

Section 1. Supplier Information



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Section 2. Hazardous Ingredients

<u>Hazardous Component(s)</u>	<u>CAS #</u>	<u>PEL TWA</u>	<u>PEL Ceiling</u>	<u>TLV TWA</u>	<u>TLV STEL</u>	<u>MFG Limits</u>	<u>WGT %</u>
N-Methyl-2-pyrrolidone	872-50-4	N/E	N/E	N/E	N/E	N/E	40 - 80
Solvent naphtha, light arom.	64742-95-6	5 mg/m3	N/E	5 mg/m3*	10 mg/m	N/E	20 - 40
Xylene	1330-20-7	100 ppm	N/E	100 ppm	150 ppm	N/E	1 - 10
2-(2-Butoxyethoxy) ethanol	112-34-5	N/E	N/E	N/E	N/E	35 ppm	< 5
Dimethyl glutarate	1119-40-0	N/E	N/E	N/E	N/E	1.5 ppm	< 3

N/A = Not Applicable; N/E = Not Established; * = Mists; # = Skin; ' = Respirable Dust; " = Total Dust; ^ = Vapor; ** = Fumes; C = Ceiling Limit

All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory and the Canadian Domestic Substances List (DSL), or are exempt from the listing.

Section 3. Hazards Identification

Primary Routes of Entry

Inhalation: YES
Skin: YES
Ingestion: YES

Hazardous Materials Information System (HMIS) Ratings

Health: * 2
Fire: 2
Reactivity: 0
0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe
* = Chronic Hazard

Signs of Symptoms of Exposure:

INHALATION: High vapor or mist concentrations may produce nose, throat, and respiratory irritation and may cause central nervous system (CNS) depression.

SKIN: Material is mildly irritating to the skin. Prolonged or repeated contact may cause defatting and drying of the skin, resulting in irritation and dermatitis.

EYES: Irritation and possible temporary corneal clouding.

INGESTION: Ingestion of this product may result in vomiting. Aspiration (breathing) of vomitus into the lungs must be avoided, as even small quantities may result in aspiration pneumonitis.

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Chemical Listed as Potential Carcinogens:

NTP: NO

IARC: NO

OSHA: NO

Target Organs: Eyes, skin, and respiratory system.

Section 4. Emergency And First Aid Procedures

INHALATION: If adverse effects such as dizziness, nausea, or irritation are noted, move person to fresh air. If not breathing, give artificial respiration. Get medical attention!

SKIN: Immediately wash skin with large amounts of soap and water. Remove contaminated clothing and shoes; wash before reuse. Get medical attention if irritation persists after washing.

EYES: Flush eyes immediately with water for at least 15 minutes. If irritation persists, call a physician.

INGESTION: DO NOT INDUCE VOMITING! Contact a physician immediately!

Section 5. Fire Fighting Measures

Flash Point: 125 ° F (minimum)

Method Used: Tagliabue Closed Cup

Flammable Limits in Air % by Volume: LEL: 1.3

UEL: 9.5; for n-methyl-2-pyrrolidone

Extinguisher Media: Carbon dioxide, dry chemical, foam, or water fog.

Special Fire Fighting Procedures: Firefighters should wear a self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode, and protective clothing.

Unusual Fire And Explosion Hazards: Vapors are heavier than air and may travel along the ground or be moved by ventilation and ignited at locations distant from handling point.

Section 6. Accidental Release Measures

If material is spilled, eliminate all ignition sources. Keep people away. Recover free product. Add sand, earth or other suitable absorbent to spill area; place in closed containers for disposal. Ventilate confined spaces. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Continue to observe precautions for volatile, combustible vapors from absorbed material.

CERCLA (Superfund) Reportable Quantity (in lbs RQ Xylene = 100 lbs. (Product RQ = 2,275 lbs - 275 gallons)

Section 7. Handling and Storage

Handling: Avoid contact with skin and eyes; wash thoroughly after handling. Avoid breathing vapor; use with adequate ventilation.

Storage: Store in a dry location at room temperature. Keep container closed and maintain all original markings and labels. Keep this container and vapors from this container away from heat, sparks, flame, and other ignition sources.

Other: CAUTION! Do not use cutting or welding torches on containers, even when empty. Containers, even those that have been emptied, will retain product residue and vapors. Do not reuse container without recycling or reconditioning. Handle empty containers as if they were full.

Section 8. Exposure Controls and Personal Protection

Respiratory Protection: Use NIOSH / MSHA approved respirator where high vapor or mist concentrations are present.

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Local Exhaust:	Special ventilation is suggested at points where vapors can be expected to escape to the workplace air.
Mechanical Exhaust:	Mechanical ventilation should be sufficient to maintain exposure levels below exposure limits.
Protective Gloves:	Butyl rubber and FEP Teflon provide the best resistance.
Eye Protection:	Safety glasses with side shields. Do NOT wear contact lenses. Chemical goggles and/or faceshield should be worn where splashing is possible.
Other Protection:	Eye wash and safety shower should be readily available. Wear a chemical resistant apron and boots where splashing is possible.
Hygienic Practices:	Protective equipment and clothing should be selected, used and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer. Do not eat, drink, or smoke while using this product. Wash hands prior to eating, drinking, smoking, or using restrooms. Cleanse skin thoroughly after contact, before breaks and meals, and at the end of the work shift.

Section 9. Physical and Chemical Properties

Boiling Point:	280 ° F (initial)	Degree of water solubility:
Specific Gravity (H ₂ O=1):	0.96-0.98	Negligible = Less than 0.1%
Vapor Pressure (mm Hg):	N/E	Slight = 0.1% - 1%
Vapor Density (air=1)	~ 3.4	Moderate = 1% - 10%
Solubility in Water:	Slight.	Appreciable = More than 10%
Reactivity in Water:	None.	Complete = 100%
Weight per Gallon (lb/gal):	8.0 - 8.2 lbs/gal	
% Volatile by Volume:	100 %	
% Solid by Weight:	0 %	
Appearance and Odor:	Clear, colorless to light amber liquid with a mild odor.	
Theoretical VOC: (>0.1 mm Hg @ 20 ° C)	7.8 - 8.0 lbs/gal	
Analytical VOC : (EPA method 24)	8.0 - 8.2 lbs/gal	
pH:	N/A, product is solvent based.	

Section 10. Stability and Reactivity

Stability:	Stable.	Hazard Polymerization: Will not occur.
Conditions to Avoid:	COMBUSTIBLE! Keep from heat, sparks, or open flame.	
Incompatibility (Materials to Avoid):	Oxidizing agents, strong acids, moisture, strong bases, and salts of strong bases at elevated temperatures.	
Hazardous Decomposition Products:	Unidentified organic compounds, nitrogen oxides and oxides of carbons.	

Section 11. Toxicological Information

N-methyl-2-pyrrolidone [CASRN 000872-50-4]

ACUTE TOXICITY

Oral LD50 (rat) = 4,990 mg/kg (moderately toxic) Eye Irritation (rabbit) - markedly irritating

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Oral LD50 (mouse) = 5,270 mg/kg (slightly toxic) Skin irritation (rabbit) - markedly irritating
Inhalation LC50 (rat) > 5.1 mg/L, 4 hr (moderately toxic) Inhalation safety screen (rat), 8 hr - slightly irritating (No deaths)

Acute Overexposure Effects: Contact with the liquid can result in irritation. Skin contact should be avoided. Prolonged skin contact may result in redness and dermatitis. NMP is moderately toxic by all routes of exposure; however, due to its low vapor pressure, dermal exposure represents the primary hazard in most settings. Contact with the liquid results in moderate eye irritation and may cause temporary corneal clouding. Skin contact results in mild irritation; prolonged skin contact may cause redness and dermatitis. Inhalation of the vapors of NMP may result in respiratory irritation. Accidental ingestion of the liquid causes gastric disturbances and may result in nausea and vomiting.

Reproductive / Development Effects: In animal studies NMP was embryotoxic by the oral, dermal and intraperitoneal routes, but only after repeated high doses that approached the LD50 or were maternally toxic. Embryotoxicity without maternal toxicity was observed at a high concentration in one rat inhalation study, but not in others. Testicular effects in rats were noted after repeated, high-dose oral and inhalation exposures. NMP was not carcinogenic in rats receiving lifetime exposures via inhalation (100 ppm) or the diet. NMP was not fetotoxic or teratogenic in rats exposed to NMP vapors up to 0.36 mg/l during gestation (Fund. and Appl. Tox. 9:222-235, 1987). NMP has been reported to cause aneuploidy in saccharomyces, but is not mutagenic in the Ames test (Env. and Molec. Mut. 11(1) 31-40, 1988). [1-13,12,15-062001], [11,24-13,12,15-110200]

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Solvent naphtha (petroleum), light aromatic [CASRN 064742-95-6]

ACUTE TOXICITY

Oral LD50 (rat)	= 4.7 g/kg	Eye irritation (rabbit): Draize - 3.1/110
Dermal LD50 (rat)	= 4.0 ml/kg	Skin irritation (rabbit): Draize - slight to moderate.
Inhalation LC50 (rat)	> 3670 ppm, 8 hour	

Repeat Dose Testing: While there is no evidence that industrially acceptable levels of light hydrocarbon vapors (e.g., the occupational exposure limit) have produced cardiac effects in humans, animal studies have shown that inhalation of high levels produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms, which was shown to be enhanced by hypoxia or the injection of adrenaline-like substances.

Carcinogenicity: The National Toxicology Program [NTP] has reported a chronic inhalation study in rats of naphthalene, a minor component of this product. Naphthalene caused severe inflammation and an increase in tumors of the nasal epithelium in both sexes. NTP considered this to be clear evidence of carcinogenic activity of naphthalene in rats. The relevance to the inhalation toxicity of this product in humans is unknown.

Reproductive and Developmental Toxicity: Animal testing with light aromatic solvents demonstrated embryo/fetal effects but not malformations at concentrations producing maternal toxicity.

Neurotoxicity: Prolonged and repeated exposures to high concentrations of some volatile hydrocarbon solvents have resulted in hearing loss in rats. Solvent abusers and noise interaction with these solvents in the work environment may cause symptoms of hearing loss. Short term repeated inhalation exposure of humans to m-xylene (200 ppm or greater) was reported to produce slight impairment of vestibular and visual function and reaction time. In these studies, there was no evidence of cumulative effects but some evidence of tolerance or adaptation. Repeated inhalation studies with some similar solvents or components in animals have reported decreased activity typical of central nervous system depression, but no irreversible effects.

Other Information: Animal data suggest that slight anemia, adaptive liver changes, and kidney toxicity (male rat nephropathy) may be caused by repeated over exposure to some similar solvents. The significance of this to humans is unknown. [18,7-18,0,B,A,A-021901]

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Xylene [CASRN 001330-20-7]

ACUTE TOXICITY Oral LD50 (rat) = 3.523 g/kg Eye Irritation: Draize - 9.0/110 [Rabbit]
Dermal LD50 (rabbit) ~ 5 ml/kg Skin Irritation: Slight to moderate [Rabbit]
Inhalation LC50 (rat) = 6,700 ppm, 4 hr

Subchronic Testing: While there is no evidence that industrially acceptable levels of light hydrocarbon vapors (e.g., the occupational exposure limit) have produced cardiac effects in humans, animal studies have shown that inhalation of high levels produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms, which was shown to be enhanced by hypoxia or the injection of adrenaline-like substances.

Reproductive and Developmental Toxicity: In developmental toxicity studies conducted in laboratory animals, there is no evidence of teratogenicity following inhalation exposure to xylene, but delayed development and behavioral impairments have been observed at dose levels causing no or only slight maternal toxicity.

Neurotoxicity: Prolonged and repeated exposures to high concentrations of some volatile hydrocarbon solvents have resulted in hearing loss in rats. Solvent abusers and noise interaction with these solvents in the work environment may cause symptoms of hearing loss. Short term repeated inhalation exposure of humans to m-xylene (200 ppm or greater) was reported to produce slight impairment of vestibular and visual function and reaction time. In these studies, there was no evidence of cumulative effects but some evidence of tolerance or adaptation.

Human Experience: Over exposures of humans to xylene or xylene solvent mixtures produced predominately central nervous system (CNS) effects with less common effects reported to the lung, gastrointestinal tract, liver, kidney and heart. [18,7-23-060500]

Ethanol, 2-(2-butoxyethoxy) [CASRN 000112-34-5]

ACUTE TOXICITY

Oral LD50 (rat) = 5.1-5.7 g/kg Eye Irritation: Moderate [Rabbit]
Oral LD50 (mouse) = 2.4 g/kg Skin Irritation: Slight [Rabbit]
Dermal LD50 (rabbit) ~ 4 g/kg Inhalation LC50 (rat) > 18 ppm; 7 hours

Other Information: Kidney effects in male rats were observed in laboratory animals exposed to this material. Effects were consistent with male rat hyaline droplet nephropathy, which is of questionable significance to human health.

Mutagenicity: Animal mutagenicity studies were negative. In vitro mutagenicity studies were negative in some cases and positive in other cases. [3-3,3,1,6,4-121600], [18,7-1,3,6,4-020901], & [4,16-6,4,3,1-022001]

Dimethyl glutarate [CASRN 001119-40-0]

ACUTE TOXICITY Oral LD50 (rat) > 5,000 mg/kg Dermal LD50 (rabbit) > 5,000 mg/kg

The material is a mild eye irritant. It was of very low toxicity by ingestion and of moderate toxicity by skin contact. [3,20-3,1,4,-060601]

Section 12. Ecological Information

N-methyl-2-pyrrolidone [CASRN 000872-50-4]

ECOTOXICITY

96 hr LC50 (golden orfe) = 4,000 mg/l, static 24 hr EC/LC50 (daphnia magna) > 1000 mg/l

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72 hr EC/LC50 (algal) > 500 mg/l IC50 (bacteria) > 9000 mg/l

Fate: Abiotic Degradability: Photolysis Half-Life 5.2 hrs. Biotic Degradability: BOD 92% (14 day).
Theo. BOD (Modified MITI Test) 73 % (28 day)
Elimination (method not specified) > 90 %, Readily Biodegradable
Chemical Oxygen Demand: 1600 mg/l, Readily Biodegradable
Biological Oxygen Demand, 5 day: 1100 mg/l, Readily Biodegradable
Octanol/Water partition coefficient (log POW): -0.46 [11,24-13,12,15-110200], [1-13,12,15-062001]

Ethanol, 2-(2-butoxyethoxy) [CASRN 000112-34-5]

ECOTOXICITY

LC50 (Poecilia reticulata) = 1150 mg/L LC50 (Lepomis macrochirus) = 1300 mg/L LC50 (Leuciscus idus) = 1805-2304 mg/L LC50 (Menidia beryllina) = 2000 mg/L
LC50 (Carassius auratus) = 2700 mg/L LC50 (Daphnia magna) = 2850 mg/L
LC50 (Notropis atherinoides) > 500 mg/L Growth inhibition IC50 (bacteria) = 255 mg/L

MOVEMENT & PARTITIONING: Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Log octanol/water partition coefficient (log Pow) is 0.56. Potential for mobility in soil is high (Koc between 50 and 150). Log soil organic carbon partition coefficient (log Koc) is estimated to be 1.88. Henry's Law Constant (H) is estimated to be 1.52E-9 atm.m3/mol.

DEGRADATION & PERSISTENCE: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). Degradation is expected in the atmospheric environment within minutes to hours. 5-Day biochemical oxygen demand (BOD5) is 0.05 p/p. 10-Day biochemical oxygen demand (BOD10) is 0.39 p/p. 20-Day biochemical oxygen demand (BOD20) is 1.08 p/p. Theoretical oxygen demand (ThOD) is calculated to be 2.17 p/p. Biodegradation rate may increase in soil and/or water with acclimation. [3-3,3,1,6,4-121600]
Dimethyl glutarate [CASRN 001119-40-0]

ECOTOXICITY 96 hr LC50 (bluegill sunfish) = 30.9 mg/L (moderately toxic)

Dimethyl glutarate was tested for biodegradability using the 28-day closed bottle test. A minimum of 60% biodegradation must be reached in a 14 day window after exceeding the 10% level in order to pass this test and be rated as readily biodegradable. Dimethyl glutarate passed this test and, therefore is considered readily biodegradable. (70% biodegradability in day 7) [3,20-3,1,4,-060601]

Section 13. Disposal Considerations

Waste Disposal Methods (Federal, State, Local):

In accordance with all federal, state and local requirements.

RCRA Hazardous Waste Number: D001, U239

Section 14. Transport Information

Hazardous Material Description:

(Proper shipping name, hazard class, hazard ID#, packing group)

Domestic ground non-bulk: NOT REGULATED

Domestic ground bulk: NA1993, COMBUSTIBLE LIQUID, N.O.S., PG III (N-METHYL-2-PYRROLIDONE, PETROLEUM NAPHTHA)

International: UN1993, FLAMMABLE LIQUID, N.O.S., 3, PG III (N-METHYL-2-PYRROLIDONE, PETROLEUM NAPHTHA)

Section 15. Regulatory Information

SARA 313 Information This product contains the following chemical(s) above de minimis concentrations and may be subject to reporting under section 313:

N-methyl-2-pyrrolidone, CAS# 872-50-4, 55 - 65 %.

1,2,4-Trimethylbenzene (in solvent naphtha), CAS# 95-63-6, 5 - 20 %.

Reportable category: Certain glycol ethers, 1 - 10 %.

Xylene, CAS# 1330-20-7, 1 - 10 %.

Section 16. Other Information

This MSDS contains revisions in the following sections: New product

Prepared by: Andrew J. Thomas Chemist

Revised by:

The development of this Material Safety Data Sheet (MSDS) relies upon information provided to us by each of our raw material suppliers. This MSDS will be updated as changes occur to their MSDS(s).

We believe the recommendations and technical information contained herein to be accurate. However, they are given without warranty or guarantee, expressed or implied, and we assume no responsibility for losses or damage, direct or indirect, as a result of their use.