

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

# Iodine

Version number: 1.0  
Issued: 2023-12-06



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

### 1.1. Product identifier

**Trade name**

Iodine

**CAS number**

7553-56-2

**EC number**

231-442-4

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

**Relevant identified uses**

Research and development.

**Not suitable for use in**

Not suitable for human consumption or veterinary purposes.

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,  
DL1 4XX Darlington  
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

**Contact person**

Kevin Banks

**Email**

+44 (0) 7769276927

### 1.4. Emergency telephone number

**Poison center/Additional emergency number**

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

#### Classification

Acute toxicity, oral, hazard category 4  
Acute toxicity, dermal, hazard category 4  
Acute toxicity, inhalation, hazard category 4  
Skin irritation, hazard category 2  
Eye irritation, hazard category 2  
Specific Target Organ Toxicity — Single exposure, hazard category 3 - respiratory tract irritation  
Specific Target Organ Toxicity — Repeated exposure, hazard category 1  
Hazardous to the aquatic environment — Acute hazard category 1

#### Hazard statements

H302, H312, H315, H319, H332, H335, H372, H400

### 2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

H302 Harmful if swallowed.  
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 .  
H400 Very toxic to aquatic life.

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## Precautionary statements

P260 Do not breathe dust.  
P264 Wash skin thoroughly after handling.  
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.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P314 Get medical advice/attention if you feel unwell.  
P330 Rinse mouth.  
P391 Collect spillage.  
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P302 + P352 IF ON SKIN: Wash with plenty of water/.  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P332 + P313 If skin irritation occurs: Get medical advice/attention.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P405 Store locked up.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P362 + P364 Take off contaminated clothing and wash it before reuse.

## 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
Iodine	7553-56-2 231-442-4 - -	100%	Acute Tox. 4 - oral, Acute Tox. 4 - dermal, Acute Tox. 4 - inhalation, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3 - resp. tract irrit., STOT RE 1, Aquatic Acute 1	H302 + H312 + H332, H315, H319, H335, H372, H400 M-acut=1 -	-

## Molecular weight

253.81

## Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

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## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel.

#### Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

#### Skin contact

IF ON SKIN: Wash with plenty of water. Continue to rinse for at least 15 minutes and seek medical attention. Get medical advice/attention if you feel unwell.

#### Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

#### Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

#### Information for doctors

First aiders/ medical personnel need to protect themselves.

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

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

#### Inhalation

Single exposure may cause the following adverse effects: Upper respiratory irritation. Difficulty in breathing.

#### Skin contact

Single exposure may cause the following adverse effects: Severe skin irritation.

#### Eye contact

Single exposure may cause the following adverse effects: Severe irritation.

#### Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. Nausea, vomiting.

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

Treat symptomatically. No special treatment requirement.

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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

#### Unsuitable extinguishing media

No specific fire fighting procedure given.

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

Specific hazards: None.

Ambient fire may liberate hazardous vapours.

### 5.3. Advice for firefighters

#### Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

## SECTION 6: Accidental release measures

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

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. For personal protection, see section 8.

### 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

### 6.3. Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

### 6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Preventive handling precautions

For precautions see section 2.2. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation.

#### General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

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

Store at ambient temperature. Store in a dry place. Store in a closed container.

Air and moisture sensitive. Store under inert gas.

## 7.3. Specific end use(s)

No specific usage precautions noted.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### DNEL/DMEL

Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
Iodine (7553-56-2/231-442-4)	DNEL	Acute (short term) Inhalation	1 mg/m <sup>3</sup>	Workers	Systemic
Iodine (7553-56-2/231-442-4)	DNEL	Chronic (long term) Inhalation	0.07 mg/m <sup>3</sup>	Workers	Systemic

#### PNEC/PEC

Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
Iodine (7553-56-2/231-442-4)	PNEC	Freshwater	0.01813 mg/l
Iodine (7553-56-2/231-442-4)	PNEC	Marine water	0.06001 mg/l
Iodine (7553-56-2/231-442-4)	PNEC	Sewage Treatment Plant	11 mg/l
Iodine (7553-56-2/231-442-4)	PNEC	Sediment (freshwater)	3.99 mg/kg
Iodine (7553-56-2/231-442-4)	PNEC	Sediment (marine water)	20.22 mg/kg
Iodine (7553-56-2/231-442-4)	PNEC	Soil	5.95 mg/kg

### 8.2. Exposure controls

#### Personal Protective Equipment Symbols



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## Eye / face protection

Wear eye protection.

## Hand protection

Wear protective gloves. Recommended gloves: Nitrile.

Glove Thickness: 0.11mm

Breakthrough time: 8 hours

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

## Other skin protection

Wash skin thoroughly after handling.

## Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

## Environmental exposure controls

Avoid discharge into drains.

## SECTION 9: Physical and chemical properties

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

#### Physical state

Solid

#### Colour

Violet.

#### Odour

No data available

#### Melting point / freezing point

112 - 115 °C

#### Boiling point or initial boiling point and boiling range

No data available

#### Flammability

No data available

#### Lower and upper explosion limit

No data available

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## Flash point

No data available

## Auto-ignition temperature

No data available

## Decomposition temperature

No data available

## pH

5.1 - 5.5

## Kinematic viscosity

No data available

## Solubility

Insoluble in water.

## Partition coefficient n-octanol/water

No data available

## Vapour pressure

No data available

## Density and/or relative density

No data available

## Relative vapour density

4.93

## Particle characteristics

No data available

## 9.2. Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

There are no known reactivity hazards associated with this product.

### 10.2. Chemical stability

Stable under the prescribed storage conditions.



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## 10.3. Possibility of hazardous reactions

Risk of explosion with:

Acetylene  
Alkali metals.  
Ammonia.  
Azides  
Reducing Agents.

## 10.4. Conditions to avoid

Incompatible materials.

## 10.5. Incompatible materials

Strong oxidising agents.

## 10.6. Hazardous decomposition products

See section 5.

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Duration of exposure	Test animals	Remarks
Iodine 7553-56-2 / 231-442-4	Acute Toxicity (Oral LD50):	315mg/kg	-	Rat	(US-EPA)
Iodine 7553-56-2 / 231-442-4	Acute Toxicity (Inhalation LC50):	> 4.588 mg/l (dust/mist)	4 hours	Rat	-
Iodine 7553-56-2 / 231-442-4	Acute Toxicity (Dermal LD50):	1,425mg/kg	-	Rabbit	(US-EPA)

#### Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Species	Other
Iodine 7553-56-2 / 231-442-4	Causes mild skin irritation.	reconstructed human epidermis (RhE)	(Regulation (EC) No. 440/2008, Annex, B.46)

#### Serious eye damage/irritation

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Product / Substance name CAS / EC no.	Result
Iodine 7553-56-2 / 231-442-4	Causes serious eye irritation.

## Respiratory or skin sensitisation

Product / Substance name CAS / EC no.	Result	Species	Other
Iodine 7553-56-2 / 231-442-4	Negative.	Mouse	(OECD Test Guideline 429)

## Germ cell mutagenicity

Product / Substance name CAS / EC no.	Result	Species
Iodine 7553-56-2 / 231-442-4	Negative.	Mouse

## STOT-single exposure

Product / Substance name CAS / EC no.	Exposure route	Target organs	Result
Iodine 7553-56-2 / 231-442-4	Inhalation.	RESPIRATORY SYSTEM.	May cause respiratory irritation.

## STOT-repeated exposure

Product / Substance name CAS / EC no.	Exposure route	Result
Iodine 7553-56-2 / 231-442-4	Oral	Causes damage to organs through prolonged or repeated exposure.

## Aspiration hazard

Based on available data, the classification criteria are not met.

## 11.2. Information on other hazards

No data available

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## SECTION 12: Ecological information

### 12.1. Toxicity

#### Acute fish toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Iodine 7553-56-2 / 231-442-4	LC50	1.67mg/l	96 hours	Onchorhynchus mykiss (Rainbow trout)

#### Acute algae toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Iodine 7553-56-2 / 231-442-4	ErC50	0.13mg/l	72 hours	Desmodesmus sub- spicatus (green algae)

#### Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Iodine 7553-56-2 / 231-442-4	EC50	0.55mg/l	48 hours	Daphnia magna

#### Micro-/macro organism toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Iodine 7553-56-2 / 231-442-4	EC50	280mg/l	3 hours	Activated sludge.

### 12.2. Persistence and degradability

No data available

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available

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## 12.5. Results of PBT and vPvB assessment

No data available

## 12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

## 12.7. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Disposal considerations

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

## SECTION 14: Transport information

### 14.1. UN number

3495

### 14.2. UN proper shipping name

#### ADR / RID / ADN proper shipping name

IODINE

#### IMDG proper shipping name

IODINE

#### IATA proper shipping name

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## 14.3. Transport hazard class(es)

### Label

ADR/RID/ADN



8



6.1



Environmental hazard

IMDG



8



6.1



Environmental hazard

IATA



8



6.1



Environmental hazard

### ADR / RID Class

8

### ADR / RID Classification code

CT2

### ADR / RID hazard identification number

86

### IMDG Class

8 (6.1)

### IATA Class

8 (6.1)

### ADN Class

8

### ADN Class Code

CT2

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## 14.4. Packing group

ADR / RID / ADN: III  
IMDG: III  
IATA: III

## 14.5. Environmental hazards

**IMDG EmS**  
F-A, S-B

## 14.6. Special precautions for user

Tunnel restriction code: E  
Transport category: 3

## 14.7. Maritime transport in bulk according to IMO instruments

IBC Instruction: IBC08

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### **EU regulations**

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.  
This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

#### **National regulations**

No data available

### 15.2. Chemical safety assessment

No data available

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## SECTION 16: Other information

### Phrase meaning

Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4  
Acute Tox. 4 - dermal - Acute toxicity, dermal, hazard category 4  
Acute Tox. 4 - inhalation - Acute toxicity, inhalation, hazard category 4  
Skin Irrit. 2 - Skin irritation, hazard category 2  
Eye Irrit. 2 - Eye irritation, hazard category 2  
STOT SE 3 - resp. tract irrit. - Specific Target Organ Toxicity — Single exposure, hazard category 3 - respiratory tract irritation  
STOT RE 1 - Specific Target Organ Toxicity — Repeated exposure, hazard category 1  
Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1  
H302 Harmful if swallowed.  
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled  
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 .  
H372 Causes damage to organs through prolonged or repeated exposure .?  
H400 Very toxic to aquatic life.