

## SAFETY DATA SHEET

Version 6.8  
Revision Date 06/07/2021  
Print Date 10/16/2021**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Iodine

Product Number : 207772  
Brand : SIGALD  
Index-No. : 053-001-00-3  
CAS-No. : 7553-56-2

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 4), H332  
Acute toxicity, Dermal (Category 4), H312  
Skin irritation (Category 2), H315  
Eye irritation (Category 2A), H319  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Specific target organ toxicity - repeated exposure, Oral (Category 1), Thyroid, H372  
Short-term (acute) aquatic hazard (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H302 + H312 + H332

Harmful if swallowed, in contact with skin or if inhaled.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H335

May cause respiratory irritation.

H372

Causes damage to organs (Thyroid) through prolonged or repeated exposure if swallowed.

H400

Very toxic to aquatic life.

Precautionary statement(s)

P260

Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P264

Wash skin thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P271

Use only outdoors or in a well-ventilated area.

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P312 + P330

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P302 + P352 + P312

IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell.

P304 + P340 + P312

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314

Get medical advice/ attention if you feel unwell.

P332 + P313

If skin irritation occurs: Get medical advice/ attention.

P337 + P313

If eye irritation persists: Get medical advice/ attention.

P362

Take off contaminated clothing and wash before reuse.

P391

Collect spillage.

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

P405

Store locked up.

P501

Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula	:	I <sub>2</sub>
Molecular weight	:	253.81 g/mol
CAS-No.	:	7553-56-2
EC-No.	:	231-442-4
Index-No.	:	053-001-00-3

Component	Classification	Concentration
-----------	----------------	---------------

<b>Iodine</b>		
	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; STOT RE 1; Aquatic Acute 1; H302, H332, H312, H315, H319, H335, H372, H400 M-Factor - Aquatic Acute: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

---

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

---

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Hydrogen iodide

Not combustible.

Ambient fire may liberate hazardous vapours.

### **5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### **5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

---

## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.  
For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### **6.4 Reference to other sections**

For disposal see section 13.

---

## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Handle and store under inert gas. Hygroscopic.

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Ingredients with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Iodine	7553-56-2	C	0.1 ppm 1 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.01 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		STEL	0.1 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Not classifiable as a human carcinogen		
		C	0.1 ppm 1 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		C	0.1 ppm 1 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		C	0.1 ppm 1 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

#### Body Protection

protective clothing

### **Respiratory protection**

required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### **Control of environmental exposure**

Do not let product enter drains.

---

## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |   |
|---|---|
| a) Appearance                                   | Form: solid<br>Color: black, violet         |
| b) Odor   | pungent                                     |
| c) Odor Threshold                               | No data available                           |
| d) pH   | 5.4   |
| e) Melting point/freezing point                 | Melting point/range: 113 °C (235 °F) - lit. |
| f) Initial boiling point and boiling range      | 184 °C 363 °F - lit.                        |
| g) Flash point                                  | ( )No data available                        |
| h) Evaporation rate                             | No data available                           |
| i) Flammability (solid, gas)                    | The product is not flammable.               |
| j) Upper/lower flammability or explosive limits | No data available                           |
| k) Vapor pressure                               | 0.41 hPa at 25 °C (77 °F)                   |
| l) Vapor density                                | No data available                           |
| m) Relative density                             | No data available                           |
| n) Water solubility                             | 0.3 g/l at 25 °C (77 °F) - slightly soluble |
| o) Partition coefficient: n-octanol/water       | No data available                           |
| p) Autoignition temperature                     | No data available                           |
| q) Decomposition temperature                    | No data available                           |
| r) Viscosity                                    | No data available                           |
| s) Explosive properties                         | No data available                           |
| t) Oxidizing properties                         | No data available                           |

### **9.2 Other safety information**

No data available

---

## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

No data available

### **10.2 Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **10.3 Possibility of hazardous reactions**

Risk of explosion with:

Reducing agents

Alkali metals

Acetylene

Ammonia

Potassium

copper compounds

sodium

oxyhalogenic compounds

Boron

halogen oxides

iodides

azides

ammonium compounds

antimony

in powder form

mercury oxide

with

Methanol

and

ethanol

Risk of ignition or formation of inflammable gases or vapours with:

Powdered metals

Zinc

semimetals

halogen-halogen compounds

nonmetals

nonmetallic oxides

alkali salts

Iron

Fluorine

formaldehyde

hydrides

sodium phosphite

phosphorus

sulfur

Titanium

powdered aluminium

acetylidene

combustible substances

powdered magnesium

petrol

butadiene

Diethyl ether

with

Aluminum

Exothermic reaction with:  
carbides  
azides  
turpentine oils and/or turpentine substitutes  
alkali oxides  
lithium silicide  
alkaline earth compounds  
nitrides  
Acetaldehyde  
Lithium  
fluorides  
Oxides of phosphorus  
Chlorine  
Iron  
in powder form

#### **10.4 Conditions to avoid**

no information available

#### **10.5 Incompatible materials**

No data available

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

---

### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Acute toxicity**

LD50 Oral - Rat - 315 mg/kg  
(US-EPA)

Remarks: The GHS classification specified by the authority  
LC50 Inhalation - Rat - male and female - 4 h - > 4.588 mg/l  
(OECD Test Guideline 403)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)  
LD50 Dermal - Rabbit - male and female - 1,425 mg/kg  
(US-EPA)

No data available

##### **Skin corrosion/irritation**

Skin - reconstructed human epidermis (RhE)  
Result: Moderate skin irritation  
(Regulation (EC) No. 440/2008, Annex, B.46)

##### **Serious eye damage/eye irritation**

No data available

##### **Respiratory or skin sensitization**

In animal experiments: - Mouse  
Result: negative  
(OECD Test Guideline 429)

##### **Germ cell mutagenicity**

Test Type: Mutagenicity (mammal cell test):  
Test system: Mouse lymphoma test

Metabolic activation: without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Test Type: In vivo micronucleus test  
Species: Mouse

Application Route: Intraperitoneal  
Method: Mutagenicity (micronucleus test)  
Result: negative

### **Carcinogenicity**

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation. - Respiratory system

### **Specific target organ toxicity - repeated exposure**

Oral - Causes damage to organs through prolonged or repeated exposure. - Thyroid

### **Aspiration hazard**

No data available

## **11.2 Additional Information**

Repeated dose toxicity - Rat - female - Oral - 100 d  
Remarks: (as aqueous solution)

Repeated dose toxicity - Rat - male and female - Oral - 29 - 47 d - NOAEL (No observed adverse effect level) - 10 mg/kg

RTECS: NN1575000

Prolonged exposure to iodides may produce iodism in sensitive individuals. Symptoms of exposure include: skin rash, running nose, headache and irritation of the mucous membrane. For severe cases the skin may show pimples, boils, hives, blisters and black and blue spots. Iodides are readily diffused across the placenta. Neonatal deaths from respiratory distress secondary to goiter have been reported. Iodides have been known to cause drug-induced fevers, which are usually of short duration., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

---

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	static test LC50 - Oncorhynchus mykiss (rainbow trout) - 1.67 mg/l - 96 h Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.55 mg/l - 48 h Remarks: (ECHA)  EC50 - Daphnia magna (Water flea) - 0.2 mg/l - 48 h
Toxicity to algae	Growth inhibition ErC50 - Desmodesmus subspicatus (green algae) - 0.13 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	EC50 - activated sludge - 280 mg/l - 3 h (OECD Test Guideline 209)

### 12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

---

## SECTION 14: Transport information

### DOT (US)

UN number: 3495 Class: 8 (6.1) Packing group: III  
Proper shipping name: Iodine  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

**IMDG**

UN number: 3495 Class: 8 (6.1)  
Proper shipping name: IODINE  
Marine pollutant : yes

Packing group: III

EMS-No: F-A, S-B

**IATA**

UN number: 3495 Class: 8 (6.1)  
Proper shipping name: Iodine

Packing group: III

---

**SECTION 15: Regulatory information****SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

---

**SECTION 16: Other information****Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

Version: 6.8

Revision Date: 06/07/2021

Print Date: 10/16/2021