

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Calcium cyanamide

Product Number : EX-040277  
Brand : Exir  
Product Use : For laboratory research purposes.

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## 2. HAZARDS IDENTIFICATION

### Emergency Overview

#### WHMIS Classification

B6 Reactive Flammable Material Water Reactive  
D2B Toxic Material Causing Other Toxic Effects Severe eye irritant

#### GHS Classification

Substances and mixtures, which in contact with water, emit flammable gases (Category 3)  
Acute toxicity, Oral (Category 4)  
Serious eye damage (Category 1)  
Skin sensitisation (Category 1)  
Specific target organ toxicity - single exposure (Category 3), Respiratory system

#### GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H261 In contact with water releases flammable gases.  
H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H335 May cause respiratory irritation.

Precautionary statement(s)

P231 + P232 Handle under inert gas. Protect from moisture.  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P280 Wear protective gloves/ eye protection/ face protection.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P422 Store contents under inert gas.

**HMIS Classification**

Health hazard: 2  
Flammability: 3  
Physical hazards: 1

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation.  
**Skin** Harmful if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** Harmful if swallowed.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Cyanamidecalcium salt  
Cyanamidecalcium derivative  
MDL : MFCD00064894 Beilstein: 4124391  
Formula : C<sub>2</sub>CaN<sub>2</sub>  
Molecular Weight : 80.10 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>Calcium cyanamide</b>			
156-62-7	205-861-8	615-017-00-4	<=100%

**4. FIRST AID MEASURES****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

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

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

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

**5. FIREFIGHTING MEASURES****Conditions of flammability**

May burn in presence of air, or emit a flammable gas in the presence of water or water vapour. Keep away from heat/sparks/open flame/hot surface/air/water. No smoking.

**Suitable extinguishing media**

Dry powder

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO<sub>x</sub>), Calcium oxide

**Explosion data - sensitivity to mechanical impact**

no data available

**Explosion data - sensitivity to static discharge**

no data available

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up**

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage.

Moisture sensitive.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Calcium cyanamide	156-62-7	TWA	0.5 mg/m <sup>3</sup>	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWA	0.5 mg/m <sup>3</sup>	Canada. British Columbia OEL
		TWAEV	0.5 mg/m <sup>3</sup>	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	0.5 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)

**Personal protective equipment****Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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).

**Hand 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.

**Eye 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 and body protection**

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

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Specific engineering controls**

Use mechanical exhaust or laboratory fumehood to avoid exposure.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form	solid
Colour	no data available

**Safety data**

pH	no data available
Melting point/freezing point	Melting point/range: > 300 °C (> 572 °F) - lit.
Boiling point	no data available
Flash point	no data available
Ignition temperature	850 °C
Auto-ignition temperature	> 850 °C (> 1,562 °F)
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	29.4 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - soluble
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

Reacts violently with water.

**Conditions to avoid**

Avoid moisture.

Exposure to moisture.

**Materials to avoid**

Strong oxidizing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO<sub>x</sub>), Calcium oxide

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - male and female - 765 mg/kg

**Inhalation LC50**

LC50 Inhalation - rat - male and female - 4 h - > 155 mg/m<sup>3</sup>

**Dermal LD50**

LD50 Dermal - rabbit - male and female - > 2,000 mg/kg

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

Skin - rabbit - No skin irritation - 4 h - OECD Test Guideline 404

**Serious eye damage/eye irritation**

Eyes - rabbit - Risk of serious damage to eyes. - 24 h - OECD Test Guideline 405

**Respiratory or skin sensitisation**

Maximisation Test - guinea pig - May cause sensitisation by skin contact. - OECD Test Guideline 406

**Germ cell mutagenicity**

Genotoxicity in vitro - Hamster - ovary - with and without metabolic activation - negative

Genotoxicity in vivo - rat - male and female - Oral - negative

**Carcinogenicity**

Carcinogenicity - mouse - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Vascular: Tumors.

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.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

Inhalation - May cause respiratory irritation. - Lungs

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Causes respiratory tract irritation.
<b>Ingestion</b>	Harmful if swallowed.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

**Signs and Symptoms of Exposure**

Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: GS6000000

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**12. ECOLOGICAL INFORMATION****Toxicity**

Toxicity to fish	semi-static test LC50 - Danio rerio (zebra fish) - 140 mg/l - 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h Method: OECD Test Guideline 202
Toxicity to algae	Growth inhibition EC50 - Selenastrum capricornutum (green algae) - 27.54 mg/l - 72 h Method: OECD Test Guideline 201
Toxicity to bacteria	Respiration inhibition EC50 - Sludge Treatment - > 300 mg/l - 3 h

**Persistence and degradability**

Biodegradability aerobic  
Result: 0 % - Not biodegradable.  
Method: OECD Test Guideline 301B

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

no data available

**13. DISPOSAL CONSIDERATIONS**

**Product**

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**DOT (US)**

UN number: 1403 Class: 4.3 Packing group: III  
Proper shipping name: Calcium cyanamide  
Reportable Quantity (RQ): 1000 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 1403 Class: 4.3 Packing group: III EMS-No: F-G, S-N  
Proper shipping name: CALCIUM CYANAMIDE  
Marine pollutant: No

**IATA**

UN number: 1403 Class: 4.3 Packing group: III  
Proper shipping name: Calcium cyanamide

**15. REGULATORY INFORMATION**

**WHMIS Classification**

B6	Reactive Flammable Material	Water Reactive
D2B	Toxic Material Causing Other Toxic Effects	Severe eye irritant

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

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**16. OTHER INFORMATION****Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Exir Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.Exir.com](http://www.Exir.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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