



MATHESON

ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE

SDS ID: MAT11440

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

IODINE PENTAFLUORIDE

Synonyms

MTG MSDS 145; IODINE FLUORIDE (IF5); PENTAFLUOROIODINE; UN 2495; F5I

Chemical Family

Fluoride, inorganic

Product Use

Industrial and Specialty Gas Applications.

Restrictions on Use

None known.

Details of the supplier of the safety data sheet

MATHESON TRI-GAS, INC.

150 Allen Road, Suite 302

Basking Ridge, NJ 07920

General Information: 1-800-416-2505

Emergency #: 1-800-424-9300 (CHEMTREC)

Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.

Oxidizing Liquids - Category 1

Acute Toxicity - Oral - Category 3

Acute Toxicity - Dermal - Category 3

Acute Toxicity - Inhalation - Dust/Mist - Category 1

Acute Toxicity - Inhalation - Vapor - Category 2

Skin Corrosion/Irritation - Category 1

Serious Eye Damage/Eye Irritation - Category 1

Specific target organ toxicity - Single exposure - Category 3

Specific target organ toxicity - Repeated exposure - Category 2

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

May cause fire or explosion; strong oxidizer.

Fatal if inhaled.

Toxic in contact with skin.

Toxic if swallowed.

Causes severe skin burns and eye damage.

**MATHESON**

ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440**

May cause respiratory irritation.

Causes damage to organs through prolonged or repeated exposure. (skeletal system , teeth)

Precautionary Statement(s)**Prevention**

Keep away from heat.

Keep away from clothing and other combustible materials.

Take any precaution to avoid mixing with combustibles.

Do not breathe vapor or mist.

Use only outdoors or in a well-ventilated area.

Wear fire/flammable resistant/retardant clothing.

Wear respiratory protection.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Response

In case of fire, use media appropriate for extinction.

In case of major fire and large quantities.

Evacuate area and fight fire remotely due to the risk of explosion.

Get medical advice/attention if you feel unwell.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment is urgent, see first aid section of Safety Data Sheet.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash contaminated clothing before reuse.

Immediately call a POISON CENTER or doctor/physician.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor/physician.

IF ON CLOTHING.

Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

Storage

Store in a well-ventilated place.

Keep container tightly closed.

Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Statement(s) of Unknown Acute Toxicity

Dermal 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Oral 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Inhalation 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7783-66-6	IODINE PENTAFLUORIDE	100

**MATHESON**

ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440**

Section 4 - FIRST AID MEASURES

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Eyes

Immediately flush eyes with plenty of water for at least 60 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion

If swallowed, do not induce vomiting. Rinse mouth. Get immediate medical attention.

Most Important Symptoms/Effects**Acute**

respiratory tract burns, skin burns, eye burns, mucous membrane burns

Delayed

fluorosis, bone damage, tooth erosion

Note to Physicians

For inhalation, consider oxygen. Avoid gastric lavage or emesis.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media**

regular dry chemical, soda ash, Lime, Large fires: dry sand, dry chemical, soda ash or lime or withdraw from area and let fire burn.

Unsuitable Extinguishing Media

Do not use water or foam.

Special Hazards Arising from the Chemical

Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Avoid contact with combustible materials. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if possible without personal risk. Reduce vapors with water spray. Avoid allowing water runoff to contact spilled material. Do not get water inside container. Small spills: Cover with DRY earth, sand or other non-combustible material followed by plastic sheet to minimize spreading or contact with rain. Large spills: Do not clean-up or dispose of, except under



Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440**

supervision of a specialist. Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE**Precautions for Safe Handling**

Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. Protect from moisture. Keep away from heat. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear fire/flammable resistant/retardant clothing. Wear respiratory protection. Wear protective gloves/clothing and eye/face protection. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.

Keep container tightly closed.

Store locked up.

Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep container tightly closed. Keep locked up. Keep separated from incompatible substances. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials.

Incompatible Materials

Acids, metals, bases, combustible materials, metal carbide, amines, reducing agents, halo carbons, potassium, sodium, aluminum, TETRAIODOETHYLENE, Benzene, dimethyl sulfoxide, SULFUR, silicon, TETRAFLUOROETHYLENE + LIMONENE, TUNGSTEN

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**Component Exposure Limits**

IODINE PENTAFLUORIDE	7783-66-6
ACGIH:	2.5 mg/m3 TWA asF (related to Fluorides)
NIOSH:	250 mg/m3 IDLH asF (related to Fluorides)
OSHA (US):	2.5 mg/m3 TWA asF (related to Fluorides)
Mexico:	2.5 mg/m3 TWA VLE-PPT asF (related to Fluorides)

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)**IODINE PENTAFLUORIDE (7783-66-6)**

2 mg/l Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific); 3 mg/l Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific) (related to Fluorides)

Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment**Eye/face protection**

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection

Wear appropriate chemical resistant clothing.



Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE

SDS ID: MAT11440

Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. Measurement Element: F. 12.5 mg/m³. Any quarter-mask respirator. 25 mg/m³. Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100. Any supplied-air respirator. 62.5 mg/m³. Any supplied-air respirator operated in a continuous-flow mode. Any powered, air-purifying respirator with a high-efficiency particulate filter. May need acid gas sorbent. 125 mg/m³. Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter. May need acid gas sorbent. Any self-contained breathing apparatus with a full facepiece. Any supplied-air respirator with a full facepiece. 250 mg/m³. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape -. Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter. May need acid gas sorbent. Any appropriate escape-type, self-contained breathing apparatus.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless to yellow liquid	Physical State	liquid
Odor	irritating odor	Color	colorless to yellow
Odor Threshold	Not available	pH	Not available
Melting Point	10 °C (50 °F)	Boiling Point	98 °C (208 °F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not available
Autoignition Temperature	Not available	Flash Point	(No data available)
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	22 mmHg @ 22 °C
Vapor Density (air=1)	Not available	Specific Gravity (water=1)	3.75
Water Solubility	(Reacts violently)	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	Not available



Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440**

Physical Form	fuming liquid	Molecular Formula	I-F5
Molecular Weight	221.9		

Section 10 - STABILITY AND REACTIVITY

Chemical Stability

Reacts violently with water. Releases corrosive gases. Releases toxic gases.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid contact with combustible materials. Keep dry. Dangerous gases may accumulate in confined spaces. Keep out of water supplies and sewers.

Incompatible Materials

Acids, metals, bases, combustible materials, metal carbide, amines, reducing agents, halo carbons, potassium, sodium, aluminum, TETRAIODOETHYLENE, Benzene, dimethyl sulfoxide, SULFUR, silicon, TETRAFLUOROETHYLENE + LIMONENE, TUNGSTEN

Hazardous decomposition products

May decompose on contact with water or moist air. Decomposition products include iodine and hydrofluoric acid.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure**Inhalation**

burns, rash, nausea, diarrhea, stomach pain, difficulty breathing, irregular heartbeat, headache, tingling sensation, visual disturbances, dilated pupils, bluish skin color, paralysis, convulsions, coma, asthma, dizziness, lung congestion, digestive disorders

Skin Contact

burns, rash, nausea, diarrhea, stomach pain, difficulty breathing, irregular heartbeat, headache, tingling sensation, visual disturbances, dilated pupils, bluish skin color, paralysis, convulsions, coma

Eye Contact

burns

Ingestion

burns, rash, nausea, diarrhea, stomach pain, difficulty breathing, irregular heartbeat, headache, tingling sensation, visual disturbances, dilated pupils, bluish skin color, paralysis, convulsions, coma, fluorosis, bone damage, tooth decay

Acute and Chronic Toxicity**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

IODINE PENTAFLUORIDE (7783-66-6)

Oral LD50 Rat 146 mg/kg

Product Toxicity Data**Acute Toxicity Estimate**

Inhalation - Vapor	0.5 mg/L
Oral	146 mg/kg

Immediate Effects

respiratory tract burns, eye burns, skin burns, mucous membrane burns

Delayed Effects



Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440**

fluorosis, bone damage, tooth decay

Irritation/Corrosivity Data

respiratory tract burns, skin burns, eye burns, mucous membrane burns

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity

IODINE PENTAFLUORIDE	7783-66-6
ACGIH:	A4 - Not Classifiable as a Human Carcinogen (related to Fluorides)

Germ Cell Mutagenicity

No data available.

Tumorigenic Data

No data available

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity - Single Exposure

Respiratory system

Specific Target Organ Toxicity - Repeated Exposure

skeletal system, teeth

Aspiration hazard

No data available.

Medical Conditions Aggravated by Exposure

central nervous system disorders, bone, joint or tooth disorders, eye disorders, kidney disorders, respiratory disorders, skin disorders and allergies

Additional Data

May cross the placenta. May be excreted in breast milk.

Section 12 - ECOLOGICAL INFORMATION**Component Analysis - Aquatic Toxicity**

No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility

No data available.

Other Toxicity

Hydrolyzes on contact with water to form hydrogen fluoride.

Section 13 - DISPOSAL CONSIDERATIONS**Disposal Methods**

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.

Hazardous Waste Number(s): D001. D003.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.



Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440****Section 14 - TRANSPORT INFORMATION****US DOT Information:****Shipping Name:** IODINE PENTAFLUORIDE**Hazard Class:** 5.1**UN/NA #:** UN2495**Packing Group:** I**Required Label(s):** 5.1**IMDG Information:****Shipping Name:** IODINE PENTAFLUORIDE**Hazard Class:** 5.1**UN#:** UN2495**Packing Group:** I**Required Label(s):** 5.1 6.1 8**International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION**U.S. Federal Regulations**

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Oxidizer; Acute toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
IODINE PENTAFLUORIDE	7783-66-6	Yes	No	Yes	Yes	No

Not listed under California Proposition 65**Canada Regulations****Canadian WHMIS Ingredient Disclosure List (IDL)**

The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.

Component Analysis - Inventory**IODINE PENTAFLUORIDE (7783-66-6)**

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	NSL	EIN	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No

Section 16 - OTHER INFORMATION**NFPA Ratings**

**MATHESON**

ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: IODINE PENTAFLUORIDE**SDS ID: MAT11440**

Health: 3 Fire: 0 Reactivity: 2

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

Updated: 05/01/2015

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

Other Information**Disclaimer:**

Matheson Tri-Gas, Inc. makes no express or implied warranties, guarantees or representations regarding the product or the information herein, including but not limited to any implied warranty or merchantability or fitness for use. Matheson Tri-Gas, Inc. shall not be liable for any personal injury, property or other damages of any nature, whether compensatory, consequential, exemplary, or otherwise, resulting from any publication, use or reliance upon the information herein.