



MATERIAL SAFETY DATA SHEET

1,1'-Azobis(cyanocyclohexane)

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Section 1 - Chemical Product and Company Identification

PRODUCT NAME: 1,1'-Azobis(cyanocyclohexane)
CAS NUMBER: 2094-98-6
CHEMICAL NAME: 1,1'-Azobis(cyclohexanecarbonitrile)
MSDS NUMBER: 9054

FORMULA: C₁₄H₂₀N₄
FORMULA WT.: 244.38

MONOMER-POLYMER & DAJAC LABORATORIES 4667 SOMERTON RD. TREVOSE, PA 19053	
EMERGENCY TELEPHONE NUMBER (CHEMTREC): (800) 424-9300 or (703) 527-3887 INFORMATION TELEPHONE NUMBER: (215) 364-1155	
PREPARED BY: Michael A. Burns March 8, 2011	
SUPERSEDES: 2-14-2001	

Section 2 - Composition / Information on Ingredients

CAS NUMBER	HAZARDOUS COMPONENT	NTP	IARC	SUB-PART Z	SARA 313	OSHA PEL	ACGIH TLV	OTHER LIMITS	PERCENT
2094-98-6	1,1'-Azobis(cyanocyclohexane)	N	N	N	N	N/E	N/E	N/E	>98%

Section 3 - Hazards Identification

ROUTE(S) OF ENTRY: Eyes, skin, inhalation and ingestion.

HEALTH HAZARDS (ACUTE AND CHRONIC):

EYES: May cause eye irritation with discomfort, tearing, or blurring of vision.

SKIN: May cause allergic skin reactions with discomfort or rash.

INHALATION: May cause respiratory system irritation to severe inflammatory effects with prolonged inhalation.

INGESTION: May be harmful if swallowed. May cause nausea and vomiting.

SIGNS OF OVEREXPOSURE: Respiratory irritation, dizziness, nausea, loss of consciousness



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OTHER HEALTH WARNINGS: None noted.

Section 4 - First Aid Measures

EYE CONTACT: Remove contact lenses immediately. Wash with copious amounts of water for at least 15 minutes. Do not rub eyes. Seek medical attention immediately.

SKIN CONTACT: The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable.

INHALATION: Move to fresh air. Seek medical attention.

INGESTION: If swallowed, immediately drink a large quantity of water and call a physician.

Section 5 - Fire-Fighting Measures

It is a flammable solid!

FLASH POINT: N/A

FLAMMABLE LIMITS:

LEL: 0.03 g/L **UEL:** N/D

AUTOIGNITION: 320°C(608°F)

EXTINGUISHING MEDIA: Dry chemical, and carbon dioxide for small fire. Water spray or deluge for large fire.



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SPECIAL FIRE FIGHTING PROCEDURES: Evacuate area immediately . Use self-contained breathing apparatus and full protective clothing in confined areas. Stay upwind and avoid smoke and flame. Fight fire with sprinkler or deluge system or remotely-operated hydrant with monitor nozzles. Cool containers and wet fire exposed material with water spray. Run-off water from fire control should be contained to avoid pollution. Do not approach a large fire because of possible rapid decomposition and rupture of containers.

UNUSUAL FIRE HAZARDS: Extremely flammable. S.A.D.T. is 176°F(80°C). Material may erupt if exposed to temperatures exceeding this. Dust forms explosive mixtures in air. Static electricity is a likely ignition source. Containers may explode in fire conditions.

Section 6 - Accidental Release Measures

SAFEGUARDS (Personnel)

NOTE: Review FIRE FIGHTING MEASURES AND HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.

SPILL CLEAN UP Discarded material is a RCRA Hazardous Waste.

ACCIDENTAL RELEASE MEASURES Transfer to unsealed drums without creating dust, and refrigerate. Contaminated floor may be flushed with water to chemical sewer. Do not vacuum. Use spark-proof equipment. Comply with Federal, State, and local regulations on reporting releases.

The Reportable Quantity for a generic Reactive Substance is 100 lbs.

Section 7 - Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Use safety goggles and chemical resistant rubber gloves and clothes. Wear appropriate NIOSH/MSHA-approved respirator with organic vapor cartridge N/A with local exhaust. Store below about 75°F(24°C); higher temperatures cause decomposition. Above about 176°F(80°C) decomposition may become violent. Do not store with strong oxidizing agents. Keep away from ignition sources. Do not transfer to tightly sealed containers. Automatic water sprinkler or deluge system recommended. Avoid initiators, heat or UV-light. Avoid contact with the material. Avoid prolonged or repeated exposure. Lab should equipped with a safety shower and an eye wash station. Wash thoroughly after handling material. Keep away from heat and open flames. Material should only be handled by qualified, experienced professionals.

OTHER PRECAUTIONS: Avoid ignition sources. Keep material refrigerated. Avoid strong oxidizing agents.

Section 8 - Exposure Controls / Personal Protection

VENTILATION REQUIREMENTS: Ventilation should be designed in accordance with good engineering practices and should be able to prevent the formation of explosive dust concentrations in air.



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PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION: Wear appropriate NIOSH/MSHA-approved respirator with organic vapor cartridge
N/A with local exhaust.

EYE PROTECTION: Splashproof goggles or face shield (ANSI Z87.1 or approved equivalent).

DERMAL PROTECTION: Protect all exposed skin from contact. Use gloves or neoprene or other chemically inert material. Use chemically resistant apron or other chemically impervious clothing to avoid prolonged or repeated skin contact.

NOTE: To avoid static electricity when dissolving in flammable solvents. Material should first be transferred to an electrically grounded, OPEN metal container or hopper.

Section 9 - Physical and Chemical Properties

SOLUBILITY IN WATER:	Less than 1% by WT	SPECIFIC GRAVITY (H₂O = 1)	~1.1
APPEARANCE AND ODOR:	White solid noodle, odorless	MELTING POINT	116°C(241°F)
OTHER INFORMATION:	Caution: Do not attempt to verify Melting Point. Decomposition can be violent.		

Section 10 - Stability and Reactivity

STABILITY: Unstable with heat and, if dusty conditions exist, with static electric charges.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon and nitrogen dioxides

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITY:

MATERIALS TO AVOID: Strong inorganic oxidizing agents and acids, like nitric acid.

OTHER HAZARDS: Thermal decomposition releases nitrogen, which, in a confined space, can be at hazardous pressure. Above Self-Accelerating Decomposition Temperature (SADT), 176°F(80°C), thermal decomposition can be very rapid.

Section 11 - Toxicological Information

ACUTE EYE EFFECTS: N/D

ACUTE DERMAL EFFECTS: N/D

ACUTE INHALATION EFFECTS: N/E



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ACUTE ORAL EFFECTS: LD50: >11800 mg/kg in rats

Section 12 - Ecological Information

96 Hr. LC50 - Fathead Minnows: 50-500 mg/l

48 Hr. EC50 - Daphnia Magna: 1-50 mg/l

The compound is a mild eye irritant, but is not a skin irritant in tests with laboratory animals, and is untested for skin sensitization. Toxic effects described in animals from short ingestion exposure include hyperactivity, salivary, diarrhea and red nasal discharge.

Section 13 - Disposal Considerations

WASTE DISPOSAL METHOD: Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State and Local regulations.

Section 14 - Transport Information

DOT TRANSPORTATION DATA:*

PROPER SHIPPING NAME: Self-Reactive Solid Type D
(1,1'-Azodi(Hexahydrobenzotrile))

HAZARD CLASS: 4.1

IDENTIFICATION NUMBER: UN 3226

PACKING GROUP: II

LABEL: Flammable Solid

SHIPPING CONTAINERS: Fiber Drums, Polyethylene Sample Bags.

*Contact Monomer-Polymer & Dajac Labs for information.



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Section 15 - Regulatory Information

CERCLA REPORTABLE QUANTITY: 100 Lbs.(45.4 kg)

RCRA STATUS: Meets the requirements of the Characteristic of Reactivity and has an EPA Hazardous Code of D001.

SARA TITLE III STATUS:

SECTION 311/312: Acute: Yes
Chronic: No
Fire: Yes
Reactivity: Yes
Pressure: Yes

LISTS:

Extremely Hazardous Substance	No
CERCLA Hazardous Substance	(Yes)*
TSCA Listed	Yes
Toxic Chemical	No

*Not specifically listed by CERCLA, but meets the generic definition of a Reactive Substance.

CANADIAN WHMIS CLASSIFICATION

B4; F

Consult MPD Labs for instruction

Section 16 - Other Information

ADDITIONAL MANUFACTURER WARNINGS:

Store only in closed, properly labeled containers.

Do not use cutting or welding torches on drums which contained this product unless they have been properly cleaned and purged.

Use only with adequate ventilation.

Do not eat, drink or smoke in work areas. Wash hands with soap and water prior to eating or using toilet facilities and at the end of the work shift. Launder contaminated clothing prior to reuse.

OTHER PRECAUTIONS AND COMMENTS: N/E



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PREVIOUS REVISION DATE:

N/A = Not Applicable

N/D = Not Determined

N/E = Not Established

S = Suspected

ST = Short Term Exposure Limit

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**** END MSDS ****