



Material Safety Data Sheet

Matrix Shield™

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Matrix Shield™
Product Family	Amine
Supplier	Matrix Drilling Fluids Ltd., Suite 1240, 540 - 5th Avenue S.W., Calgary, Alberta, T2P 0M2, 403-265-7660
Emergency Contact Information	CANUTEC, 613-996-6666 or *666 on a cellular phone (Canada Only), 24 Hours / Day
Use	Oil Field Additive

2. HAZARDS IDENTIFICATION

Potential Health Effects

Inhalation	Can cause severe irritation of the nose and throat. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest.
Skin Contact	CORROSIVE. May burn the skin. Permanent scarring may result.
Eye Contact	CORROSIVE. May cause serious eye damage. May irritate or burn the eyes. Permanent damage including blindness may result.
Ingestion	Can irritate the mouth, throat and stomach. Can burn the lips, tongue, throat and stomach.
Carcinogenicity	No information was located.
Teratogenicity / Embryotoxicity	No information was located.
Reproductive Toxicity	No information was located.
Mutagenicity	No information was located.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration %	Other Identifiers
Hexamethylenediamine	124-09-4	30 - 60	

Notes Concentrations are expressed in % weight/weight.

4. FIRST AID MEASURES

First Aid Procedures

Inhalation	Move victim to fresh air. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, trained personnel should administer emergency oxygen. Seek immediate medical attention.
Skin Contact	Avoid direct contact. Wear chemical protective clothing if necessary. Quickly take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately flush with lukewarm, gently flowing water for at least 30 minutes. Seek medical attention.
Eye Contact	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay flushing or attempt to remove the lens.
Ingestion	Have victim rinse mouth with water. Loosen tight clothing such as a collar, tie, belt or waist

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band. NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Immediately call a Poison Centre or doctor.

5. FIRE FIGHTING MEASURES

Flammable Properties	Does not burn.
Suitable Extinguishing Media	Foam Dry chemical Carbon Dioxide Water Spray.
Unsuitable Extinguishing Media	None known.
Protective Equipment and Precautions for Firefighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Firefighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Evacuate downwind locations. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Remove or isolate incompatible materials as well as other hazardous materials.
Environmental Precautions	If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas. Do not allow into any sewer, on the ground or into any waterway.
Methods for Containment and Clean-up	Contain and soak up spill with absorbent that does not react with spilled product. Contaminated absorbent poses the same hazard as the spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. After cleaning, flush away traces with water collect washing for disposal.

7. HANDLING AND STORAGE

Handling	Avoid generating vapours or mists. Only use where there is adequate ventilation. Wear personal protective equipment to avoid direct contact with this chemical. Keep containers tightly closed when not in use or empty.
Storage	Store in a dry place. Do not store in unlabeled containers. Store in tightly closed containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Hexamethylenediamine	0.5 ppm	Not established	Not established	Not established	1 ppm	Not established

Engineering Controls General ventilation is usually adequate. Use a local exhaust ventilation and enclosure, if necessary, to control amount in the air. Provide eyewash and safety shower if contact or splash hazard exists.

Personal Protective Equipment (PPE)

Eye/Face Protection	Wear chemical safety goggles.
Skin Protection	Skin contact should be minimized though use of gloves and suitable long sleeved clothing (i.e., shirt and pants, coveralls) chemically resistant gloves should be used.
Respiratory Protection	Do not breathe in this product. NIOSH/MSHA Approved respirator recommended when TLV's are exceeded.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colourless liquid.
Odour	Not available
Odour Threshold	Not available
Boiling Point	> 100 °C (212 °F)
Decomposition Temperature	Not available
Melting Point	Not available
Freezing Point	Not available
Relative Density (water = 1)	0.963
Solubility in Water	Not available
pH	Not available
Vapour Pressure	Not available
Vapour Density (air = 1)	Not available
Evaporation Rate	Not available
Flash Point	Not available

10. STABILITY AND REACTIVITY

Chemical Stability	Normally stable.
Conditions to Avoid	None known.
Incompatible Materials	Strong oxidizing agents (e.g. perchloric acid). Ketones (e.g. acetone). Phenols (e.g. carboric acid). Halogenated compounds (e.g. trichloroethylene).
Hazardous Decomposition Products	Oxides of Carbon Oxides of Nitrogen Ammonia Amines Hydrogen Cyanide.
Possibility of Hazardous Reactions	Not applicable.

11. TOXICOLOGICAL INFORMATION

LC50/LD50 Values

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Hexamethylenediamine	0.95 mg/L (rat) (4-hour exposure) (aerosol)	980 mg/kg (rat)	2000-3160 mg/kg (rabbit)

Skin Irritation/Corrosion

Animal tests show skin corrosion following prolonged exposure (24 hours).

Eye Irritation/Corrosion

Animal tests show corrosive eye damage.

Effects of Short-Term (Acute) Exposure

Inhalation

Highly toxic based on animal inhalation exposure studies. Repeated inhalation exposure produced changes to the lungs in animal models. Repeated exposure produced respiratory tract irritation in animal models.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
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Hexamethylenediamine	Not Listed	Not designated	Not Listed	Not Listed
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12. ECOLOGICAL INFORMATION

General Comments Environmental information was not located.

Ecotoxicity Studies were not located.

Persistence and Degradability Biodegrades.

Bioaccumulation / Accumulation No information was located.

13. DISPOSAL CONSIDERATIONS

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

14. TRANSPORT INFORMATION

Shipping Information

Regulation	UN No.	Shipping Name	Class	Packing Group
Canadian TDG	UN1783	HEXAMETHYLENEDIAMINE SOLUTION (Hexamethylenediamine)	8	II
US DOT	UN1783	HEXAMETHYLENEDIAMINE SOLUTION (Hexamethylenediamine)	8	II

Other Transport Information

Special Shipping Information Not applicable

15. REGULATORY INFORMATION

Canada

WHMIS Classification



Class E

E - Corrosive

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 the Controlled Products Regulations.

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL/NDSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

16. OTHER INFORMATION

MSDS Prepared By Product Safety Committee

Phone No. 403-279-8545

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Disclaimer

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.