Samrat Pharmachem Limited

Manufacturers & Exporters of Pharmaceutical Chemicals

SAFETY DATA SHEET

Version: 2.0
Revision Date: 01/01/2022

1. PRODUCT AND COMPANY IDENTIFICATION

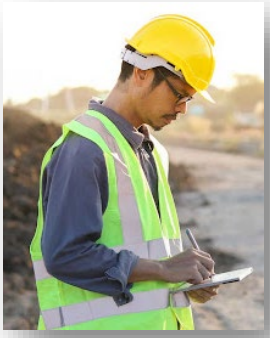
1.1	**Product identifiers**		
i	Product Name	:	**Iodine**
ii	Chemical Formula	:	I_2
iii	CAS No.	:	7553-56-2
iv	EC No.	:	231-442-4
v	HSN Code	:	28012000
vi	Hazardous	:	Yes
vii	Content	:	Minimum 99.5%
viii	Appearance	:	Prills with a metallic shine
1.2	**Relevant identified uses of the substance**		
i	Identified uses	:	Laboratory chemicals, Food, Drug, Pesticide, Biocidal product use.
1.3	**Details of Manufacturer**		
i	Company	:	**Samrat Pharmachem Limited**
ii	Address	:	Plot No. A2/3445, GIDC, Phase 4, Ankleshwar – 393002, Gujarat, India.
iii	Phone	:	+91-7045456789 / 7046456789
iv	Email	:	contact@samratpharmachem.in
v	Webpage	:	www.samratpharmachem.com
1.4	**Emergency Number**		
	Emergency Phone	:	+91-7045456789 / 7046456789

2. HAZARD IDENTIFICATION

2.1	**Classification of substance**			
	GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)			
i	H302	Acute Oral Toxicity	:	Harmful if swallowed (Category 4)
ii	H311	Acute Dermal Toxicity	:	Toxic; contact with skin (Category 4)
iii	H332	Acute Inhalation Toxicity	:	Harmful if Inhaled (Category 4)
iv	H315	Skin Corrosion / Irritation	:	Causes skin irritation (Category 2)
v	H319	Eye Irritation	:	Causes serious eye irritation (Category 2)

vi	H335	Specific Target Organ Toxicity (Respiratory)	:	May cause respiratory irritation; Single Exposure (Category 3)
vii	H372	Specific Target Organ Toxicity (Oral)	:	Thyroid; Repeated Exposure (Category 1)
viii	H400	Acute Aquatic Hazard	:	Toxic to Aquatic Life (Category 1)
	For full text of H-statements mentioned in this section, see section 16			

2.2	**GHS Label elements, including precautionary statements**		
i	Pictogram	:	
ii	Signal word	:	Danger
iii	Hazard Statement(s)		
	H302 + H312 + 332	:	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 gland) through prolonged or repeated exposure
	H400	:	Very toxic to aquatic life
iv	Precautionary Statement(s)		
	P261	:	Avoid breathing dust / fumes / gas / mist / vapours / spray
	P264	:	Wash exposed skin thoroughly after handling
	P271	:	Use outdoors or in a well-ventilated area
	P273	:	Avoid release to the environment
	P280	:	Wear protective clothing, gloves, eye & face equipment
	P301 + P330 + P331	:	IF SWALLOWED: rinse mouth. DO NOT induce vomiting
	P303 + P361 + P353	:	IF ON SKIN (or hair): Remove all contaminated clothing. Rise skin with water/shower
	P305 + P351 + P338	:	IF IN EYES: Rise cautiously with water for several minutes. Remove contact lenses in present.
	P312	:	Immediately call a poison centre or doctor / physician
	P333 + P313	:	If skin irritation or rash occurs: Get medical advice / attention
	P391	:	Collect spillage
	P405	:	Lock up storage
	P501	:	Disposal of contents / containers to comply with local, state and federal regulations



2.3	Hazards not otherwise classified (HNOC) or not covered by GHS
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.	

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1	Substances		
	Molecular Weight	:	253.81 g/mol
	Constituent Elements	:	I_2

4. FIRST AID MEASURES

4.1	Symptoms		
i	**Most important symptoms and effects, both acute and delayed**		
	Eye Burn / Irritation, Repeated skin exposure can cause absorption which may lead to health hazards, Gastrointestinal complains & Possible inflammation of respiratory track, risk of lung oedema. Ingestion may cause vomiting & blood pressure drop.		
ii	**Indication of any immediate medical attention & special treatment needed**		
	If seeking medical attention, provide SDS document to physician.		
4.2	**Description of first aid measures**		
i	Inhalation	:	If inhaled, move victim to fresh air. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
ii	Ingestion	:	Do NOT induce vomiting unless directed to do so by medical personnel. Rinse mouth out with water. If you feel still feel unwell, immediately make victim drink a slurry of activated charcoal in water (two glasses at most). Consult a doctor.
iii	Skin contact	:	Take off immediately all contaminated clothing. Wash skin with plenty of water. Cover the irritated skin with an emollient If skin irritation occurs: Get medical advice/attention.
iv	Eye contact	:	Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. If eye irritation persists: Get medical advice/attention.

5. FIRE FIGHTING MEASURES

5.1	Extinguishing media		
i	Suitable extinguishing agents	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
ii	Special hazards arising from the substance or mixture	:	Ignition on contact with bromine, chlorine trifluoride, aluminum-titanium alloys + heat, metal acetylides, sodium phosphinate. Incandescent reaction with cesium oxide (above 150 deg C), bromine trifluoride, metal acetylides or carbides [e.g. barium acetylide (above 122 deg C), calcium acetylide (above 305 deg C), strontium acetylide (above 182 deg C), zirconium acetylide (above 400 deg C)]. Magnesium burns vigorously when heated with iodine vapor. Iodine unites with fluorine at ordinary temperature with a luminous flame
iii	Special remarks on Explosion Hazard	:	Explosive reactions with iodine and: hafnium powder + heat; tetraamine copper (II) sulfate + ethanol; trioxygen difluoride; polyacetylene (at 113 deg. C); potassium; sodium; butadiene + ethanol +mercuric oxide
iv	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.
v	Additional 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.

6. ACCIDENTAL RELEASE MEASURES

6.1	Personal precautions, protective equipment & emergency procedures
	Wear protective equipment. Use respiratory protective device against the effects of fumes/dust/aerosol. Keep unprotected persons away. Ensure adequate ventilation. Do not touch or walk on spilled product.
6.2	**Environmental precautions**
	Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dyke if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the SDS and with local authorities.

6.3	Methods and material for containment and cleaning up
	Cover drains. Cover spill with non-combustible material e.g. sand, mud & vermiculite. Observe possible material restrictions (see sections 7 and 10). Use gloves to take up dry. Dispose-off properly. Clean up affected area carefully.
6.4	**Reference to other sections**
	For disposal see section 13

7. HANDLING AND STORAGE

7.1	Precautions for safe handling
	Avoid contact with skin and eyes do not inhale substance mixture. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from incompatibles such as oxidizing agents, reducing agents, metals and metallic powders. Keep away from flames / extreme heat. For precautions see section 2.2.
7.2	**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. Recommended storage temperature see the product label. Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects. Do not pack material in metals, steel, iron or zinc.
7.3	**Specific end use(s)**
	Apart from the uses mentioned in section 1.2 the product has applications in the following industries X-ray contrast agents, Antimicrobial agents, LCD Polarizer, Industrial catalysts, Animal feed, Edible Salt & as a Stabiliser in tyres & airbags.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1	Control Parameters		
i	Ingredients with workplace control parameters		
	Predicted no effect concentration (PNEC)		
	Particulars	**Value**	**Exposure Time**
(a)	Fresh Water	0.01813 mg / l	short-term (single instance)
(b)	Sea Water	0.06001 mg / l	short-term (single instance)
(c)	Sewage treatment plant	11 mg / l	short-term (single instance)
(d)	Fresh water sediment	3.99 mg / kg	short-term (single instance)
(e)	Sea sediment	20.22 mg / kg	short-term (single instance)
(f)	Soil	5.95 mg / kg	short-term (single instance)
ii	*Derived no effect level (DNEL's)*		
(a)	Worker (Industry)	0.07 mg/m^3	chronic - systemic effects
(b)	Worker (Industry)	0.01 mg/kg bw/day	chronic - systemic effects

8.2	Exposure Controls
i	*Appropriate engineering controls*
	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
ii	*Personal protective equipment*
(a)	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
(b)	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.
(c)	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.
(d)	Respiratory protection
	For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
(e)	Control of environmental exposure
	Do not let product enter drains.

9. PHYSICAL & CHEMICAL PROPERTIES

Appearance	Form: Solid Colour: Violet with metallic shine (Dark)	**Flammability**	Product is not flammable
Odour	Pungent	**Vapour pressure**	0.233 mm Hg @ 25° C (77° F)
Odour threshold	0.85 ppm / 9 mg/m^3	**Relative vapour density at 20°C**	8.8
pH-value	Not Applicable	**Relative density**	Not determined
Melting/Freezing point	113.5° C (236.3° F)	**Solubilities**	0.3 g/l @ 25° C (77° F)
Boiling point	184.4° C (363.92° F)	**Partition coefficient (n-octanol/water)**	2.49 (Log Kow)

Flash Point	Not determined	**Auto/Self-ignition temperature**	Not determined
Evaporation rate	Not determined	**Decomposition temperature**	Not determined
Flammability	Not determined	**Viscosity**	Not determined
Density	4930 kg/m^3) at 20° C (77° F)	**Poison Class**	Not determined

10. STABILITY & REACTIVITY

(a)	Reactivity	:	Non-reactive under normal conditions. Reacts (slowly) with some metals
(b)	Chemical stability	:	If kept under long exposure to air the material shall evaporate releasing violet fumes. No decomposition if used and stored according to specifications.
(c)	Possible hazardous reactions	:	None under normal processing. Can react violently on contact with incompatibles
(d)	Conditions to avoid	:	Avoid high temperatures exposure to direct sunlight, & avoid contact with incompatible materials
(e)	Incompatible material	:	Strong reducing agents, metals, metallic powder & strong oxidisers
(f)	Hazardous decomposition products	:	Risk of explosion with: Reducing agents, alkali metals, acetylene, ammonia, potassium, copper compounds, sodium, oxyhalogenic compounds, boron, halogen oxides, iodides & azides. Risk of ignition or formation of inflammable gases with: Powdered metals, zinc, semimetals, halogen compounds, non-metallic oxides, formaldehyde, hydrides, sodium phosphite, phosphorus, sulfur, titanium, powdered magnesium, petrol & butadiene. Exothermic reaction with: Carbides, turpentine oils, alkaline oxides, nitrides, acetaldehyde, lithium, fluorides, oxides of phosphorus, chlorine & iron in powder form.

11. TOXCICOLOGICAL INFORMATION

11.1	**Information on toxicological effects**		
	Oral	LD50 Rat	315 mg/kg
	Dermal	LD50 Rabbit	1425 mg/kg
	Inhalation	LC50 Rat (Dust / Mist)	4.558 mg/l/4h
	Additional Information:	Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. (OECD 403 method)	
11.2	**Corrosion Irritation**		
	Serious eye damage / irritation		Causes serious eye irritation pH: Not applicable
	Respiratory or skin irritation		Did not cause sensation. Mouse (OECD 429 test method)
	Germ cell mutagenicity		Mutagenicity tests are negative (OECD 476 test method)
	Carcinogenicity		Did not show carcinogenic effects in experiments
	Reproductive Toxicity		Not classified (OECD 422 test method)
11.3	**Additional information**		
i	No observed adverse effect level (NOAEL)		
	Particulars		**Value**
	Animal / male, F0/P) Single exposure		10 mg/kg
	Animal / female, F0/P) Single exposure		10 mg/kg
	Specific target organ toxicity (STOT) Single exposure		Category 3: Inhalation of vapours may cause respiratory irritation
	Rat: Oral ~ 90 days		0.375 mg/kg bodyweight / day Thyroid affection
	Thyroid Gland, Chronic, Oral, Human: Systematic		= 0.01 mg/kg bodyweight / day
	Specific target organ toxicity (STOT) Repeated exposure		Category 1: Thyroid affection
ii	Aspiration Hazard		Not classified
iii	Viscosity, Kinematic		Not applicable
iv	Protentional adverse human health effects and symptoms include irritation to eyes, skin & respiratory track, Risk of lung oedema, may cause gastrointestinal irritation, nausea, vomiting and diarrhoea, Thyroid enlargement / affection		

12. ECOLOGICAL INFORMATION

12.1	Toxicity		
i	**Particulars**	**Type**	**Value**
	Fish LC50	Oncorhynchus mykiss (rainbow trout)	1.67 mg/l
	Crustacea LC 50	Daphnia magna (planktonic crustacean)	0.55 mg/l, 48 hours
	Other aquatic invertebrates ErC 50	Algae	0.13 mg/l
ii	Ecology – general	Very toxic to aquatic life. Before neutralisation, the product may represent a danger to aquatic organisms	
iii	Ecology – air	Not dangerous for the ozone layer	
iv	Hazardous to aquatic environment – short term (acute)	Very toxic to aquatic life	
v	Hazardous to aquatic environment – long term (chronic)	Not classified	

12.2	Persistence and degradability	
(a)	Persistence and degradability	Biodegradability
(b)	Biodegradation	Not applicable

12.3	Bio accumulative potential	
(a)	BCF – Other aquatic organisms	0.027 BCF
(b)	Partition coefficient n-octanol/water (Log Kow)	2.49
(c)	Bioaccumulative potential	Low bioaccumulation potential

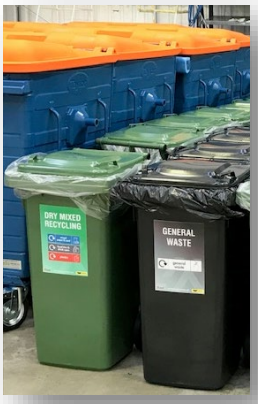
12.4	Mobility in Soil	
(a)	Partition coefficient n-octanol/water (Log Koc)	0.47 – 1.64

12.5	Results of PBT and vPvB assessment
	No data available

12.6	Other adverse effects
	Not known

13. DISPOSAL CONSIDERATIONS

13.1	Waste disposal recommendation's	
i	General instructions	
	This material, containers & non-recyclable solutions should be offered to a licensed disposal company. Dispose of contents/container in accordance with licensed collectors sorting instructions. Dispose in a safe manner in accordance with local/national regulations. Do not discharge into drains.	
ii	Product / Packaging disposal recommendations	
	Avoid release to the environment	
iii	European list of waste (LoW) code	
	Code	**Content**
	18 01 06*	Chemicals consisting of or containing dangerous substances
	15 01 10*	Packaging containing residues of or contaminated by dangerous substances



14. TRANSPORT INFORMATION

14.1	In accordance with ADR / IMDG / IATA / ADN / RID				
	ADR	**IMDG**	**IATA**	**ADN**	**RID**
i	UN Number				
	UN 3495	UN 3495	UN 3495	UN 3495	UN 3495
ii	UN proper shipping name				
	IODINE	IODINE	IODINE	IODINE	IODINE
iii	Transport hazard class				
	8 (6.1)	8 (6.1)	8 (6.1)	8 (6.1)	8 (6.1)
iv	Hazardous class symbols				
					
v	Packing group				
	III	III	III	III	III
vi	Environment hazards: Dangerous for the environment				
	Yes	Yes	Yes	Yes	Yes
vii	Marine Pollutant				
	Not applicable	Yes	Not applicable	Not applicable	Not applicable

14.2	**Special precautions for user**	
i	Overland Transport	
(a)	Classification code (ADR)	CT2
(b)	Special provisions (ADR)	279
(c)	Orange plates	
ii	Transport by sea	
	Special provisions (IMDG)	279
iii	Air transport	
(a)	Transport regulations (IATA)	Subject to the provisions
(b)	Special provisions (IATA)	A113, A803
iv	Inland waterway transport	
(a)	Classification code (ADN)	CT2
(b)	Special provisions	279, 802
v	Rail Transport	
	Special provision (RID)	279
14.3	**Transport in bulk according to annexure II of Marpol and the IBC Code**	
	IBC Code	Not applicable

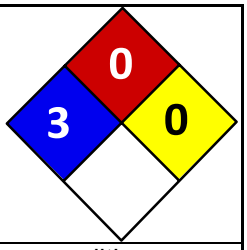
15. REGULATORY INFORMATION

15.1	**EU - Regulations**	
i	No REACH Annexure XVII restrictions	
ii	Iodine is not the REACH Candidate List	
iii	Iodine is not on the REACH Annexure XIV List	
iv	Iodine is not subject to Regulations (EU) No. 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals	
v	Iodine is not subject to Regulation (EU) No. 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants	
15.2	**National Regulations (Listed on)**	
i	**AICS**	Australian Inventory of Chemical Substances
ii	**Canadian DSL**	Canadian Domestic Substances List
iii	**Canadian IDL**	Ingredient Disclosure List
iv	**IECSC**	Inventory of Existing Chemical Substances Produced or Imported in China
v	**EINECS**	European Inventory of Existing Commercial Chemical Substances

vi	**KECL/KECI**	Korean Existing Chemicals Inventory
vii	**NZIoC**	New Zealand Inventory of Chemicals
viii	**PICCS**	Philippines Inventory of Chemicals & Chemical Substances
ix	**US TSCA**	United States Toxic Substances Control Act
x	**JPDSC**	Japanese Poisonous and Deleterious Substances Control Law
xi	**INSQ**	Mexican National Inventory of Chemical Substances
xii	**TIC**	Turkish Inventory of Chemicals

16. OTHER INFORMATION

16.1 NFPA Rating



i	Health hazard	:	3 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
ii	Fire hazard	:	0 - Materials that will not burn under typical dire conditions, including intrinsically non-combustible materials such as concrete, stone, and sand.
iii	Reactivity	:	0 - Material that in themselves are normally stable, even under fire conditions.

16.2 HMIS Rating

i	Health	:	3 - Moderate Hazard - Temporary or minor injury may occur
ii	Flammability	:	0 - Minimal Hazard - Materials that will not burn
iii	Physical	:	0 - Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.
vi	Personal Protection	:	J - Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

16.3 Further Information

The above information is derived from the available literature & believed to be correct but may not be complete & conclusive. The company shall not be

	responsible for any damage resulting from handling or usage of the product. The information shall be used only as a guide.
16.4	**Preparation Information**
	Samrat Pharmachem Limited
	Plot No. A2/3445, GIDC, Phase 4, Ankleshwar – 393002, Gujarat, India. Phone: +91-7045456789, +91-7046456789 Email: contact@samratpharmachem.in Website: www.samratpharmachem.com
	Version: 2.0		*Revision Date: 01/01/2022*

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