



## Safety Data Sheet

Material Name: N-Pentane

### \*\*\*Section 1 - IDENTIFICATION\*\*\*

**GHS product identifier** : N-Pentane  
**Chemical name** : pentane  
**Other means of identification** : n-PENTANE  
**Product use** : Synthetic/Analytical chemistry.  
**Synonym** : n-PENTANE  
**Supplier's details** :  
Electronic Fluorocarbons  
3266 Bergey Road  
Hatfield PA 19440

**Emergency Telephone #** : 1-800-535-5053  
**Outside the US (call collect)** : 1-352-323-3500

### \*\*\*Section 2 - HAZARDS IDENTIFICATION\*\*\*

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
**Classification of the substance or mixture** : FLAMMABLE LIQUIDS - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3  
AQUATIC HAZARD (LONG-TERM) - Category 1

#### GHS label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : Highly flammable liquid and vapor.  
May form explosive mixtures with air.  
May cause drowsiness and dizziness.  
Very toxic to aquatic life with long lasting effects.

#### Precautionary statements

**General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

**Prevention** : Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Use and store only outdoors or in a well ventilated place.

**Response** : Collect spillage. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

# Safety Data Sheet

Material Name: N-Pentane

- Storage** : Store locked up. Store in a well-ventilated place. Keep cool.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

## \*\*\*Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS\*\*\*

- Substance/mixture** : Substance
- Chemical name** : pentane
- Other means of identification** : n-PENTANE

### CAS number/other identifiers

- CAS number** : 109-66-0
- Product code** : 001133

Ingredient name	%	CAS number
pentane	100	109-66-0

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## \*\*\*Section 4 - FIRST AID MEASURES\*\*\*

### Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

# Safety Data Sheet

Material Name: N-Pentane

- Eye contact** : No known significant effects or critical hazards.  
**Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.  
**Skin contact** : No known significant effects or critical hazards.  
**Frostbite** : Try to warm up the frozen tissues and seek medical attention.  
**Ingestion** : Can cause central nervous system (CNS) depression.

## Over-exposure signs/symptoms

- Eye contact** : No specific data.  
**Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness  
**Skin contact** : No specific data.  
**Ingestion** : No specific data.

## Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.  
**Specific treatments** : No specific treatment.  
**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

## \* \* \*Section 5 - FIRE FIGHTING MEASURES\* \* \*

### Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.  
**Unsuitable extinguishing media** : Do not use water jet.

### Specific hazards arising from the chemical

- : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

### Hazardous thermal decomposition products

- : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

### Special protective actions for fire-fighters

- : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

# Safety Data Sheet

Material Name: N-Pentane

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## \*\*\*Section 6 - ACCIDENTAL RELEASE MEASURES\*\*\*

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## \* \* \*Section 7 - HANDLING AND STORAGE\* \* \*

### Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

# Safety Data Sheet

**Material Name:** N-Pentane

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

**\*\*\*Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION\*\*\***

**Control parameters**

**Occupational exposure limits**

Ingredient name	Exposure limits
pentane	<p><b>ACGIH TLV (United States, 3/2012).</b> TWA: 600 ppm 8 hours.</p> <p><b>NIOSH REL (United States, 1/2013).</b> CEIL: 1800 mg/m<sup>3</sup> 15 minutes. CEIL: 610 ppm 15 minutes. TWA: 350 mg/m<sup>3</sup> 10 hours. TWA: 120 ppm 10 hours.</p> <p><b>OSHA PEL (United States, 6/2010).</b> TWA: 2950 mg/m<sup>3</sup> 8 hours. TWA: 1000 ppm 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b> STEL: 2250 mg/m<sup>3</sup> 15 minutes. STEL: 750 ppm 15 minutes. TWA: 1800 mg/m<sup>3</sup> 8 hours. TWA: 600 ppm 8 hours.</p>

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

**Skin protection**

# Safety Data Sheet

Material Name: N-Pentane

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## \*\*\*Section 9 - Physical and Chemical Properties\*\*\*

### Appearance

<b>Physical state</b>	Liquid.
<b>Color</b>	Colorless.
<b>Molecular weight</b>	72.15 g/mole
<b>Molecular formula</b>	C5-H12
<b>Boiling/condensation point</b>	36.06°C (96.9°F)
<b>Melting/freezing point</b>	-129.67°C (-201.4°F)
<b>Critical temperature</b>	196.55°C (385.8°F)
<b>Odor</b>	Characteristic.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Flash point</b>	Closed cup: <-40°C (<-40°F)
<b>Burning time</b>	Not applicable.
<b>Burning rate</b>	Not applicable.
<b>Evaporation rate</b>	10.46 (butyl acetate = 1)
<b>Flammability (solid, gas)</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Lower: 1.5% Upper: 7.8%
<b>Vapor pressure</b>	59 kPa (442.836191335 mm Hg) [room temperature]
<b>Vapor density</b>	2.5 (Air = 1)
<b>Specific Volume (ft<sup>3</sup>/lb)</b>	4.9628
<b>Gas Density (lb/ft<sup>3</sup>)</b>	0.2015 (20°C / 68 to °F)
<b>Relative density</b>	0.63
<b>Solubility</b>	Not available.
<b>Solubility in water</b>	0.0385 g/l
<b>Partition coefficient: n-octanol/water</b>	3.45

# Safety Data Sheet

Material Name: N-Pentane

**Auto-ignition temperature** 260°C (500°F)  
**Decomposition temperature** Not available.  
**SADT** Not available.  
**Viscosity** Dynamic (room temperature): 0.224 mPa·s (0.224 cP)

## \*\*\*Section 10 - STABILITY AND REACTIVITY\*\*\*

**Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** : The product is stable.

**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## \*\*\*Section 11 - TOXICOLOGICAL INFORMATION\*\*\*

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
pentane	LC50 Inhalation Vapor	Rat	364 g/m <sup>3</sup>	4 hours

#### Irritation/Corrosion

Not available.

#### Sensitization

Not available.

#### Mutagenicity

Not available.

#### Carcinogenicity

Not available.

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

#### Specific target organ toxicity (single exposure)

# Safety Data Sheet

Material Name: N-Pentane

Name	Category	Route of exposure	Target organs
pentane	Category 3	Not applicable.	Narcotic effects

## Specific target organ toxicity (repeated exposure)

Not available.

## Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

## Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Can cause central nervous system (CNS) depression.

## Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : No specific data.
- Ingestion** : No specific data.

## Delayed and immediate effects and also chronic effects from short and long term exposure

### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

## Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.



# Safety Data Sheet

**Material Name:** N-Pentane

**Numerical measures of toxicity**

**Acute toxicity estimates**

Not available.

**\*\*\*Section 12 - ECOLOGICAL INFORMATION\*\*\***

**Toxicity**

Not available.

**Persistence and degradability**

Not available.

**Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
pentane	3.45	171	low

**Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.

**\*\*\*Section 13 - DISPOSAL CONSIDERATIONS\*\*\***







**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**\*\*\*Section 14 - Transport Information\*\*\***

	DOT	TDG	Mexico	IMDG	IATA
<b>UN number</b>	UN1265	UN1265	UN1265	UN1265	UN1265
<b>UN proper shipping name</b>	PENTANES	PENTANES	PENTANES	PENTANES	PENTANES

# Safety Data Sheet

Material Name: N-Pentane

Transport hazard class(es)	3 	3 	3 	3  	3 
Packing group	I	I	I	I	I
Environment	No.	No.	No.	Yes.	No.
Additional information	-	<u>Explosive Limit and Limited Quantity Index</u> 1  <u>Passenger Carrying Ship Index</u> Forbidden  <u>Passenger Carrying Road or Rail Index</u> 5	-	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.	The environmentally hazardous substance mark may appear if required by other transportation regulations.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

**Special precautions for user** : **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not available.

**\*\*\*Section 15 - REGULATORY INFORMATION\*\*\***

**U.S. Federal regulations** : TSCA 8(a) PAIR: pentane  
TSCA 8(a) CDR Exempt/Partial exemption: Not determined  
TSCA 12(b) one-time export: pentane  
United States inventory (TSCA 8b): This material is listed or exempted.  
Clean Air Act (CAA) 112 regulated flammable substances: pentane

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 302/304**

**Composition/information on ingredients**

No products were found.

**SARA 304 RQ** : Not applicable.

# Safety Data Sheet

Material Name: N-Pentane

## SARA 311/312

**Classification** : Fire hazard, Immediate (acute) health hazard

## Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
pentane	100	Yes.	No.	No.	Yes.	No.

## State regulations

**Massachusetts** : This material is listed.  
**New York New Jersey** : This material is not listed.  
**Jersey** : This material is listed.  
**Pennsylvania** : This material is listed.  
**Canada inventory** : This material is listed or exempted.

## International regulations

**International lists** : **Australia inventory (AICS)**: This material is listed or exempted.  
**China inventory (IECSC)**: This material is listed or exempted.  
**Japan inventory**: This material is listed or exempted.  
**Korea inventory**: This material is listed or exempted.  
**Malaysia Inventory (EHS Register)**: Not determined.  
**New Zealand Inventory of Chemicals (NZIoC)**: This material is listed or exempted.  
**Philippines inventory (PICCS)**: This material is listed or exempted.  
**Taiwan inventory (CSNN)**: Not determined.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## Canada

**WHMIS (Canada)** : Class B-2: Flammable liquid  
**CEPA Toxic substances**: This material is not listed.  
**Canadian ARET**: This material is not listed.  
**Canadian NPRI**: This material is listed.  
**Alberta Designated Substances**: This material is not listed.  
**Ontario Designated Substances**: This material is not listed.  
**Quebec Designated Substances**: This material is not listed.

# Safety Data Sheet

Material Name: N-Pentane

## \*\*\*Section 16 - OTHER INFORMATION\*\*\*

**Canada Label requirements** : Class B-2: Flammable liquid

### NFPA Ratings

Health: 1 Fire: 3 Reactivity: 0

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

### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; 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; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; 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; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

### Other Information

Electronic Fluorocarbons 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.

Electronic Fluorocarbons 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.