



## Material Safety Data Sheet

1,4-Dicyanobutane (Adiponitrile), 99%

MSDS# 89417

### Section 1 - Chemical Product and Company Identification

MSDS Name: 1,4-Dicyanobutane (Adiponitrile), 99%

Catalog Numbers: AC113830000, AC113830010, AC113830050, AC113831000, AC113832500

Synonyms: Adiponitrile; Hexanedinitrile; Tetramethylene dicyanide.

Company Identification: Acros Organics BVBA  
Janssen Pharmaceuticalaan 3a  
2440 Geel, Belgium

Company Identification: (USA) Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01

For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99

Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

CHEMTREC Phone Number, Europe: 703-527-3887

### Section 2 - Composition, Information on Ingredients

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CAS#: 111-69-3

Chemical Name: 1,4-Dicyanobutane

%: 99

EINECS#: 203-896-3

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Hazard Symbols: T



Risk Phrases: 23/25 36/37/38

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Warning! Combustible liquid and vapor. Causes respiratory tract irritation. Causes eye and skin irritation. Harmful if inhaled or swallowed. Target Organs: Lungs.

#### Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. Absorption into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood).

Ingestion: Harmful if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), weakness, acidosis, and shock.

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. May cause anoxia, characterized by weakness, headache, dizziness, confusion, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), weak and irregular heart beat, collapse, unconsciousness, convulsions, coma and death.

May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), acidosis, and quick,

Chronic: shallow breathing.

#### Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

Notes to Physician: Treat symptomatically and supportively.

#### Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Combustible liquid. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.

Extinguishing Media: Use water spray to cool fire-exposed containers. Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.

Autoignition Temperature: 550 deg C ( 1,022.00 deg F)

Flash Point: 93 deg C ( 199.40 deg F)

Explosion Limits: Lower: 1.70 vol %

Explosion Limits: Upper: 4.99 vol %

NFPA Rating: health: 2; flammability: 2; instability: 0;

#### Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. Do not get water inside containers.

#### Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Use with adequate ventilation. Wash clothing before reuse. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from acids.

#### Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,4-Dicyanobutane	2 ppm; Skin - potential significant contribution to overall exposure by the cutaneous route	4 ppm TWA; 18 mg/m3 TWA	none listed

OSHA Vacated PELs: 1,4-Dicyanobutane: None listed

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a

Respirators: NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Color: clear, colorless

Odor: None reported.

pH: Not available

Vapor Pressure: 2.5 mbar @ 119

Vapor Density: 3.7

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: 295 deg C @ 760.00mm Hg ( 563.00°F)

Freezing/Melting Point: 1.00 - 3.00 deg C

Decomposition Temperature: Not available

Solubility in water: Slightly soluble

Specific Gravity/Density: .9510g/cm3

Molecular Formula: C6H8N2

Molecular Weight: 108.14

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat.

Incompatibilities with Other Materials: Not available

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon monoxide, carbon dioxide, nitrogen gas.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 111-69-3: AV2625000

RTECS:

LD50/LC50: **CAS# 111-69-3:** Inhalation, rat: LC50 = 1710 mg/m3/4H;  
Oral, mouse: LD50 = 172 mg/kg;  
Oral, rabbit: LD50 = 22 mg/kg;  
Oral, rat: LD50 = 155 mg/kg;

Carcinogenicity: 1,4-Dicyanobutane - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Not available

## Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

## Section 14 - Transport Information

US DOT

Shipping Name: ADIPONITRILE

Hazard Class: 6.1

UN Number: UN2205

Packing Group: III

Canada TDG

Shipping Name: Not available

Hazard Class:

UN Number:

Packing Group:

## Section 15 - Regulatory Information

### European/International Regulations

#### European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 23/25 Toxic by inhalation and if swallowed.

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

#### WGK (Water Danger/Protection)

CAS# 111-69-3: 1

#### Canada

CAS# 111-69-3 is listed on Canada's DSL List

Canadian WHMIS Classifications: D1B, D2B

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

CAS# 111-69-3 is listed on Canada's Ingredient Disclosure List

### US Federal

#### TSCA

CAS# 111-69-3 is listed on the TSCA

Inventory.

## Section 16 - Other Information

MSDS Creation Date: 12/18/1998

Revision #6 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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