

1 . Product and company identification

Product name : MORLIFE™ 5000
Material uses : Asphalt additive
Manufacturer : MeadWestvaco Corporation (www.mwv.com)
Specialty Chemicals Division
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Tel: +1 843 740 2236, +1 800 458 4034
(0800 - 1700 EST)
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Emergency telephone number : » Tel: +1 800 424 9300 (USA) CHEMTREC

2 . Hazards identification

Physical state : Liquid.
Odor : Fishy
Color : Brown. (Dark.)
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : Warning!

CAUSES SEVERE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, DIGESTIVE SYSTEM, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED.
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, LIVER, GASTROINTESTINAL TRACT.
Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Severely irritating to eyes.
Skin : Harmful in contact with skin. Severely irritating to the skin. May cause sensitization by skin contact.
Inhalation : Severely irritating to the respiratory system.
Ingestion : Harmful if swallowed.

Potential chronic health effects

Carcinogenic effects : No known significant effects or critical hazards.
Mutagenic effects : No known significant effects or critical hazards.
Teratogenic effects : No known significant effects or critical hazards.
Target organ effects : Contains material which causes damage to the following organs: lungs, digestive system, upper respiratory tract, skin, eye, lens or cornea.
Contains material which may cause damage to the following organs: kidneys, liver, gastrointestinal tract.

2. Hazards identification

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organ damage.

Over-exposure signs/symptoms : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organ damage.

See toxicological information (section 11)

3. Composition/information on ingredients

<u>Ingredient name</u>	<u>CAS number</u>	<u>% by weight</u>
Alkylamines	proprietary	77 - 88
Alkanol amines	proprietary	7 - 13
Alkylene amines	proprietary	5 - 10

4. First aid measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.

Skin contact : Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

5. Fire fighting measures

Products of combustion : Emits acrid smoke and irritating fumes when heated to decomposition. These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂ etc.).

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : None.

Explosive properties : No specific hazard.

5. Fire fighting measures

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards: : Work upwind of fire.

6. Accidental release measures

Personal precautions: : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions: : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up: : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13).

7. Handling and storage

Handling: : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Wash thoroughly after handling.

Storage: : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8. Exposure controls/personal protection

Product name

Diethanolamine

Exposure limits

ACGIH TLV (United States, 1/2005). Skin Notes: 1994-1995 Adoption

TWA: 2 mg/m³ 8 hour/hours. Form: All forms

TWA: 0.46 ppm 8 hour/hours. Form: All forms

OSHA PEL 1989 (United States, 3/1989).

TWA: 15 mg/m³ 8 hour/hours. Form: All forms

TWA: 3 ppm 8 hour/hours. Form: All forms

Diethylenetriamine

ACGIH TLV (United States, 1/2004). Skin

TWA: 4.2 mg/m³ 8 hour/hours. Form: All forms

TWA: 1 ppm 8 hour/hours. Form: All forms

OSHA PEL 1989 (United States, 3/1989).

TWA: 4 mg/m³ 8 hour/hours. Form: All forms

TWA: 1 ppm 8 hour/hours. Form: All forms

Engineering measures: : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eye/face

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Recommended: Safety glasses with side shields, safety goggles or face shield.

Skin

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

>8 hour/hours (breakthrough time): PVC

8 . Exposure controls/personal protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Body: Recommended: Lab coat, apron or coveralls.

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

General information

- Physical state** : Liquid.
- Color** : Brown. (Dark.)
- Odor** : Fishy
- Flash point** : Closed cup: 146°C (294.8°F). (Pensky-Martens.)

Important health, safety and environmental information

- pH** : 11.9 (Conc. (% w/w): 15) [Basic.]
- Boiling/condensation point** : 255°C (491°F)
- Melting/freezing point** : -24°C (-11.2°F)
- Density** : 1.09 g/cm³ (9.047 lb(s)/gal)
- Specific gravity** : 1.09 (Water = 1)
- Vapor pressure** : 0.001 kPa (0.01 mm Hg) (at 20°C)
- Vapor density** : 4.6 (Air = 1)
- Volatility** : 23 to 27% (w/w)
- Evaporation rate** : <0.01 compared with Ether (anhydrous).

Other information

- Decomposition temperature** : Not available.

10 . Stability and reactivity

- Stability** : The product is stable.
- Incompatibility with various substances** : Incompatible with strong oxidizing agents, acids, aldehydes, ketones, halides, acrylates, alkali metals, and epoxides.
- Hazardous polymerization** : Will not occur.
- Conditions of reactivity** : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Work upwind of fire.

11 . Toxicological information

Toxicity data

<u>Product/ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Triethylenetetramine	LD50	2500 mg/kg	Oral	Rat
	LD50	5500 mg/kg	Oral	Rabbit
	LD50	38.5 mg/kg	Oral	Mouse
	LD50	805 mg/kg	Dermal	Rabbit
Diethanolamine	LD50	2200 mg/kg	Oral	Rabbit
	LD50	3300 mg/kg	Oral	Mouse
Diethylenetriamine	LD50	1080 mg/kg	Oral	Rat

11 . Toxicological information

Aminoethylpiperazine	LD50	1090 mg/kg	Dermal	Rabbit
	LD50	2140 mg/kg	Oral	Rat
	LD50	880 mg/kg	Dermal	Rabbit

Target organ effects : Contains material which causes damage to the following organs: lungs, digestive system, upper respiratory tract, skin, eye, lens or cornea.
Contains material which may cause damage to the following organs: kidneys, liver, gastrointestinal tract.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Irritant/Sensitizer

Ingestion : No known significant effects or critical hazards.

Inhalation : Severely irritating to the respiratory system.

Eyes : Severely irritating to eyes.

Skin : Severely irritating to the skin. May cause sensitization by skin contact.

12 . Ecological information

Ecotoxicity data

<u>Product/ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Triethylenetetramine	Daphnia (EC50)	48 hour/hours	31.1 mg/l
	Pimephales promelas (LC50)	96 hour/hours	495 mg/l
Diethanolamine	Pimephales promelas (LC50)	96 hour/hours	100 mg/l
	Daphnia magna (LC50)	96 hour/hours	100 mg/l
	Pimephales promelas (LC50)	96 hour/hours	>100 mg/l
	Daphnia magna (LC50)	96 hour/hours	>100 mg/l
	Pimephales promelas (LC50)	96 hour/hours	1370 mg/l
	Pimephales promelas (LC50)	96 hour/hours	1480 mg/l
Diethylenetriamine	Poecilia reticulata (LC50)	96 hour/hours	1014 mg/l
Aminoethylpiperazine	Pimephales promelas (LC50)	96 hour/hours	2190 mg/l

Environmental precautions : Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Products of degradation : These products are carbon oxides (CO, CO₂) and water, nitrogen oxides (NO, NO₂ etc.).

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.




RCRA classification : **Description:** Non-hazardous waste

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification (Bulk)	UN2735	Amines, liquid, corrosive, n.o.s. (Triethylenetetramine; Diethylenetriamine)	8	III		-
IATA-DGR Class	UN2735	Amines, liquid, corrosive, n.o.s. (Triethylenetetramine, Diethylenetriamine)	8	III		-
IMDG Class	UN2735	Amines, liquid, corrosive, n.o.s. (Triethylenetetramine, Diethylenetriamine)	8	III		-

PG* : Packing group

15 . Regulatory information

- HCS Classification** : Irritating material
Sensitizing material
Target organ effects
- U.S. Federal regulations** : TSCA §§ 4(a), 4(f), 5(a)(2), 5(e), 6, 8(a), 8(c), 8(d), 12(b): No products were found. See "International lists"
SARA 302/304/311/312 extremely hazardous substances: Not applicable.
SARA 302/304 emergency planning and notification: Not applicable.
SARA 302/304/311/312 hazardous chemicals: Triethylenetetramine; 2-(2-aminoethylamino)ethanol; Diethanolamine; Diethylenetriamine
SARA 311/312:
MORLIFE™ 5000:
Immediate (acute) health hazard, Delayed (chronic) health hazard
CERCLA: Hazardous substances.: Diethanolamine: 100 lbs. (45.36 kg);

SARA 313

Form R - Reporting requirements	Product name	CAS number	Concentration
	: Diethanolamine	111-42-2	7 - 13

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

- State regulations** : Connecticut hazardous material survey.: Aminoethylpiperazine
Rhode Island RTK hazardous substances: Diethylenetriamine
Pennsylvania RTK: Triethylenetetramine: (generic environmental hazard); 2-(2-aminoethylamino)ethanol: (generic environmental hazard); Diethanolamine: (environmental hazard, generic environmental hazard); Diethylenetriamine: (generic environmental hazard); Aminoethylpiperazine: (generic environmental hazard)
Florida: Aminoethylpiperazine
Minnesota: Diethylenetriamine
Massachusetts RTK: Triethylenetetramine; 2-(2-aminoethylamino)ethanol; Diethanolamine; Diethylenetriamine; Aminoethylpiperazine
New Jersey: Triethylenetetramine; 2-(2-aminoethylamino)ethanol; Diethanolamine; Diethylenetriamine; Aminoethylpiperazine

- California Prop. 65** : The required chemical analyses and risk assessments were performed on this product. Results indicate that there are no significant risks (or observable effects), as defined by this statute, associated with this product under conditions of normal use.

Canada

15 . Regulatory information

Class D-1B: Material causing immediate and serious toxic effects (Toxic).
 Class D-2B: Material causing other toxic effects (Toxic).
 Class E: Corrosive material
 Canadian NPRI: Diethanolamine

International regulations

International lists

: United States: This product and/or its components are TSCA Listed.

Canada: This product and/or its components is DSL Listed or acceptable under CEPA registration regulations.

Europe: This product is EINECS listed.

Australia: This product is AICS listed.

Japan: Not listed.

China: This product is listed on the Chinese IECSC.

South Korea: Not listed.

Philippines: Not listed.

New Zealand: This product is acceptable for use under HSNO regulations.

Switzerland: Not Acceptable.

16 . Other information

HMIS :	Health 3 *	NFPA :	Health 3
	Fire hazard 1		Flammability 1
	Reactivity 0		Instability 0
	Personal protection C		Special

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16 . Other information

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