

1. Identification

Product identifier

Product Name FLUORINE ($\leq 1\%$) KRYPTON (1.25%) in NEON

Other means of identification

Product Code LIND-CM00126

UN/ID no. UN1956

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Excimer laser gas

Restrictions on use Consumer use.

Details of the supplier of the safety data sheet

Supplier Address

Messer North America, Inc. - Messer LLC - Messer Merchant Production LLC
200 Somerset Corporate Blvd, Suite 7000
Bridgewater, NJ 08807
Phone: 908-464-8100
www.messer-us.com

Messer Gas Puerto Rico, Inc.
Road 869, Km 1.8
Barrio Palmas, Catano, PR 00962
Phone: 787-641-7445

* May include subsidiaries or affiliate companies/divisions.

For additional product information contact your local customer service.

Emergency telephone number

Company Phone Number +1 800-232-4726 (Messer National Operations Center, US)
+1 905-501-0802 (Canada)

1.4 Emergency telephone number CHEMTREC: 1-800-424-9300 (North America) +1-703-527-3887 (International)

2. Hazard(s) identification

Classification of the substance or mixture

Gases under pressure	Compressed gas
Acute toxicity - Inhalation (Gases)	Category 4

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

Hazards not otherwise classified (HNOC)

Not applicable.

Label elements



Warning

Hazard statements

Contains gas under pressure; may explode if heated.

Harmful if inhaled.

Causes skin irritation.

Causes serious eye irritation.

Precautionary Statements - Prevention

Do not handle until all safety precautions have been read and understood.

Wash face, hands and any exposed skin thoroughly after handling.

Wear protective gloves, protective clothing, eye protection and face protection.

Use a backflow preventive device in piping.

Close valve after each use and when empty.

Use and store only outdoors or in a well ventilated place.

Use only with equipment rated for cylinder pressure.

Avoid breathing gas.

Precautionary Statements - Response

Specific treatment (see .? on this label).

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

If eye irritation persists: Get medical advice/attention.

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

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

Precautionary Statements - Storage

Protect from sunlight when ambient temperature exceeds 52°C/125°F.

1.25 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

1.25 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

0.25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).

1.25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).

0.25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available.

Other Information

No information available.

3. Composition/information on ingredients

Substance

Mixture

Chemical name	CAS No.	Weight-%	Trade secret
Neon	7440-01-9	95 - 100	*
Krypton	7439-90-9	0-99	*
Fluorine	7782-41-4	0.46-1.0	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air and keep comfortable for breathing. If breathing has stopped, give artificial respiration. Get medical attention immediately. If breathing is difficult, give oxygen.
Eye contact	Immediately flush eyes with running water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Dermal burns may be treated with calcium gluconate gel or slurry in water or glycerine. This compound binds the active fluorides in an insoluble form and limits burn extension and pain.
Ingestion	Rinse mouth.
Self-protection of the first aider	Use personal protective equipment. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms	Irritating to eyes, respiratory system and skin. Due to fluorine component in mixture, product may cause respiratory irritation, coughing, breathing difficulty. Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.
Effects of Exposure	No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific extinguishing methods	Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
Specific hazards arising from the chemical	Non-flammable gas. Cylinders may rupture under extreme heat. Contact with water will cause hydrolysis to Hydrofluoric acid. Do not allow runoff from fire-fighting to enter drains or water courses. Runoff may pollute waterways. This is a strong oxidizer and will react vigorously or explosively with many materials including fuels.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment and precautions for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Keep people away from and upwind of spill/leak. Monitor concentration of released product. Use personal protection recommended in Section 8.
Environmental precautions	Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Methods for containment	Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Messer location.
Methods for cleaning up	Return cylinder to Messer or an authorized distributor.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage

Precautions for safe handling

Advice on safe handling	Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Never attempt to lift a cylinder by its valve protection cap. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use only with adequate ventilation. Use a backflow preventive device in piping. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use. Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike
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an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association publication CGA-P1, Safe Handling of Compressed Gases in Containers. Handle only in areas with extensive venting capabilities, preferably a gas handling cabinet. Consider installation of fluorine gas detection equipment in handling areas. Any detection of fluorine odor should trigger immediate response and corrective action. Gas handling equipment must be cleaned for oxygen service. Equipment must be dry, purged with dry nitrogen or other inert gas and meticulously leak checked before connecting cylinder to system. Open valve slowly. Prior to disconnecting cylinder from system, manifold and pigtailed must be purged with inert gas. Most metals form a passive fluoride film with low pressure fluorine that protects the metals from further corrosion. The reaction with metals and fluorine is relatively slow at room temperature, but becomes vigorous and self-sustaining if the temperature is elevated. Monel® and nickel are preferred for high temperature applications. Teflon® is the preferred gasket material. Keep equipment scrupulously dry. Many of the metal fluorides are water soluble so that the passive film corrosion protection may be destroyed if wetted with water.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage.

Incompatible materials Water. Moisture.

8. Exposure controls/personal protection

Control Parameters

Exposure Limits This product, as supplied, contains materials that do not have reportable occupational exposure limits or are not subject to the reporting requirements of the local jurisdiction.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Neon 7440-01-9	: See Appendix F: Minimal Oxygen Content	-	-
Fluorine 7782-41-4	STEL: 2 ppm TWA: 1 ppm	TWA: 0.1 ppm TWA: 0.2 mg/m ³ F mg/m ³ F (vacated) TWA: 0.1 ppm (vacated) TWA: 0.2 mg/m ³ (vacated) TWA: 2.5 mg/m ³	IDLH: 25 ppm IDLH: 250 mg/m ³ F TWA: 0.1 ppm TWA: 0.2 mg/m ³

Biological occupational exposure limits This product, as supplied, contains materials that do not have reportable biological exposure limits or are not subject to the reporting requirements of the local jurisdiction.

Appropriate engineering controls

Engineering controls Provide general ventilation, local exhaust ventilation, process enclosure or other engineering controls to maintain airborne levels below recommended exposure limits and to maintain oxygen levels above 19.5%. Oxygen detectors should be used when asphyxiating gases may be released. Consider installation of leak detection systems in areas of use and storage. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand protection	Appropriate hand protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.
Skin and body protection	Work gloves and safety shoes are recommended when handling cylinders. Wear fire/flammable resistant/retardant clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations. Use positive pressure airline respirator with escape cylinder or self contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Colorless
Physical state	Gas
Color	Not available
Odor (includes odor threshold)	Odorless to pungent
Odor threshold	0.02 - 0.126 ppm (Fluorine)

Property	Values	Remarks • Method
Melting/freezing point	No data available	None known
Boiling point (or initial boiling point or boiling range)	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Flash point	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
SADT (°C)	No data available	None known
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	Not available	None known
Solubility	Not available	None known
Water solubility	No data available	None known
Partition coefficient n-octanol/water (log value)	Not available	None known
Vapor pressure (includes evaporation rate)	Not available	None known
Evaporation rate		None known
Density and/or relative density	No information available.	None known
Bulk density	Not available	
Density	Not available	
Vapor density (air =1)	Not available	None known
Particle characteristics		None known
Particle Size	No data available	
Particle Size Distribution	No data available	

Other information

10. Stability and reactivity

Reactivity	Fluorine may react with water or moist air to form hydrogen fluoride or hydrofluoric acid.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	None known based on information supplied.
Incompatible materials	Water. Moisture.
Hazardous decomposition products	Hydrogen fluoride. Oxygen difluoride.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Pungent odor of fluorine provides warning of release. Mice exposed to sublethal concentrations (LC50: 150 ppm/1 hr.) of fluorine experienced pulmonary irritation and delayed focal necrosis of the liver and kidney.
Eye contact	Causes serious eye irritation.
Skin contact	May cause irritation. Fluorine may react with water or moist air to form hydrogen fluoride or hydrofluoric acid. Prolonged skin contact may result in localized burns and pain which are not immediately noticeable. Symptoms may be delayed requiring first aid treatment.
Ingestion	Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Due to fluorine component in mixture, product may cause respiratory irritation, coughing, breathing difficulty.
Acute toxicity	No information available.

Numerical measures of toxicity

The following ATE values have been calculated for the mixture

ATEmix (inhalation-gas)	9,250.00 ppm
ATEmix (inhalation-dust/mist)	5.01 mg/L

- 1.25 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 1.25 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 0.25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 1.25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 0.25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Oral LD50 No information available

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Fluorine CAS: 7782-41-4 ID: RM1002026 0.46-1.0 %	-	-	= 185 ppm (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Category 2.
Serious eye damage/eye irritation	Category 2.
Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target organ effects	Skin, Eyes, Respiratory system, skeletal system.
Aspiration hazard	No information available.
Other adverse effects	Not available.
Interactive effects	No information available.

12. Ecological information

Ecotoxicity 1.25 % of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment.

Persistence and degradability Not applicable.

Bioaccumulative potential No information available.

Mobility in soil No information available.

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Messer for proper disposal.

Contaminated packaging Do not reuse empty containers.

14. Transport information

Note: The UN1956 classification for this mixture is based on testing that determined a 1.05% fluorine/neon mixture is not oxidizing per the protocol of ISO 10156-2 Determination of Oxidizing Ability of Toxic and Corrosive Gases and Gas Mixtures.

DOT

UN/ID no.	UN1956
Proper shipping name	Compressed gas, n.o.s.
Hazard Class	2.2
Description	UN1956, Compressed gas, n.o.s.(Fluorine, Neon), 2.2

TDG

UN/ID no.	UN1956
Proper shipping name	Compressed gas, n.o.s.
Hazard Class	2.2
Description	UN1956, Compressed gas, n.o.s.(Fluorine, Neon), 2.2

MEX

UN/ID no.	UN1956
Proper shipping name	Compressed gas, n.o.s.
Hazard Class	2.2
MEX Technical Name	Fluorine
Description	UN1956, Compressed gas, n.o.s. (Fluorine), 2.2
Special Provisions	274

ICAO (air)

UN/ID no.	UN1956
Proper shipping name	Compressed gas, n.o.s.
Hazard Class	2.2
Description	UN1956, Compressed gas, n.o.s. (Fluorine), 2.2

IATA

UN number or ID number	UN1956
Proper shipping name	Compressed gas, n.o.s.
IATA Technical Name	Fluorine
Transport hazard class(es)	2.2
Description	UN1956, Compressed gas, n.o.s.(Fluorine, Neon), 2.2

IMDG

UN number or ID number	UN1956
Proper shipping name	Compressed gas, n.o.s.
Hazard Class	2.2
Special Provisions	274
Description	UN1956, Compressed gas, n.o.s.(Fluorine, Neon), 2.2

15. Regulatory information

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

INTERNATIONAL INVENTORIES

DSL/NDL	Complies.
EINECS/ELINCS	Complies.
ENCS	Complies.
IECSC	Regulated.
KECL	Complies.
PICCS	Complies.
AICS	Complies.
NZIoC	Contact supplier for inventory compliance status.
TCSI	Contact supplier for inventory compliance status.

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

TCSI - Taiwan Chemical Substance Inventory

US FEDERAL REGULATIONS

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Fluorine CAS: 7782-41-4 ID: RM1002026 0.46 - 1.0 %	1.0

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CAA (Clean Air Act)

This product does not contain any substances regulated as pollutants pursuant to Clean Air Act (CAA).

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Neon CAS: 7440-01-9 ID: RM1000487 95 - 100 %	X	X	X
Krypton CAS: 7439-90-9 ID: RM1000489 0-99 %	X	-	-
Fluorine CAS: 7782-41-4 ID: RM1002026 0.46-1.0 %	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 0	Flammability 0	Instability 0	Special hazards -
HMIS	Health hazards 0	Flammability 0	Physical hazards 0	Personal protection -

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

ACGIH	American Conference of Governmental Industrial Hygienists
ADN	Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)
AIIC	Australian Inventory of Industrial Chemicals
ATE	Acute Toxicity Estimate
ASTM	American Society for the Testing of Materials
bar	Biological Reference Values for Chemical Compounds in the Work Area
BAT	Biological tolerance values for occupational exposure
BEL	Biological exposure limits
bw	Body weight
Ceiling	Maximum limit value
CMR	Carcinogen, Mutagen or Reproductive Toxicant
DOT	Department of Transportation (United States)
DSL	Domestic Substances List (Canada)
EmS	Emergency Schedule
ENCS	Existing and New Chemical Substances (Japan)
EPA	U.S. Environmental Protection Agency
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO	International Civil Aviation Organization
IECSC	Inventory of Existing Chemical Substances in China
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization

ISO	International Organization for Standardization
KECI	Korean Existing Chemicals Inventory
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOELR	No Observable Effect Loading Rate
NTP	National Toxicology Program (United States)
NZIoC	New Zealand Inventory of Chemicals
OECD	Organization for Economic Cooperation and Development
OEL	Occupational exposure limits
OSHA	Occupational Safety and Health Administration of the US Department of Labor
PBT	Persistent, Bioaccumulative and Toxic substance
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PMT	Persistent, Mobile and Toxic
PPE	Personal protective equipment
QSAR	Quantitative Structure Activity Relationship
RID	Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)
SADT	Self-Accelerating Decomposition Temperature
SAR	Structure-activity relationship
SARA	Superfund Amendments and Reauthorization Act
SDS	Safety Data Sheet
SL	Surface Limit
STEL	Short Term Exposure Limit
STOT RE	Specific target organ toxicity - Repeated exposure
STOT SE	Specific target organ toxicity - Single exposure
TCSI	Taiwan Chemical Substance Inventory
TDG	Transport of Dangerous Goods (Canada)
TSCA	Toxic Substances Control Act (United States)
TWA	Time-Weighted Average
UN	United Nations
VOC	Volatile organic compounds
vPvB	Very Persistent and Very Bioaccumulative
vPvM	Very Persistent and Very Mobile
As	Allergenic substance
DS	Dermal Sensitizer
Ot	Ototoxicant
pOt	Ototoxicant - potential to cause hearing disorders
PS	Photosensitizer
RS	Respiratory Sensitizer
S	Sensitizer
poS	Sensitizer - capable of causing occupational asthma
Sa	Simple asphyxiant
Sd	Skin designation
pSd	Skin designation - potential for cutaneous absorption
Sdv	Skin designation - vacated
Sk	Skin notation
dSk	Skin notation - danger of cutaneous absorption
pSk	Skin notation - potential for cutaneous absorption

Key literature references and sources for data used to compile the SDS

U.S. Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)
U.S. Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications
International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program
International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set
United Nations World Health Organization (WHO)

Revision Date 15-Apr-2026
Revision Note SDS sections updated. 1.

General Disclaimer

For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between Messer LLC, Messer Merchant Production LLC, Messer North America, Inc., Messer Gas Puerto Rico, Inc. or Messer Canada Inc. (or any of their affiliates and subsidiaries) and the purchaser.