Chemgenes India Private Limited
simplifying the complex

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

Material Safety Data Sheet

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Oxidizer
Chemical Name: Oxidation solution 0.05M
Catalog Number: DN-3307-C
Synonym/Trade Name: Oxidizer; I2 (Iodine) solution, 0.05M IODINE IN PYRIDINE AND WATER, 90:10)

Company Name
ChemGenes India Pvt. Ltd
207, Regency Plaza, 5-Park Road
Lucknow-226 001,U.P, India,
Ph: +91 86874 21036,
Email: info@chemgenesindia.com

SECTION 2. COMPOSITION, INFORMATION ON INGREDIENTS

Component: Pyridine
CAS#: 110-86-1
EC # (EINECS): N/A
Percentage: 89-91%
M.W.: 79.11

Component: Iodine
CAS#: 7553-56-2
EC # (EINECS): N/A
Percentage: <1%
M.W.: 126.90

Component: Water
CAS#: 7732-18-5
EC # (EINECS): N/A
Percentage: 9-11%

SECTION 3. HAZARDS IDENTIFICATION

Classification:
Flammable Liquids: GHS Category 2
Acute Toxicity, Inhalation: GHS Category 4
Acute Toxicity, Dermal: GHS Category 4
Acute Toxicity, Oral: GHS Category 4

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

Serious Eye Damage: GHS Category 2A

Label Elements
Signal Word: DANGER!

Hazard Statements:
H225 – Highly flammable liquid and vapor.
H302 – Harmful if swallowed.
H312 – Harmful in contact with skin.
H316 – Causes mild skin irritation.
H318 – Causes serious eye damage.
H332 – Harmful if inhaled.

Precautionary Statements:
P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P243 – Take precautionary measures against static discharge.
P280 – Wear protective gloves/clothing/eye protection/face protection.
P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Emergency Overview
Causes severe eye and skin irritation with possible burns. May be harmful if swallowed, inhaled, or absorbed through the skin. Causes respiratory tract irritation. Stench. May cause central nervous system depression. Highly flammable liquid and vapor! Iodine is an oxidizer. Target Organs: Blood, kidneys, central nervous system, liver, eyes, skin, and mucous membranes.

HMIS Rating:
Health – 2* Flammability – 3 Physical Hazard – 0 PPE – User supplied
NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

SECTION 4. FIRST-AID MEASURES
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Do not induce vomiting unless directed to by medical personnel. If vomiting occurs naturally, have victim lean forward. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact: Remove any contaminated clothing. Wash skin with plenty of water for at least 15 minutes. Get medical attention. Wash clothing before reuse.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical help immediately.
Notes to Physician: Treat symptomatically and supportively.

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

SECTION 5. FIRE FIGHTING MEASURES

Flammability: Highly flammable liquid and vapor (GHS Category 2)
Auto-ignition Temperature: 482o C (899.6o F)
Flash Point: 17o C (62.6o F)
Flammable Limits: Lower Limit – 1.8 vol %, Upper Limit – 12.4 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (nitrogen oxides, carbon monoxide, and carbon dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Vapors may form explosive mixtures with air. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Specific Explosion Hazards: Not available.

Fire Fighting Media: Solid streams of water may be ineffective and spread the fire. Use dry chemical, carbon dioxide, water spray, or alcohol-resistant foam. For larger fires, use water spray, fog, or alcohol-resistant foam. Cool containers with flooding quantities of water and well after fire is out.
National Fire Protective Association: (Estimated) Health - 3, Flammability - 3, Reactivity - 1

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Evacuate unnecessary personnel and approach the spill from upwind. Pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8. Collect run-off and isolate for proper disposal.

SECTION 7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away from direct sunlight and all sources of ignition

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep from contact with oxidizing materials.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits (Pyridine):
ACGIH – 1 ppm TWA;
NIOSH – 5 ppm TWA; 15 mg/m3 TWA; 1000 ppm IDLH
OSHA Final PELs – 5 ppm TWA; 15 mg/m3 TWA

Exposure Limits (Iodine):
ACGIH – 0.1 ppm ceiling;
NIOSH – 0.1 ppm TWA; 1 mg/m3 TWA; 2 ppm IDLH
OSHA Final PELs – 0.1 ppm TWA; 1 mg/m3 TWA

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance:	Colorless to dark yellow liquid
Odor:	Strong, penetrating odor – fish-like, nauseating stench
Odor Threshold:	0.4 to 20 ppm for pyridine
Auto-ignition Temperature:	482 °C (899.6° F)
Flash Point:	17 °C (62.6 °F)
Flammable Limits:	Lower Limit – 1.8 vol %, Upper Limit – 12.4 vol %
pH:	8.5 to 11.5
Boiling Point:	115 °C @ 760 mm Hg (Pyridine)
Freezing/Melting Point:	-42 to -60 °C
Decomposition Temperature:	Not available
Specific Gravity:	0.9780 to 1.035 g/cm3
Vapor Density (Air=1):	2.73
Density:	0.983 g/cm3
Vapor Pressure:	0.4 to 40.9 mm Hg @ 20°C.

Evaporation Rate (Butyl acetate = 1): Not available

Viscosity:	0.95 mPa at 20°C
Solubility:	Soluble

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressure.
Conditions to Avoid: Incompatible materials, ignition sources, excess heat, and confined spaces.
Incompatibility With Various Substances: Strong oxidizing agents, acids, ammonia, powdered metals, alkali metals, carbon dioxide.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, irritating and toxic fumes.
Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact
Acute Exposure Hazards:
INHALATION HAZARD: Inhalation of high concentrations may cause central nervous effects characterized by nausea, headache, dizziness, unconsciousness, and coma. Causes respiratory tract irritation. Prolonged exposure may result in dizziness and general weakness. Other symptoms reported with acute exposure to pyridine nervousness, insomnia, and loss of appetite.

INGESTION HAZARD: May cause gastrointestinal irritation with nausea, vomiting, and diarrhea. May cause liver and kidney damage. May cause central nervous system depression with excitement followed by headache, drowsiness, nausea, and vomiting. Advanced stages may cause collapse, unconsciousness, coma, and possible death. Effects may be delayed.

SKIN CONTACT HAZARD: Causes skin irritation. May be harmful if absorbed through the skin. Effects may be delayed. May cause smarting of the skin and first-degree burns after short exposure. Material is readily absorbed through the skin. Pyridine was determined not to be a skin sensitizer in guinea pigs.

EYE CONTACT HAZARD: Contact may cause severe eye irritation and possible burns.
Chronic Exposure Hazards: Repeated or prolonged exposure may cause dermatitis. Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause liver and kidney damage. Exposures to pyridine that are too low to produce overt clinical symptoms can cause liver damage and repeated low-level exposures can cause cirrhosis. Feeding studies in rates produced blood effects like changes in clotting factors.

Animal Toxicity (Pyridine):
Draize test, rabbit, skin: 500 mg/24H Mild; Inhalation, rat: LC50 = 28,500 mg/m3/1H;
Oral, mouse: LD50 = 1500 mg/kg;
Oral, rat: LD50 = 891 mg/kg; Skin, rabbit: LD50 = 1121 mg/kg; Skin, rabbit: LD50 = 1 g/kg;

Animal Toxicity (Iodine):
Oral, rat: LD50 = 14 mg/kg;

Carcinogenicity (Pyridine):
ACGIH: Confirmed animal carcinogen with unknown relevance for humans California: carcinogen, initial date 5/17/02
Not listed as carcinogens by IARC and NTP.

Epidemiology: No information found.

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

Teratogenicity: Pyridine cause muscle/skeleton effects when injected into developing chickens but was not teratogenic in frogs at sub lethal doses. The relevance of these studies to human reproduction is unclear.
Reproductive Effects (Iodine): LDLo: 28 mg/kg; Investigated as a reproductive effector

Mutagenicity: Pyridine's mutagenicity potential is equivocal. It was reported to be both positive and negative in Salmonella typhimurium strains. It was not mutagenic in tests for chromosome aberrations, but it did give weak positive results in tests that detect sister chromatid exchanges.
Neurotoxicity: No information found.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity (Pyridine):
Fish: Fathead minnow: LC50 = 106 mg/L, 96H, flow-through, no data available.

Environmental Fate (Pyridine):
Terrestrial: Should have very high mobility. It is absorbed to acid clay to a moderate extent. Complete degradation in one soil occurred in less than 8 days.
Aquatic: Should biodegrade after an acclimation period and can be lost through volatization.
Atmospheric: Exists in vapor phase based on a vapor pressure of 20.8 mm Hg and reacts slowly with photochemically produced hydroxyl radicals with experimental half-lives of 32 and 16 days in clean and moderately polluted atmospheres, respectively. Bioconcentration in aquatic animals should not be significant.

SECTION 13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is a "U" listed waste (Pyridine - U196).

SECTION 14. TRANSPORT INFORMATION

US DOT

Proper Shipping Name:	Flammable liquid, n.o.s. (Pyridine)
Hazard Class:	3
UN Number:	UN1993
Packing Group:	II

IMDG

Proper Shipping Name:	Flammable liquid, n.o.s. (Pyridine)
Hazard Class:	3
UN Number:	UN1993
Packing Group:	II

IATA

Proper Shipping Name:	Flammable liquid, n.o.s. (Pyridine)
Hazard Class:	3
UN Number:	UN1993

207, Regency Plaza, 5-A, Park Road,
Lucknow-226001, U.P India
Ph: +91-86874 21036
Email: chemgenesindia@gmail.com

Packing Group: II

SECTION 15. REGULATORY INFORMATION

US Federal Regulations:
CERCLA Hazardous Substances: CAS# 110-86-1– 1000 lb/454 kg final RQ SARA Section 302: Does not have a TPQ
SARA Codes: CAS# 110-86-1– immediate, delayed, fire; CAS# 7553-56-2 – acute, chronic, fire
Section 313: CAS# 110-86-1 is subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements. OSHA: Not considered highly hazardous by OSHA.
US State Regulations:
Components can be found on the following state right-to-know lists: New Jersey, Pennsylvania, and Massachusetts
California Prop 65: This product contains pyridine, a chemical known to the State of California to cause developmental reproductive toxicity.

SECTION 16. OTHER 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. ChemGenes India Pvt. Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product.
