

Creation Date Oct-2013

Revision Date Oct-2018

Revision Number 2

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description: Iodine
Product Grade: SQ, ER
Cat No. : Q15474, Q24904, Q24908, Q24900
CAS-No 7553-56-2
EC-No. 231-442-4
Molecular Formula I2
Reach Registration Number 01-2119485285-30

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

Recommended Use Laboratory chemicals.
Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category PC21 - Laboratory chemicals
Process categories PROC15 - Use as a laboratory reagent
Environmental release category ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company Thermo Fisher Scientific India Pvt. Ltd
 403-404, B-wing, Delphi, Hiranandani Business Park,
 Powai, Mumbai 400076, INDIA.
E-mail address laboratorysolutions@thermofisher.com
Emergency telephone number India Toll Free: 18 00 22 22 30
 Chemtrec US: (800)424-9300
 Chemtrec EU: 001(202)483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Substances/mixtures corrosive to metal Category 1

Health hazards

Acute oral toxicity Category 4
 Acute dermal toxicity Category 4
 Acute Inhalation Toxicity - Dusts and Mists Category 4
 Skin Corrosion/irritation Category 2
 Serious Eye Damage/Eye Irritation Category 2
 Specific target organ toxicity - (single exposure) Category 3
 Specific target organ toxicity - (repeated exposure) Category 1

Environmental hazards

Acute aquatic toxicity Category 1

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2.2. Label elements



Signal Word

Danger

Hazard Statements

- H290 - May be corrosive to metals
- H302 - Harmful if swallowed
- H312 - Harmful in contact with skin
- H332 - Harmful if inhaled
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation
- H372 - Causes damage to organs through prolonged or repeated exposure
- H400 - Very toxic to aquatic life

Precautionary Statements

- P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
- P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
- P304 + P340 - IF INHALED: Remove 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
- P312 - Call a POISON CENTER or doctor/ physician if you feel unwell
- P273 - Avoid release to the environment

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)
Lachrymator (substance which increases the flow of tears)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Iodine	7553-56-2	EEC No. 231-442-4	>95	Met. Corr. 1 (H290) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Acute 1 (H400)

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Full text of Hazard Statements: see section 16

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SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

No information available.

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

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

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

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products

Hydrogen iodide.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and inhalation of vapors. Do not breathe dust/fume/gas/mist/vapors/spray.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for

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additional ecological information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store in metal containers. Keep at temperatures below 25°C.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Iodine		STEL: 0.1 ppm 15 min STEL: 1.1 mg/m ³ 15 min	STEL / VLCT: 0.1 ppm. STEL / VLCT: 1 mg/m ³ .	TWA: 0.01 ppm 8 uren TWA: 0.1 mg/m ³ 8 uren STEL: 0.1 ppm 15 minuten STEL: 1 mg/m ³ 15 minuten	STEL / VLA-EC: 0.1 ppm (15 minutos). STEL / VLA-EC: 1 mg/m ³ (15 minutos).

Component	Italy	Germany	Portugal	The Netherlands	Finland
Iodine		Haut			STEL: 0.1 ppm 15 minuutteina STEL: 1.1 mg/m ³ 15 minuutteina lho

Component	Austria	Denmark	Switzerland	Poland	Norway
Iodine	Haut MAK-KZW: 0.1 ppm 15 Minuten MAK-KZW: 1 mg/m ³ 15 Minuten MAK-TMW: 0.1 ppm 8 Stunden MAK-TMW: 1 mg/m ³ 8 Stunden	Ceiling: 0.1 ppm Ceiling: 1 mg/m ³	Haut/Peau STEL: 0.1 ppm 15 Minuten STEL: 1 mg/m ³ 15 Minuten TWA: 0.1 ppm 8 Stunden TWA: 1 mg/m ³ 8 Stunden	STEL: 1 mg/m ³ 15 minutach TWA: 0.5 mg/m ³ 8 godzinach	Ceiling: 0.1 ppm Ceiling: 1 mg/m ³

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	Ceiling: 0.1 ppm Ceiling: 1 mg/m ³				
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Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Iodine	TWA: 3.0 mg/m ³	STEL-KGVI: 0.1 ppm 15 minutama. STEL-KGVI: 1.1 mg/m ³ 15 minutama.	STEL: 0.1 ppm 15 min STEL: 1 mg/m ³ 15 min		TWA: 0.1 mg/m ³ 8 hodinách. Ceiling: 1 mg/m ³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Iodine	Ceiling: 0.1 ppm Ceiling: 1 mg/m ³		STEL: 0.1 ppm STEL: 1 mg/m ³ TWA: 0.1 ppm TWA: 1 mg/m ³	STEL: 1 mg/m ³ 15 percekben. CK TWA: 1 mg/m ³ 8 órában. AK lehetséges borön keresztül felszívódás	STEL: 0.1 ppm STEL: 1 mg/m ³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Iodine	TWA: 1 mg/m ³	Ceiling: 0.1 ppm Ceiling: 1 mg/m ³			TWA: 0.09 ppm 8 ore TWA: 0.50 mg/m ³ 8 ore STEL: 0.2 ppm 15 minute STEL: 1 mg/m ³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Iodine	Skin notation MAC: 1 mg/m ³	Ceiling: 1.1 mg/m ³ TWA: 0.1 ppm TWA: 1.1 mg/m ³	TWA: 0.1 ppm 8 urah TWA: 1.1 mg/m ³ 8 urah Koža STEL: 0.1 ppm 15 minutah STEL: 1.1 mg/m ³ 15 minutah	CLV: 0.1 ppm CLV: 1 mg/m ³	

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

MDHS70 General methods for sampling airborne gases and vapours

Derived No Effect Level (DNEL) See table for values

<u>Route of exposure</u>	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation	1 mg/m ³	0.01 mg/kg/day 1 mg/m ³		0.01 mg/kg/day 0.07 mg/m ³

Predicted No Effect Concentration (PNEC) See values below.

Fresh water	18.13 ug/l
Fresh water sediment	3.99 mg/kg
Marine water	60.01 ug/l
Marine water sediment	20.22 mg/kg
Microorganisms in sewage treatment	11.0 mg/kg
Soil (Agriculture)	5.95 mg/kg

8.2. Exposure controls

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Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)
Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

Skin and body protection Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Grey	
Physical State	Solid	
Odor	pungent	
Odor Threshold	No data available	
pH	5.1	saturated solution
Melting Point/Range	113 °C / 235.4 °F	
Softening Point	No data available	
Boiling Point/Range	185 °C / 365 °F	@ 760 mmHg
Flash Point	No information available	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	0.41 hPa @ 25 °C	
Vapor Density	8.8	(Air = 1.0)
Specific Gravity / Density	No data available	
Bulk Density	~ 2100 kg/m ³	

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Water Solubility	0.3 g/L (20°C)	practically insoluble
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Iodine	2.49	
Autoignition Temperature		
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	No information available	

9.2. Other information

Molecular Formula	I ₂
Molecular Weight	253.81

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization

Hazardous polymerization does not occur.

Hazardous Reactions

None under normal processing.

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Excess heat.

10.5. Incompatible materials

Strong oxidizing agents. Powdered metals. Ammonia. Alcohols. copper.

10.6. Hazardous decomposition products

Hydrogen iodide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral	Category 4
Dermal	Category 4
Inhalation	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Iodine	315 mg/kg (Rat)	1425 mg/kg (Rabbit)	4.588 mg/L 4h (Rat)

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory	Based on available data, the classification criteria are not met
Skin	Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

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- (f) **carcinogenicity;** Based on available data, the classification criteria are not met
There are no known carcinogenic chemicals in this product
- (g) **reproductive toxicity;** Based on available data, the classification criteria are not met
- (h) **STOT-single exposure;** Category 3
Results / Target organs Respiratory system.
- (i) **STOT-repeated exposure;** Category 1
Target Organs Thyroid.
- (j) **aspiration hazard;** Not applicable
Solid
- Symptoms / effects, both acute and delayed** No information available

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Iodine	LC50 = 1.67 mg/L 96h	EC50 = 0.55 mg/L 48h		

12.2. Persistence and degradability

Persistence Degradability Degradation in sewage treatment plant

Persistence is unlikely.
Not relevant for inorganic substances.
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Iodine	2.49	No data available

12.4. Mobility in soil

Spillage unlikely to penetrate soil. Is not likely mobile in the environment due its low water solubility.

12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Other adverse effects

Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

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

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products

Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but

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Other Information application specific.
Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN3495
14.2. UN proper shipping name IODINE
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 6.1
14.4. Packing group III

ADR

14.1. UN number UN3495
14.2. UN proper shipping name IODINE
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 6.1
14.4. Packing group III

IATA

14.1. UN number UN3495
14.2. UN proper shipping name IODINE
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 6.1
14.4. Packing group III

14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Iodine	231-442-4	-		X	X	-	X	-	X	X	X

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Iodine	WGK 1 WGK 2	

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

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

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

FSUI0500

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A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full Text of H-/EUH-Statements Referred to Under Section 3

H290 - May be corrosive to metals
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H332 - Harmful if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life

Legend

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances	DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances	ENCS - Japanese Existing and New Chemical Substances
IECS - Chinese Inventory of Existing Chemical Substances	AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances	NZIoC - New Zealand Inventory of Chemicals
WEL - Workplace Exposure Limit	TWA - Time Weighted Average
ACGIH - American Conference of Governmental Industrial Hygienists	IARC - International Agency for Research on Cancer
DNEL - Derived No Effect Level	PNEC - Predicted No Effect Concentration
RPE - Respiratory Protective Equipment	LD50 - Lethal Dose 50%
LC50 - Lethal Concentration 50%	EC50 - Effective Concentration 50%
NOEC - No Observed Effect Concentration	POW - Partition coefficient Octanol:Water
PBT - Persistent, Bioaccumulative, Toxic	vPvB - very Persistent, very Bioaccumulative
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road	ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code	MARPOL - International Convention for the Prevention of Pollution from Ships
OECD - Organisation for Economic Co-operation and Development	ATE - Acute Toxicity Estimate
BCF - Bioconcentration factor	VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

First aid for chemical exposure, including the use of eye wash and safety showers.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

Chemical incident response training.

Creation Date	Oct-2013
Next Revision Date	Oct-2023
Revision Summary	SDS section 1 updated and update of Format

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

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet