1 Identification

Product identifier

Product name: Iodine, crystalline

Stock number: 00158
CAS Number:
7553-56-2
EC number:
231-442-4
Index number:
053-001-00-3
Relevant identified uses of the substance or mixture and uses advised against.
Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com
Information Department: Health, Safety and Environmental Department
Emergency telephone number:
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)


GHS07

Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Hazards not otherwise classified No information known.

Label elements
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
Hazard pictograms


GHS07

Signal word Warning
Hazard statements
H312+H332 Harmful in contact with skin or if inhaled.
Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves / protective clothing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/doctor if you feel unwell.
P321 Specific treatment (see on this label).
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
WHMIS classification
D1B - Toxic material causing immediate and serious toxic effects
E - Corrosive material

Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

Health (acute effects) = 2
Flammability = 0
Physical Hazard = 2

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances
CAS# Description:
7553-56-2 Iodine
Concentration: ≤100%
Identification number(s):
EC number: 231-442-4
Index number: 053-001-00-3

4 First-aid measures

Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.

(Contd. on page 2)

Product name: Iodine, crystalline

(Contd. of page 1)

Seek immediate medical advice.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek medical treatment.
Information for doctor
Most important symptoms and effects, both acute and delayed
Harmful if inhaled.
Harmful in contact with skin.
Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire.
Special hazards arising from the substance or mixture
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.
If this product is involved in a fire, the following can be released:
Hydrogen iodide (HI)
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up:
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Prevention of secondary hazards: No special measures required.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
Protective Action Criteria for Chemicals
PAC-1: 0.1 ppm
PAC-2: 0.5 ppm
PAC-3: 5 ppm

7 Handling and storage

Handling
Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Information about protection against explosions and fires:
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility:
Do not store with organic materials.
Store away from reducing agents.
Alkali metals
Store away from metal powders.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:	
7553-56-2 Iodine (100.0%)	
PEL (USA)	Ceiling limit value: 1 mg/m³, 0.1 ppm
REL (USA)	Ceiling limit value: 1 mg/m³, 0.1 ppm
TLV (USA)	Short-term value: 1 mg/m³, 0.1** ppm Long-term value: 0.1* mg/m³, 0.01* ppm *as inhalable fraction and vapor;**vapor
EL (Canada)	Ceiling limit value: 0.1 ppm
EV (Canada)	Ceiling limit value: 1 mg/m³, 0.1 ppm

Additional information: No data

Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

(Contd. on page 3)

Product name: Iodine, crystalline

(Contd. of page 2)

Breathing equipment: Use suitable respirator when high concentrations are present.
Recommended filter device for short term use:
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Material of gloves Nitrile rubber, NBR
Penetration time of glove material (in minutes) 480

Glove thickness: 0.11 mm
Eye protection: Safety glasses with side shields / NIOSH (US) or EN 166(EU)
Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:

Form:	Various forms (powder/flake/crystalline/beads, etc.)
Odor:	Irritating
Odor threshold:	Not determined.
pH-value:	Not applicable.
Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	183-186 °C (361-367 °F) (subl)
Sublimation temperature / start:	Not determined
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure at 20 °C (68 °F):	0.35 hPa
Density at 20 °C (68 °F):	4.93 g/cm³ (41.141 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with	
Water at 20 °C (68 °F):	0.34 g/l
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity No information known.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Conditions to avoid No further relevant information available.
Incompatible materials:
Reducing agents
Alkali metals
Organic materials
Metal powders
Hazardous decomposition products: Hydrogen iodide (HI)

11 Toxicological information

Information on toxicological effects
Acute toxicity:
Harmful if inhaled.
Harmful in contact with skin.
Danger through skin absorption.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion: Corrosive effect on skin and mucous membranes.
Eye irritation or corrosion: Strong corrosive effect.
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: No effects known.
Carcinogenicity:
ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

Reproductive toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.
Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

(Contd. on page 4)

Product name: Iodine, crystalline

(Contd. of page 3)

12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Ecotoxical effects:
Remark: Very toxic for aquatic organisms
Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Also poisonous for fish and plankton in water bodies.
Avoid transfer into the environment.
Very toxic for aquatic organisms
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation Consult state, local or national regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number	
DOT, IMDG, IATA	UN3495
UN proper shipping name	
DOT	Iodine
ADR	3495 Iodine
IMDG, IATA	IODINE
Transport hazard class(es)	
DOT	
Class	8 Corrosive substances
Label	8, 6.1
ADR	
Class	8 (CT2) Corrosive substances
Label	8+6.1
IMDG	
Class	8 Corrosive substances
Label	8/6.1
IATA	
Class	8 Corrosive substances
Label	8 (6.1)
Packing group	
DOT, ADR, IMDG, IATA	III
Environmental hazards:	Not applicable.
Special precautions for user	Warning: Corrosive substances
EMS Number:	F-A,S-B
Stowage Category	B
Stowage Code	SW2 Clear of living quarters.
Segregation Code	SG37 Stow "separated from" ammonia.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 25 kg On cargo aircraft only: 100 kg
Marine Pollutant (DOT):	No
IMDG	
Limited quantities (LQ)	5 kg
Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
UN "Model Regulation":	UN 3495 IODINE, 8 (6.1), III

(Contd. on page 5)

Product name: Iodine, crystalline

(Contd. of page 4)

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
Hazard pictograms

GHS07

Signal word Warning
Hazard statements
H312+H332 Harmful in contact with skin or if inhaled.
Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P280 Wear protective gloves / protective clothing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/doctor if you feel unwell.
P321 Specific treatment (see on this label).
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).
SARA Section 313 (specific toxic chemical listings) Substance is not listed.
California Proposition 65
Prop 65 - Chemicals known to cause cancer Substance is not listed.
Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.
Prop 65 - Developmental toxicity, male Substance is not listed.
Information about limitation of use: For use only by technically qualified individuals.
Other regulations, limitations and prohibitive regulations
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department
Date of preparation/Revision: Print date, revision date and version number are in the header of each page.
Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)
Acute Tox. 4: Acute toxicity – Category 4