



## Safety Data Sheet

Material Name: Cyanogen

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

#### Manufacturer Information

Electronic Fluorocarbons LLC  
3266 Bergey Road  
Hatfield PA 19440

General Information: 1-215-443-9600  
Emergency #: 1-800-535-5053  
Outside the US: +1-352-323-3500 (Call collect)

### Product Identifier: Cyanogen

#### Trade Names/Synonyms

MTG MSDS 24; CYANOGEN GAS; ETHANEDINITRILE; DICYANOGEN; DICYAN; OXALIC ACID DINITRILE;  
OXALONITRILE; OXALODINITRILE; UN 1026

#### Chemical Family

inorganic, Gas

#### Product Use

Industrial and Specialty Gas

Applications.

#### Restrictions on Use

None known.

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

#### GHS Classification

Flammable Gases, Category 1  
Gas under pressure, Liquefied gas  
Acute Toxicity (Inhalation), Category 2

#### GHS LABEL ELEMENTS

##### Symbol(s)



#### Signal Word

DANGER

#### Hazard Statement(s)

Extremely flammable gas  
Contains gas under pressure; may explode if heated  
Fatal if inhaled  
Causes serious eye irritation.  
Causes damage to central nervous system.  
May cause respiratory irritation.  
May cause damage to organs through prolonged or repeated exposure. (central nervous system )  
Very toxic to aquatic life with long lasting effects.

# Safety Data Sheet

**Material Name:** Cyanogen

## Precautionary Statement(s)

### Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Do not breathe gas.  
Use only outdoors or in a well-ventilated area.  
Wear respiratory protection.  
Wash thoroughly after handling.  
Wear eye/face protection.  
Do not eat, drink or smoke when using this product.  
Avoid release to th environment.

### Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
Eliminate all ignition sources if safe to do so.  
If exposed: Call a POISON CENTER or doctor/physician.  
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 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.  
Collect spillage.

### Storage

Protect from sunlight.  
Store in a well-ventilated place.  
Keep container tightly closed.  
Store locked up.

### Disposal

Dispose of in accordance with applications with applicable regulations.

### Statement(s) of Unknown Acute Toxicity

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

### Other Hazards

May cause frostbite upon sudden release of liquefied gas.

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

CAS	Component Name	Percent
460-19-5	CYANOGEN	100

# Safety Data Sheet

Material Name: Cyanogen

## \*\*\*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

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

### Eyes

Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

### Ingestion

If swallowed, get medical attention.

### Note to Physicians

For inhalation, consider oxygen.

### Symptoms: Immediate

frostbite, respiratory tract irritation, eye irritation, central nervous system depression, central nervous system damage

### Symptoms: Delayed

nervous system damage

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

See Section 9 for Flammability Properties

### Specific Hazards Arising from the Chemical

Severe fire hazard. Gas/air mixtures are explosive. The gas is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Containers may rupture or explode if exposed to heat.

### Extinguishing Media

#### Suitable Extinguishing Media

Use dry chemical, carbon dioxide, alcohol-resistant foam or water spray. Large fires: water spray or fog, alcohol-resistant foam

#### Unsuitable Extinguishing Media

Do not direct water at source of leak or safety devices; icing may occur.

### Protective Equipment and Precautions for Firefighters

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

# Safety Data Sheet

**Material Name: Cyanogen**

## 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. Damaged cylinders should be handled only by specialists. 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. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Stop flow of gas.

## Hazardous Combustion Products

hydrogen cyanide, oxides of nitrogen, Oxides of carbon

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

#### Personal Precautions

Wear personal protective clothing and equipment, see Section 8.

#### Environmental Precautions

Avoid release to the environment. Collect spillage.

#### Methods for Containment and Clean Up

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Avoid heat, flames, sparks and other sources of ignition. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

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

#### Handling Procedures

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not breathe gas. Use only outdoors or in a well-ventilated area. Wear respiratory protection. Wash hands thoroughly after handling. Wear eye/face protection. Do not eat, drink, or smoke when using this product.

#### Storage Procedures

- Protect from sunlight.
- Store in a well-ventilated place.
- Keep container tightly closed.
- Store locked up.

Store and handle in accordance with all current regulations and standards. Avoid heat, flames, sparks and other sources of ignition. Protect from physical damage. Avoid shock or friction. Store in a well-ventilated area. Store in a cool, dry place. Protect from sunlight. Store outside or in a detached building. Keep container tightly closed. Keep locked up. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

**Incompatibilities** oxidizing materials, halogens, Acids

# Safety Data Sheet

Material Name: Cyanogen

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

### Component Exposure Limits

<b>CYANOGEN</b>	<b>460-19-5</b>
ACGIH:	5 ppm Ceiling
NIOSH:	10 ppm TWA ; 20 mg/m3 TWA
	25 mg/m3 IDLH (except Hydrogen cyanide ) as CN (related to Cyanide compounds)
OSHA (US):	5 mg/m3 TWA as CN (related to Cyanide compounds)
	prevent or reduce skin absorption (as CN ) (related to Cyanide compounds)
Mexico:	10 ppm TWA VLE-PPT ; 20 mg/m3 TWA VLE-PPT

### EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures

There are no biological limit values for any of this product's components.

### ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

### Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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. Contact lenses should not be worn.

### Skin Protection

For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing.

### Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. 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. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

### Glove Recommendations

For the gas: Wear appropriate chemical resistant gloves. For the liquid: Wear insulated gloves.

# Safety Data Sheet

Material Name: Cyanogen

## \*\*\*Section 9 - PHYSICAL AND CHEMICAL PROPERTIES\*\*\*

<b>Physical State:</b> Gas	<b>Appearance:</b> Colorless gas
<b>Color:</b> colorless	<b>Physical Form:</b> gas
<b>Odor:</b> pungent odor	<b>Odor Threshold:</b> 1 ppm
<b>pH:</b> Not available	<b>Melting/Freezing Point:</b> -27.9 °C
<b>Boiling Point:</b> -21°C	<b>Flash Point:</b> flammable
<b>Decomposition:</b> Not available	<b>Evaporation Rate:</b> Not available
<b>LEL:</b> 6.6%	<b>UEL:</b> 32 %
<b>Vapor Pressure:</b> 760 mmHg @ -21 °C	<b>Vapor Density (air = 1):</b> 1.8
<b>Specific Gravity (water=1):</b> 0.954 @ -21 °C	<b>Water Solubility:</b> Soluble
<b>Log KOW:</b> 0.07	<b>Coeff. Water/Oil Dist:</b> Not available
<b>Auto Ignition:</b> Not available	<b>Viscosity:</b> Not available
<b>Molecular Weight:</b> 52.04	<b>Molecular Formula:</b> C2-N2

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

### Chemical Stability

Contact with water or moist air may form flammable and/or toxic gases or vapors.

### Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers

### Possibility of Hazardous Reactions

May polymerize violently or explosively.

### Incompatible Materials

oxidizing materials, halogens, Acids

### Hazardous Decomposition

hydrogen cyanide, oxides of nitrogen, Oxides of carbon

### Water/Moisture/Acids

Cyanides

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

### Acute and Chronic Toxicity

#### Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints have been identified.

#### CYANOGEN (460-19-5)

Inhalation LC50 Rat 350 ppm 1 h

### Product Toxicity Data

#### Acute Toxicity Estimate

Not available

# Safety Data Sheet

**Material Name: Cyanogen**

## Immediate Effects

frostbite, respiratory tract irritation, eye irritation, central nervous system depression, central nervous system damage

## Delayed Effects

nervous system damage

## Irritation/Corrosivity Data

respiratory tract irritation, eye irritation

## Respiratory Sensitizer

Not available

## Dermal Sensitizer

Not available

## Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA

## Germ Cell Mutagenicity

Not available

## Tumorigenic Data

Not available

## Reproductive Toxicity

Not available

## Specific Target Organ Toxicity - Single Exposure

central nervous system, respiratory tract

## Specific Target Organ Toxicity - Repeated Exposure

nervous system

## Aspiration hazard

Not applicable.

## Medical Conditions Aggravated by Exposure

Not available

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

## Ecotoxicity

Very toxic to aquatic life with long lasting effects. There is no data for the substance itself, however, it has been classified a Category 1 to the aquatic environment by EU.

## Component Analysis - Aquatic Toxicity

No LOEL ecotoxicity data are available for this product's components

## Persistence and Degradability

No data available.

## Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is low based on a BCF value of 3.2.

## Mobility

Expected to have high mobility in soil.

# Safety Data Sheet

Material Name: Cyanogen

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

### Disposal Methods

Dispose in accordance with all applicable regulations.

### Component Waste Numbers

RCRA: waste number P031

## \*\*\*Section 14 - TRANSPORT INFORMATION\*\*\*

### US DOT Information

Shipping Name: Cyanogen

UN/NA #: UN1026 Hazard Class: 2.3

Required Label(s): 2.3, 2.1

### IMDG Information

Shipping Name: Cyanogen

UN #: UN1026 Hazard Class: 2.3

Required Label(s): 2.3, 2.1

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

### Component Analysis

#### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

#### SARA 311/312 Hazardous Categories

Acute Health: Yes Chronic Health: Yes Fire: Yes Pressure: Yes Reactive: Yes

#### SARA Section 311/312 (40 CFR 370 Subparts B and C) 2017 reporting categories

Flammable; Gas Under Pressure; Acute toxicity; 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	US	CA	MA	MN	NJ	PA
Cyanogen	460-19-5	Yes	Yes	Yes	Yes	Yes	Yes

#### Not listed under California Proposition 65

#### Canada Regulations

#### Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL



# Safety Data Sheet

**Material Name: Cyanogen**

Component	CAS
Cyanogen	460-19-5

**WHMIS Classification**

ABD1

**Component Analysis -**

**Inventory**

**CYANOGEN (460-19-5)**

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	EIN	No	Yes	No	No	Yes	No	No	No	Yes	Yes	No

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

**NFPA Ratings: Health: 4 Fire: 4 Reactivity: 2**

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**

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