment as required. Wash thoroughly after handling.

Storage

Store in a well-ventilated place. Keep container tightly closed. Guard against dust accumulation of this material. Use care in handling/storage. The pressure in sealed containers can increase under the influence of heat. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid dust formation. Store in a cool, dry place. Store in accordance with local/regional/national/international regulation.

8. Exposure Controls / Personal Protection

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye / face protection

Use tight fitting goggles if dust is generated. Safety glasses with side-shields. Provide eyewash station and safety shower.

Skin protection

Wear appropriate chemical resistant clothing.

Respiratory protection

Wear respirator with dust filter. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. In the case of respirable dust and/or fumes, use self-contained breathing apparatus.

General hygiene considerations

Avoid contact with eyes. Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Avoid contact with skin. Avoid breathing dust.

9. Physical & Chemical Properties

Appearance

Powder.

Physical state

Solid.

Form

Powder.

Color

White.

Odor

Odorless.

Odor threshold

Not available.

pH

Not available.

Vapor pressure

Not available.

Vapor density

Not available.

Boiling point

Not available.

Melting point/Freezing point

Not available.

Solubility (water)

Complete

Specific gravity	1.18 - 1.37
Relative density	1.18 - 1.37 g/cm3
Flash point	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Molecular weight	807.13
Molecular formula	C18-H24-I3-N3-O9

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Conditions to avoid	Avoid spread of dust. Exposure to moisture. Exposure to light.
Incompatible materials	Not available.
Hazardous decomposition products	May include oxides of iodine. Nitrogen oxides (NOx).
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

11. Toxicological Information

Toxicological data		
Product	Species	Test Results
IOVERSOL (CAS 87771-40-2)		
Acute		
Other		
LD50	Rat	15 g/kg Intravenous (68% injection)
Local effects	Inhalation of dusts may cause respiratory irritation.	
Chronic effects	Not expected to be hazardous by WHMIS criteria. None known through occupational exposure.	
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)		
Not listed.		
Skin corrosion/irritation	Due to lack of data the classification is not possible.	
Epidemiology	No epidemiological data is available for this product.	
Mutagenicity	Due to lack of data the classification is not possible. No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Reproductive effects	Due to lack of data the classification is not possible.	
Further information	This product has no known adverse effect on human health.	

12. Ecological Information

Ecotoxicity	This product has no known eco-toxicological effects. No data on possible environmental effects have been found. Not expected to be harmful to aquatic organisms.
Environmental effects	Not classified as an environmental hazard.
Aquatic toxicity	Not available.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation / accumulation	Not established.
Mobility in environmental media	This product is miscible in water.
Other adverse effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. Disposal Considerations

Disposal instructions	This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations. Dispose of contents/container in accordance with local/regional/national/international regulations. Contract with a disposal operator licensed by the Law on Disposal and Cleaning.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

DOT	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations	This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. CERCLA/SARA Hazardous Substances - Not applicable. TSCA exempt status.	
Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number	Not listed.	
Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))	Not regulated.	
DEA Exempt Chemical Mixtures Code Number	Not regulated.	
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Not regulated.	
CERCLA (Superfund) reportable quantity	None	
Superfund Amendments and Reauthorization Act of 1986 (SARA)		
Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No	
Section 302 extremely hazardous substance	Not listed.	
SARA 311/312 Hazardous chemical	Yes	
International Inventories		
Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

16. Labeling Info

Label Hazard Warning	Health injuries are not known or expected under normal use. Handle in accordance with good industrial hygiene and safety practice.
Label Precautions	Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Keep container closed. Wash thoroughly after handling.
Label First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. If ingestion of a large amount does occur, call a poison control center immediately. Do not induce vomiting without advice from poison control center. Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

17. Other Information

NFPA ratings	Health: 0 Flammability: 0 Instability: 0
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This data sheet contains changes from the previous version in section(s):

This document has undergone significant changes and should be reviewed in its entirety.