

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 Version 2 Revision Date 11.12.2018

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

1.1 Product identifiers

Product name : Iodine
Product Number : 5356
Brand : Better Equipped
Index-No. : 053-001-00-3
REACH No. : 01-2119485285-30-XXXX
CAS-No. : 7553-56-2

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

Identified uses : Laboratory chemicals, Manufacture of substances
Uses advised against : Not for sale to the general public

1.3 Details of the supplier of the safety data sheet

Company : Better Equipped,
Wrenbury Business Park,
Wrenbury Road,
Wrenbury,
Nantwich, Cheshire,
CW5 8EB, UK
Telephone +44 (0) 800 9707142
Fax +44 (0) 800 066 4443
E-mail address sales@betterequipped.co.uk

1.4 Emergency telephone number

Emergency Phone # +44 (0)1270 781238

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

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
Acute aquatic toxicity (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)	
H312 + H332	Harmful 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)	
P261	Avoid breathing dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
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.
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

Formula	:	I ₂
Molecular weight	:	253.81 g/mol
CAS-No.	:	7553-56-2
EC-No.	:	231-442-4
Index-No.	:	053-001-00-3
Registration number	:	01-2119485285-30-XXXX

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Iodine		
CAS-No.	7553-56-2	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; STOT RE 1; Aquatic Acute 1; H332, H312, H315, H319, H335, H372, H400 M-Factor - Aquatic Acute: 1
EC-No.	231-442-4	
Index-No.	053-001-00-3	
Registration number	01-2119485285-30-XXXX	
		<= 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

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Remove contaminated clothing. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. 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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****- 6.1.1 For non-emergency personnel**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

- 6.1.2 For emergency responders

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.1.2 Advice on general occupational hygiene:

- No smoking.
- Do not eat or drink.
- Wash hands after use.
- Remove contaminated clothing.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

Handle and store under inert gas. Hygroscopic.

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

Components with workplace control parameters

Component	CAS-No.	ValueForm of exposure	Control parameters	Basis
Iodine	7553-56-2	STEL	0.1 ppm 1.1 mg/m ³	UK. EH40 WEL - Workplace Exposure Limits

8.1.2 Information on currently recommended monitoring procedures

For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS)

8.1.3 The relevant DNELs and PNECs for the substance/s for the exposure scenarios:

DNEL's. The derived no- or minimum effect level (DN(M)EL) is the level of exposure above which a human should not be exposed to a substance. Please note that when more than one summary is provided, DN(M)EL values may refer to constituents of the substance and not to the substance as a whole.

Data for WORKERS

INHALATION Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	(DNEL) 70 µg/m ³	repeated dose toxicity
Acute /short term:	-	-
Local Effects		
Long-term:	-	-
Acute /short term:	-	-
DERMAL Exposure	Threshold	Most sensitive study

Systemic Effects		
Long-term:	(DNEL) 10 µg/kg bw/day	repeated dose toxicity
Acute /short term:	-	-
Local Effects		
Long-term:	-	-
Acute /short term:	-	-
EYE Exposure		
-		

Data for the GENERAL POPULATION

INHALATION Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	-	-
Acute /short term:	-	-
Local Effects		
Long-term:	-	-
Acute /short term:	-	-
DERMAL Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	-	-
Acute /short term:	-	-
Local Effects		
Long-term:	-	-
Acute /short term:	-	-
ORAL Exposure	Threshold	Most sensitive study
Systemic Effects		
Long-term:	-	-
Acute /short term:	-	-
EYE Exposure		
-		

PNEC's. The Predicted No-Effect Concentration (PNEC) value is the concentration of a substance below which adverse effects in the environment are not expected to occur. Please note that when more than one summary is provided, PNEC values may refer to constituents of the substance and not to the substance as a whole.

Hazard for Aquatic Organisms	
Freshwater	18.13 µg/L (1)
Intermittent releases (freshwater)	-
Marine water	60.01 µg/L (1)
Intermittent releases (marine water)	-
Sewage treatment plant (STP)	11 mg/L (1)
Sediment (freshwater)	3.99 mg/kg sediment dw (1)
Sediment (marine water)	20.22 mg/kg sediment dw (1)
Hazard for Air	
Air	-
Hazard for Terrestrial Organism	
Soil	5.95 mg/kg soil dw (1)
Hazard for Predators	
Secondary poisoning	No potential for bioaccumulation (1)

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use Local exhaust ventilation (LEV).

Personal protective equipment

Eye/face protection

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

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

a) Appearance	Form: solid Colour: black, violet
b) Odour	pungent
c) Odour 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)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	0.41 hPa at 25 °C
l) Vapour density	8.76 - (Air = 1.0)
m) Relative density	4.930 g/cm ³
n) Water solubility	0.3 g/l at 25 °C - slightly soluble
o) Partition coefficient: n-octanol/water	log Pow: 2.49 at 20 °C
p) Auto-ignition 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

Relative vapour density 8.76 - (Air = 1.0)

SECTION 10: Stability and reactivity**10.1 Reactivity**

None known based on the data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

None under normal processing

10.4 Conditions to avoid

Contact with incompatible material

10.5 Incompatible materials

Rubber, Plastics, Iron and iron salts., Sulphur compounds, Ammonia, Magnesium, Zinc, Aluminum, Metals, Alkalis, Antimony salts, Arsenites, bromides, chlorides, iodides, thiocyanates, ferrous salts,

hypophosphites, morphine salts, oils, creosote, phosphates, tannins, tartrates, Mixing iodine, antimony, and ammonia resulted in an explosion. A violent reaction occurs between iodine and acetaldehyde., Acetylene, Acetaldehyde, Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Hydrogen iodide
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 14,000 mg/kg

Remarks: Diarrhoea

LC50 Inhalation - Rat - 4 h - > 4.588 mg/l

(OECD Test Guideline 403)

Remarks: Cough Respiratory disorder

LC50 Dermal - Rat - male - 1,425 mg/kg

(OPPTS 870.1200)

Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE)

Result: Moderate skin irritation

Serious eye damage/eye irritation

Moderate eye irritation

Respiratory or skin sensitisation

- Mouse

Result: Does not cause skin sensitisation.

(OECD Test Guideline 429)

Germ cell mutagenicity

Hamster

Embryo

Result: negative

Mutagenicity (micronucleus test)

Mouse - male and female

Result: negative

Carcinogenicity

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

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

Additional Information

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.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 1.7 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.2 mg/l - 48 h

Toxicity to algae Growth inhibition EC50 - *Desmodesmus subspicatus* (green algae) - 0.13 mg/l (OECD Test Guideline 201)

12.2 Persistence and degradability

No data available

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 Other adverse effects

Very toxic to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Unused product may be returned and reused, in addition to disposal.

Contaminated packaging

Dispose of as unused product.

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

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

N/A

SECTION 15: Regulatory information

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

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.**

H312	Harmful in contact with skin.
H312 + H332	Harmful in contact with skin or if inhaled.
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 swallowed.
H400	Very toxic to aquatic life.

Revisions made since previous version of data sheet:

The following sections of this data sheet have been updated:

1.2, 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 8.2, 13.1, 14.7, 15.1, 16

We strongly recommend reading the entire data sheet for this chemical in preparation ahead of use.

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. Better Equipped and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.
