**Section 1 - IDENTIFICATION**

**Manufacturer Information**
Electronic Fluorocarbons
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 Chloride

**Chemical Family**
halogenated, aliphatic

**Product Use**
Laboratory chemicals, Synthesis of substances

**Section 2 - HAZARDS IDENTIFICATION**

**GHS Classification**
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Inhalation (Category 2), H330
Acute toxicity, Dermal (Category 2), H310
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

**GHS Label(s)**

**Signal Word**
DANGER

**Hazard Statement(s)**
Fatal if swallowed, in contact with skin or if inhaled Harmful to aquatic life with long lasting effects.

**Precautionary Statement(s)**
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Do not get in eyes, on skin, or on clothing.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

**Precautionary Statement(s) continued**
Wear protective gloves/ protective clothing.
Wear respiratory protection.
If SWALLOWED: Immediately call a POISON CENTER/doctor.
If ON SKIN: Gently wash with plenty of soap and water.
If INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER/doctor.
Specific treatment is urgent (see supplemental first aid instructions on this label).
Rinse mouth.
Remove/Take off immediately all contaminated clothing.
Wash contaminated clothing before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container to an approved waste disposal plant.

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

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>506-77-4</td>
<td>Cyanogen Chloride</td>
<td>100</td>
</tr>
</tbody>
</table>

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**Section 4 - FIRST AID MEASURES**

Inhalation  
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin  
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

Eyes  
Flush eyes with water as a precaution.

Ingestion  
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Symptoms: Immediate and Delayed  
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**Section 5 - FIRE FIGHTING MEASURES**

Extinguishing media  
Suitable extinguishing media  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture  
No data available

Advice for firefighters  
Wear self-contained breathing apparatus for firefighting if necessary.

Further information  
No data available

**Section 6 - ACCIDENTAL RELEASE MEASURES**

Personal Precautions  
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

Environmental Precautions  
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided

Methods for Containment and Cleaning Up  
Clean up promptly by sweeping or vacuum.
**Section 7 - HANDLING AND STORAGE**

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Normal measures for preventive fire protection.
For precautions see section 2.2.

**Conditions for safe storage, including any incompatibilities**
Keep container tightly closed in a dry and well-ventilated place.

Hydrolysies readily.

**Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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

**Control parameters**

**Components with workplace control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
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<tbody>
<tr>
<td>Cyanogen chloride</td>
<td>506-77-4</td>
<td>C</td>
<td>0.300000 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye irritation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Pulmonary edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.3 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Eye irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pulmonary edema</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.3 ppm&lt;br&gt;0.600000 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
<td></td>
</tr>
</tbody>
</table>

**Exposure controls**

**Appropriate engineering controls**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Personal protective equipment**

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Material Name: Cyanogen Chloride

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 30 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)
data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Gas</th>
<th>Appearance:</th>
<th>gaseous, colorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>colorless</td>
<td>Physical Form:</td>
<td>gas</td>
</tr>
<tr>
<td>Odor:</td>
<td>not available</td>
<td>Odor Threshold:</td>
<td>Not available</td>
</tr>
<tr>
<td>pH:</td>
<td>Not available</td>
<td>Melting/Freezing Point:</td>
<td>-6 °C</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>13.8 °C</td>
<td>Flash Point:</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition:</td>
<td>Not available</td>
<td>Evaporation Rate:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>1347 hPa @ 20 °C</td>
<td>Vapor Density (air = 1):</td>
<td>2.12</td>
</tr>
<tr>
<td>Density:</td>
<td>1.186 g/cm3 @ 25 °C</td>
<td>Water Solubility:</td>
<td>Not available</td>
</tr>
<tr>
<td>Log KOW:</td>
<td>Not available</td>
<td>Auto Ignition:</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>Not available</td>
<td>Molecular Weight:</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>C-N-Cl</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solvent Solubility
Soluble: Not available

** **Section 10 - STABILITY AND REACTIVITY** **
Material Name: Cyanogen Chloride

Chemical Stability
Stable under recommended storage conditions

Conditions to Avoid
Heat Sensitive to air and carbon dioxide

Possibility of Hazardous Reactions
Not available

Incompatible Materials
Strong oxidizing agents, Oxidizing agents, acids, Water

Hazardous Decomposition
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Hydrogen chloride gas, Hydrogen cyanide (hydrocyanic acid)
Other decomposition products - No data available
In the event of fire: see section 5

***Section 11 - TOXICOLOGICAL INFORMATION***

Acute toxicity
Not available

Skin corrosion/irritation
Not available

Serious eye damage/eye irritation
Not available

Respiratory or skin sensitisation
Not available

Germ cell mutagenicity
Not available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Not available

Specific target organ toxicity - single exposure
Not available

Specific target organ toxicity - repeated exposure
Not available

Aspiration hazard
Not available

Additional Information
RTECS: GT2275000

prolonged or repeated exposure can cause: Dermatitis, burning sensation, Cough, wheezing, laryngeitis, Shortness of breath, Headache, Nausea, Vomiting, Lung irritation, chest pain, pulmonary edema
**Section 12 - ECOLOGICAL INFORMATION**

Toxicity
Toxicity to daphnia and other aquatic invertebrates
LC50 - Daphnia magna (Water flea) - 0.029 mg/l - 48 h

Persistence and degradability
Not available

Bioaccumulative potential
Not available

Mobility in soil
Not available

Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

**Section 13 - DISPOSAL CONSIDERATIONS**

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

**Section 14 - TRANSPORT INFORMATION**

US DOT Information

- **Shipping Name:** Cyanogen chloride, stabilized
- **UN/NA #:** UN1589
- **Hazard Class:** 2.3 (8)

IMDG Information

- **Shipping Name:** Cyanogen Chloride, Stabilized
- **UN #:** UN1589
- **Hazard Class:** 2.3 (8)
**Section 15 - REGULATORY INFORMATION**

**SARA 302 Components**
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Acute Health Hazard

**U.S. State Regulations**
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>MA</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyanogen Chloride</td>
<td>506-77-4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**Section 16 - OTHER INFORMATION**

**NFPA Ratings:**
- **Health:** 4
- **Fire:** 0
- **Reactivity:** 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Material Name: Cyanogen Chloride

Safety Data Sheet

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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