



# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 07/29/2015

Version 3.0

## SECTION 1. Identification

### Product identifier

Product number	104760
Product name	Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph Eur,BP,USP
CAS-No.	7553-56-2

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

Identified uses	Pharmaceutical production, Reagent for research and development
-----------------	---

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

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
---------	--

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

## SECTION 2. Hazards identification

### GHS Classification

Acute toxicity, Category 4, Inhalation, H332  
Acute toxicity, Category 4, Dermal, H312  
Skin irritation, Category 2, H315  
Eye irritation, Category 2A, H319  
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335  
Specific target organ systemic toxicity - repeated exposure, Category 1, Oral, thyroid, H372  
For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Danger

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

## *Hazard Statements*

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.

## *Precautionary Statements*

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.

P280 Wear protective gloves/ eye protection/ face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

P314 Get medical advice/ attention if you feel unwell.

P322 Specific measures (see supplemental first aid instructions on this label).

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.

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.

## **Other hazards**

None known.

---

## **SECTION 3. Composition/information on ingredients**

Formula

I<sub>2</sub> (Hill)

Molar mass

253.8 g/mol

## **Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

*Iodine (>= 90 % - <= 100 % )*

7553-56-2

Exact percentages are being withheld as a trade secret.

---

## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*Inhalation*

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration.

Oxygen if necessary. Immediately call in physician.

---

## SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

### *Skin contact*

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

### *Eye contact*

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

### *Ingestion*

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

Never give anything by mouth to an unconscious person.

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

irritant effects, conjunctivitis, Asthma, bronchitis, Dermatitis, Skin disorders, Fever, bloody diarrhea, collapse, rhinitis, metallic taste

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

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

---

## **SECTION 5. Fire-fighting measures**

### **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.

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

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

hydrogen iodide

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

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

#### *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**

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

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

---

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 104760 Version 3.0  
Product name Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

## Environmental precautions

Do not empty into drains.

## 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.

---

## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

### Conditions for safe storage, including any incompatibilities

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

Store at +5°C to +30°C (+41°F to +86°F).

---

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Ingredients

Basis	Value	Threshold limits	Remarks
<i>Iodine 7553-56-2</i>			
NIOSH/GUIDE	Ceiling Limit Value and Time Period (if specified):	0.1 ppm 1 mg/m <sup>3</sup>	
OSHA_TRANS	Ceiling Limit Value:	0.1 ppm 1 mg/m <sup>3</sup>	
Z1A	Ceiling Limit Value:	0.1 ppm 1 mg/m <sup>3</sup>	
ACGIH	Short Term Exposure Limit (STEL):	0.1 ppm	Form of exposure: Vapor and aerosol.
	Time Weighted Average (TWA):	0.01 ppm	Form of exposure: Inhalable fraction and vapor.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

---

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

## *Eye/face protection*

Safety glasses

## *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. 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)).

## *Other protective equipment:*

protective clothing

## *Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter B-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

## SECTION 9. Physical and chemical properties

Physical state	solid
Color	dark violet
Odor	stinging
Odor Threshold	No information available.
pH	5.4 (saturated solution)
Melting point	114 °C
Boiling point/boiling range	185 °C (185 °C) at 1,013 hPa

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	0.41 hPa at 25 °C (25 °C)
Relative vapor density	8.8
Density	4.93 g/cm <sup>3</sup> at 20 °C (20 °C)
Relative density	No information available.
Water solubility	0.3 g/l at 20 °C (20 °C)
Partition coefficient: n-octanol/water	log Pow: 2.49 (experimental) Bioaccumulation is not expected. (Lit.)
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	2.27 mPa.s at 116 °C (116 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Bulk density	ca.2,100 kg/m <sup>3</sup>
Viscosity, kinematic	0.57 mm <sup>2</sup> /s at 116 °C (116 °C) liquid

---

## SECTION 10. Stability and reactivity

### Reactivity

See below

### Chemical stability

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

sublimable

## 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 vapors with:

Powdered metals, Zinc, semimetals, halogen-halogen compounds, nonmetals, nonmetallic oxides, alkali salts, Iron, Fluorine, formaldehyde, hydrides, sodium phosphite, phosphorus, sulfur, Titanium, powdered aluminum, acetylidene, combustible substances, powdered magnesium, petrol, butadiene, CALCIUM HYDRIDE

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

## Conditions to avoid

no information available

## Incompatible materials

no information available

## Hazardous decomposition products

in the event of fire: See section 5.

---

## SECTION 11. Toxicological information

### Information on toxicological effects

*Likely route of exposure*

Eye contact, Skin contact, Ingestion

*Target Organs*

Eyes

Skin

Respiratory system

Central nervous system

cardiovascular system

*Acute oral toxicity*

LD50 Rat: 14,000 mg/kg (RTECS)

Symptoms: metallic taste, bloody diarrhea, Circulatory collapse

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

## *Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract  
absorption

## *Acute dermal toxicity*

LD50 Rabbit: 1,425 mg/kg

US-EPA

absorption

## *Skin irritation*

In vitro study

Result: non-corrosive

OECD Test Guideline 435

In vitro study

Result: Irritations

OECD Test Guideline 439

Causes skin irritation.

Possible damages: Dermatitis

## *Eye irritation*

Causes serious eye irritation.

## *Sensitization*

In animal experiments: Mouse

Result: negative

Method: OECD Test Guideline 429

## *Repeated dose toxicity*

(as aqueous solution)

## *Genotoxicity in vitro*

Mutagenicity (mammal cell test):

MOUSE LYMPHOMA TEST

Result: negative

Method: OECD Test Guideline 476

UDS (Unscheduled DNA synthesis assay)

Result: negative

Method: OECD Test Guideline 482

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

Inhalation

Target Organs: Respiratory system

May cause respiratory irritation.



## SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

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

Ingestion

Target Organs: thyroid

Causes damage to organs through prolonged or repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## 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.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

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.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## Further information

Systemic effects:

After uptake:

Fever

Chronic intoxication:

Skin disorders, rhinitis, conjunctivitis, bronchitis, Asthma

Handle in accordance with good industrial hygiene and safety practice.

---

## SECTION 12. Ecological information

### Ecotoxicity

#### *Toxicity to fish*

static test LC50 Oncorhynchus mykiss (rainbow trout): 1.67 mg/l; 96 h (ECHA)

#### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 Daphnia magna (Water flea): 0.55 mg/l; 48 h (ECHA)

#### *Toxicity to algae*

Growth inhibition ErC50 Desmodesmus subspicatus (green algae): 0.13 mg/l; 72 h  
OECD Test Guideline 201

Growth inhibition NOEC Desmodesmus subspicatus (green algae): 0.025 mg/l; 72 h  
OECD Test Guideline 201

#### *Toxicity to bacteria*

EC50 activated sludge: 280 mg/l; 3 h

OECD Test Guideline 209

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 104760 Version 3.0  
Product name Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

## Persistence and degradability

### *Biodegradability*

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

## Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: 2.49

(experimental)

Bioaccumulation is not expected. (Lit.)

## Mobility in soil

No information available.

---

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

---

## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN 3495
Proper shipping name	IODINE
Class	8 (6.1)
Packing group	III
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 3495
Proper shipping name	IODINE
Class	8 (6.1)
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

### Sea transport (IMDG)

UN number	UN 3495
Proper shipping name	IODINE
Class	8 (6.1)
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes

---

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 104760 Version 3.0  
Product name Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

EmS

F-A S-B

---

**SECTION 15. Regulatory information**

**United States of America**

**SARA 313**

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 302**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

**DEA List I**

Listed

*Ingredients*

Iodine

7553-56-2

**DEA List II**

Not listed

**US State Regulations**

**Massachusetts Right To Know**

*Ingredients*

Iodine

**Pennsylvania Right To Know**

*Ingredients*

Iodine

**New Jersey Right To Know**

*Ingredients*

Iodine

**California Prop 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

---

**SECTION 16. Other information**

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number  
Product name

104760  
Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

Version 3.0

## Training advice

Provide adequate information, instruction and training for operators.

## Labeling

### Hazard pictograms



### Signal Word

Danger

### Hazard Statements

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 Statements

#### Prevention

P273 Avoid release to the environment.

#### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
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.

### Full text of H-Statements referred to under sections 2 and 3.

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 swallowed.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 07/29/2015

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

104760

Version 3.0

Product name

Iodine purified by sublimation suitable for use as excipient EMPROVE® exp Ph  
Eur,BP,USP

---

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

*All rights reserved. Millipore and the "M" Mark are registered trademarks of Merck KGaA, Darmstadt, Germany.*