6000
Material Safety Data Sheet

1 Company Identification

Innospec Fuel Specialties
8375 S. Willow Street
Littleton, CO 80124

Product information 1-800-441-9547
In Case of Emergency
Call Chemtrec 1-800-424-9300

2 Composition / Ingredient Information

Material	CAS Number	%
4-(2-Nitrobutyl) morpholine	2224-44-4	>76
4,4'-(2-Ethyl-2-nitrotrimethylene) dimorpholine	1854-23-5	2
Methylene dimorpholine	5625-90-1	<7
Morpholine	110-91-8	<6
1-Nitropropane	108-03-2	<6

3 Hazardous Identification

Potential Health Effects

EYE: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Mists may cause severe eye irritation and corneal injury.

SKIN: Short single exposure may cause severe skin irritation. Prolonged or repeated exposure may cause skin burns. A single prolonged exposure may result in the material being absorbed in harmful amounts. May cause allergic skin reaction in susceptible individuals.

INGESTION: Single dose oral toxicity is considered to be low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

INHALATION: If material is heated or aerosol/mist is produced, concentrations may be attained that are sufficient to cause respiratory irritation.

TERATOLOGY: Birth defects are unlikely. Even exposures having an adverse effect on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: No relevant information found.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA, ACGIH as carcinogens.

4 First Aid Measures

Inhalation
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Skin Contact
Flush skin with water after contact. Wash contaminated clothing before reuse.

Eye Contact
In case of contact immediately, flush eyes with plenty of water for at least 15 minutes. Call a physician.

Ingestion
Allow victim to rinse his mouth and then to drink large quantities of milk, egg whites or gelatin solution. If these are not available, drink large quantities of water. Avoid alcohol. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression, and convulsions may be needed.

5 Fire Fighting Measures

Flammable Properties
Flash Point..... >174°F (>79°C)
Method..... PMCC

Hazardous Combustion Products
During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: nitrogen oxides, carbon monoxide, carbon dioxide.

Other Flammability Information
Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Extinguishing Media
Water Spray, Foam, Dry Chemical, CO_2.

Fire Fighting Instructions
Wear positive pressure self-contained breathing apparatus. Wear full protective equipment. Fight fire from a protected location or safe distance. Immediately withdraw all personnel from area.

6 Accidental Release Measures

Note: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) SECTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Soak up with sawdust, sand, oil dry or other absorbent material. Remove source of heat, sparks, flame, impact, friction, or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas.

Spill Clean-Up
Soak up with sawdust, sand, oil dry or other absorbent material.

Accidental Release Measures
Spills are very slippery and should be cleaned up promptly.

7 Handling and Storage

Handling (Personnel)
Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

Handling (Physical Aspects)
Keep away from heat, sparks and flames.

Storage
Store in a well-ventilated place. Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations.

8 Exposure Controls

Engineering Controls
Use only with adequate ventilation. Keep container tightly closed.

Personal Protective Equipment

Eye/Face Protection
Wear coverall chemical splash goggles or safety glasses.

Respirators
Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

Protective Clothing
Where there is potential for skin contact have available and wear as appropriate Impervious gloves, apron, pants, hood and jacket.

Exposure Limits

Morpholine:
PEL (OSHA) .....20 ppm
TLV (ACGIH) .....20 ppm, Skin, A4
AEL* (Innospec Fuel Specialties) .....none established

1-Nitropropane:

PEL (OSHA) .....25 ppm
TLV (ACGIH) .....25 ppm
AEL* (Innospec Fuel Specialties) .....none established

The “skin” notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposure should be considered

* AEL is Innospec Fuel Specialties’ acceptable exposure limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

9 Physical and Chemical Properties

Physical Data

Appearance..... Yellowish brown
Form..... Liquid
Odor..... Amine
Specific Gravity..... 1.1 max @ 77/77°F (25/25°C)
Density..... 9.16 lbs/gal @ 77/77°F (25/25°C)
Solubility in water/miscibility..... 1 Nom.
pH ..... 9.5 – 10.0
Freezing Point..... 50°F (10°C)
Melting Point ..... 50°F (10°C)

10 Stability and Reactivity

Chemical Stability

Stable at normal temperatures and storage conditions. Unstable at elevated temperatures. Avoid temperatures >97°F (35°C). Can crystallize. Dissolve crystals before use by warming and mixing.

Incompatibility

Avoid contact with oxidizing materials. Avoid contact with: acidic pH and acids. Reaction with acid can generate formaldehyde gas.

Decomposition

Potentially violent decomposition can occur above 212°F (100°C). Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Decomposition products depend on temperature, air supply and the presence of other materials. Toxic flammable gasses can be released during decomposition.

Polymerization

Will not occur.

11 Toxicological Information

Animal Data

6000:

Oral LD50..... 620 mg/kg in rats
Dermal LD50..... 420 mg/kg in rabbits
Inhalation (aerosol) LC50..... 746 mg/L male rats nominal concentration
Mutagenicity..... In vitro studies were negative

12 Ecological Information

Movement & Partitioning: Based largely or completely on data for major component(s). Bioconcentration potential is low (BCF less than 100 or Low Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150). Soil organic carbon/water partition coefficient (Koc) is estimated to be 50.

Degradation & Persistence: Chemical degradation (hydrolysis) is expected in the environment within days to weeks.

Material is highly toxic to aquatic organisms on an acute basis. (LC50/EC50 between 0.1 and 1 mg/L in most sensitive species.)

Acute LC50 in bluegill (Lepomis macrochirus) is 1.3 mg/L

Acute LC50 in rainbow trout (Oncorhynchus mykiss) is 1.1 mg/L

Acute LC50 in water flea (Daphnia magna) is 1.0 mg/L

Acute LC50 in pink shrimp (Penaeus duorarum) is 2.2 mg/L

Material is practically non-toxic to birds on an acute basis (LD50 >2000 mg/kg)

Acute oral LD50 in mallard (Anas platyrhynchos) is 2695 mg/kg

Dietary LC50 in bobwhite (Colinus virginianus) is >5620 ppm

Dietary LC50 in mallard (Anas platyrhynchos) is >5620 mg/kg

Growth inhibition in marine crustation Chaetogammarus marinus (Amphipoda) is 8.8 mg/L

Acute EC50 in marine mussel Mytilus edulis is 2.5 mg/L

Acute EC50 in marine copepod Acartia tonsa is 0.52 mg/L

Acute EC50 in marine mussel Abra alba is 79 mg/L

Acute LC50 in saltwater mysid Mysidopsis bahia is 0.8 mg/L

13 Disposal Considerations

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial and Local regulations.

Do not dump in sewers, on the ground, or into any body of water.

14 Shipping Information

DOT

Proper Shipping Name..... Disinfectant Liquid, Toxic, n.o.s. (4-(2-Nitrobutyl) morpholine)
Hazard Class 6
I.D. No. (UN/NA) ..... UN 3142
Packing Group III
Special Information ..... Flash Point: >79°C
Marine Pollutant ..... No
DOT Label(s) ..... Toxic Liquids

Reportable Quantity

None

15 US Federal Regulations

TSCA Inventory Status..... All components may not be listed on TSCA Inventory. Registered pesticides are exempt from the requirements of TSCA.

EPA Registration # 464-659-68827

SARA 313

To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

16 Other Information

NPCA-HMIS Rating

Health..... 3
Flammability..... 2
Reactivity 0

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS:

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(800) 441-9547 or
(302) 451-1362