SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

<table>
<thead>
<tr>
<th>Product name</th>
<th>Iodine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>229695</td>
</tr>
<tr>
<td>Brand</td>
<td>Aldrich</td>
</tr>
<tr>
<td>Index-No.</td>
<td>053-001-00-3</td>
</tr>
<tr>
<td>REACH No.</td>
<td>01-2119485285-30-XXXX</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7553-56-2</td>
</tr>
</tbody>
</table>

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

Identified uses: Laboratory chemicals, Manufacture 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

Classification according to Regulation (EC) No 1272/2008

- 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 2), 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 Label elements

Labelling according Regulation (EC) No 1272/2008

**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)**
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
- P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
- 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.
- P314 Get medical advice/ attention if you feel unwell.

**Supplemental Hazard Statements**
none

**Reduced Labeling (<= 125 ml)**

**Pictogram**

**Signal word** Danger

**Hazard statement(s)**
- H372 Causes damage to organs through prolonged or repeated exposure if swallowed.

**Precautionary statement(s)**
- P314 Get medical advice/ attention if you feel unwell.

**Supplemental Hazard Statements**
none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Formula</th>
<th>I₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>253.81 g/mol</td>
</tr>
</tbody>
</table>
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

**Advice on safe handling**
Work under hood. Do not inhale substance/mixture.

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

**Storage class**

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**

8.2 **Exposure controls**

**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).

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).

Splash contact

Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

**Body Protection**

**Respiratory protection**

Recommended Filter type: Filter B-(P2)
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
</table>
| **a)** Appearance | Form: solid  
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 - lit. |
| **f)** Initial boiling point and boiling range | 184 °C - 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 |
| **l)** Vapor density | No data available |
| **m)** Density | 4,930 g/cm³ at 20 °C  
Relative density | No data available |
| **n)** Water solubility | 0.3 g/l at 25 °C - 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 | Viscosity, kinematic: No data available  
Viscosity, dynamic: 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
- Copper compounds
- Sodium
- Oxohalogenic 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
Acute toxicity estimate Inhalation - 4 h - 1,5 mg/l - dust/mist(Expert judgment)

LC50 Inhalation - Rat - male and female - 4 h - > 4,588 mg/l - dust/mist

(US-EPA)

**Skin corrosion/irritation**
Skin - reconstructed human epidermis (RhE)
Result: Moderate skin irritation

**Serious eye damage/eye irritation**
Causes serious eye irritation.

**Respiratory or skin sensitization**
In animal experiments: - Mouse
Result: negative

**Germ cell mutagenicity**

The life science business of Merck operates as MilliporeSigma in the US and Canada
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**
No data available

**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

**Endocrine disrupting properties**

**Product:**

**Assessment:**
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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.
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)

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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:  
Assessment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product  
See 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

14.1 UN number
ADR/RID: 3495  IMDG: 3495  IATA: 3495

14.2 UN proper shipping name
ADR/RID: IODINE  IMDG: IODINE  IATA: Iodine

14.3 Transport hazard class(es)
ADR/RID: 8 (6.1)  IMDG: 8 (6.1)  IATA: 8 (6.1)

14.4 Packaging group
ADR/RID: III  IMDG: III  IATA: III

14.5 Environmental hazards
ADR/RID: yes  IMDG Marine pollutant: yes  IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

Other regulations
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.
H302  Harmful if swallowed.
H302 + H312  Harmful if swallowed, in contact with skin or if inhaled.
H332
H312  Harmful in contact with skin.
H315  Causes skin irritation.
H319  Causes serious eye irritation.
H332  Harmful if inhaled.
H335  May cause respiratory irritation.
H372  Causes damage to organs through prolonged or repeated exposure if
H400 Very toxic to aquatic life.

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 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.