

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	IODINE
Version #	01
Revision date	12-22-2010
CAS #	7553-56-2
Product Codes	J.T.Baker: 2208, 2211 Mallinckrodt: 0969, 0975, 0984, 0990, 1008, 3831, 72145
Synonym(s)	Iodine crystals; iodine sublimed
Manufacturer	Avantor Performance Materials, Inc.
Address	222 Red School Lane Phillipsburg, NJ 08865 US
Customer Service	800-582-2537
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER Corrosive. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Strong oxidizer - contact with other material may cause fire. Causes central nervous system effects. May cause an allergic skin reaction.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Contact with substance may cause severe burns to eyes. High concentration of product vapors can cause severe irritation of eyes. Do not get this material in contact with eyes.
Skin	This product is severely irritating to the skin and may cause burns. Allergic reactions are possible. Do not get this material in contact with skin.
Inhalation	Vapors irritate the respiratory system, and may cause coughing and difficulties in breathing. Inhalation of vapor or mist may cause lung edema. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Ingestion of this product may cause nausea, vomiting and diarrhea. May cause central nervous system depression. Circulatory collapse. Probable lethal dose is 2 to 4 grams of free iodine. Do not ingest.
Target organs	Eyes. Skin. RESPIRATORY SYSTEM. Gastro-intestinal tract. Cardiac. Central nervous system. Liver. Kidneys. Thyroid.
Chronic effects	Causes central nervous system effects. May cause damage to the liver and kidneys. May cause reproductive effects. This product may cause an allergic skin reaction.
Signs and symptoms	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Irritation of eyes and mucous membranes. Irritation of nose and throat. Corrosive effects. Prolonged exposure may cause chronic effects.
Potential environmental effects	May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
IODINE	7553-56-2	99 - 100

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
Skin contact	Take off immediately all contaminated clothing. Immediately flush skin with plenty of water. Get medical attention immediately. Wash clothing separately before reuse.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. 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. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Rinse mouth thoroughly.
Notes to physician	Oxygen, if needed. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General advice	Immediate medical attention is required. Take off contaminated clothing and shoes immediately. Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire Fighting Measures

Flammable properties	The product is not flammable. Strong oxidizer - avoid contact with reducing agents. Contact with combustible material may cause fire.
Extinguishing media	
Suitable extinguishing media	Water.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	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.
Special protective equipment for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

Personal precautions	Ensure adequate ventilation. Keep unnecessary personnel away. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not get this material in contact with skin or eyes. Do not inhale vapor, fumes, or dust from the spilled material. Wear appropriate protective equipment and clothing during clean-up.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Runoff from fire control or dilution water may cause pollution. Do not contaminate water.
Methods for cleaning up	Avoid dust formation. Should not be released into the environment. Large Spills: Use clean non-sparking tools to collect absorbed material. Following product recovery, flush area with water. Prevent product from entering drains. Do not allow material to contaminate ground water system. Small Dry Spills: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. Clean surface thoroughly to remove residual contamination. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS.

7. Handling and Storage

Handling

Handle and open container with care. Do not use in areas without adequate ventilation. Take any precaution to avoid mixing with combustibles. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect against direct sunlight. Store in a closed container away from incompatible materials. Do not store near combustible materials. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs. Store in accordance with local/regional/national/international regulation.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Material	Type	Value	Form
IODINE (7553-56-2)	STEL	0.1000 ppm	Vapor and aerosol.
	TWA	0.0100 ppm	Inhalable fraction and vapor.

U.S. - OSHA

Material	Type	Value
IODINE (7553-56-2)	Ceiling	0.1000 ppm
		1.0000 mg/m3

Engineering controls

Ensure adequate ventilation, especially in confined areas. 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.

Personal protective equipment

Eye / face protection

Chemical goggles are recommended. Face-shield. Provide eyewash station and safety shower. Do not get in eyes.

Skin protection

Wear appropriate chemical resistant clothing. Chemical resistant gloves. Do not get this material in contact with skin.

Respiratory protection

If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General hygiene considerations

Do not get this material in your eyes, on your skin, or on your clothing. Do not breathe dust/fume/gas/mist/vapors/spray. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance

Crystals.

Color

Blue to Black. Metallic.

Odor

Not available.

Odor threshold

Not available.

Physical state

Solid.

Form

Solid.

pH

5.4 (saturated solution)

Melting point

237.2 °F (113.7 °C)

Freezing point	237.2 °F (113.7 °C)
Boiling point	363.2 °F (184.4 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	0.031 kPa at 25°C
Specific gravity	4.93
Relative density	Not available.
Solubility (water)	0.1 g/l
Partition coefficient (n-octanol/water)	2.49
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Molecular weight	253.81 g/mol
Molecular formula	I ₂

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Sunlight. Strong oxidizer - avoid contact with reducing agents. Contact with combustibles.
Incompatible materials	Reducing agents. Acetaldehyde. Powdered metal. Alkali metals. Ammonia. Chlorine. Strong bases. Alcohols. Bromine
Hazardous decomposition products	Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data	
Product	Test Results
IODINE (7553-56-2)	Acute Oral LD50 Rat: 14 g/kg
* Estimates for product may be based on additional component data not shown.	
Sensitization	May cause sensitization by skin contact.
Local effects	Causes skin and eye burns. Ingestion causes burns of the upper digestive and respiratory tracts. Irritating to respiratory system.
Chronic effects	Hazardous by OSHA criteria. Causes central nervous system effects. May cause damage to the liver and kidneys. Lung edema. May cause allergic skin reaction. Prolonged exposure may cause chronic effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
ACGIH Carcinogens	
IODINE (CAS 7553-56-2)	A4 Not classifiable as a human carcinogen.
Skin corrosion/irritation	Hazardous by OSHA criteria. Corrosive effects.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Neurological effects	Hazardous by OSHA criteria.
Reproductive effects	Possible reproductive hazard.

12. Ecological Information

Ecotoxicological data

Product

Test Results

IODINE (7553-56-2)

LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss): > 0.01 mg/l 96.00 hours

* Estimates for product may be based on additional component data not shown.

Ecotoxicity

Contains a substance which causes risk of hazardous effects to the environment.

Environmental effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Aquatic toxicity

May cause long-term adverse effects in the aquatic environment.

Persistence and degradability

No data is available on the degradability of this product.

Partition coefficient (n-octanol/water)

2.49

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 of contents/container in accordance with local/regional/national/international regulations.

Contaminated packaging

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Basic shipping requirements:

UN number	UN3495
Proper shipping name	Iodine
Hazard class	8
Subsidiary hazard class	6.1
Packing group	III

IMDG

Basic shipping requirements:

UN number	UN3495
Proper shipping name	IODINE
Hazard class	8
Subsidiary hazard class	6.1
Packing group	III



IATA



IMDG

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - Yes

Pressure Hazard - No

Reactivity Hazard - No

Section 311 hazardous chemical

Yes

Inventory status

Country(s) or region

Inventory name

On inventory (yes/no)*

Australia

Australian Inventory of Chemical Substances (AICS)

Yes

Canada

Domestic Substances List (DSL)

Yes

Canada

Non-Domestic Substances List (NDSL)

No

China

Inventory of Existing Chemical Substances in China (IECSC)

Yes

Europe

European Inventory of Existing Commercial Chemical Substances (EINECS)

Yes

Europe

European List of Notified Chemical Substances (ELINCS)

No

Japan

Inventory of Existing and New Chemical Substances (ENCS)

No

Korea

Existing Chemicals List (ECL)

Yes

New Zealand

New Zealand Inventory

Yes

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS)

Yes

United States & Puerto Rico

Toxic Substances Control Act (TSCA) Inventory

Yes

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

State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

IODINE (CAS 7553-56-2)

Listed.

Saf-T-Data

Health: 3 - Severe (Life)

Flammability: 0 - None

Reactivity: 3 - Severe (Oxidizer)

Contact: 3 - Severe (Corrosive)

Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: W - White (Corrosive)

16. Labeling Info

Label Hazard Warning

DANGER

Corrosive. May cause severe irritation or burns to the eyes, skin, gastrointestinal tract, and respiratory system. Strong oxidizer - contact with other material may cause fire. Causes central nervous system effects. May cause an allergic skin reaction.

Label Precautions

Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Container must be kept tightly closed. Do not store near combustible materials. Use only with adequate ventilation. Wash thoroughly after handling.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Oxygen or artificial respiration if needed. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

17. Other Information

NFPA ratings

Health: 3
Flammability: 0
Instability: 1
Special hazards: OX

Disclaimer

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