

Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



Effective Date: 3/18/03 **Material Safety Data Sheet 1KSP, 1KSP-H, 1KSP-S, 1KP-SP**

In an Emergency Call Chemtrec at 1-800-424-9300

1. Product Identification

Trade Name: 1KSP, 1KSP-H, 1KSP-S, 1KP-SP

Chemical Family: Aqueous Polyurea Dispersion

Health	1
Flammability	1
Reactivity	0
Protective Equipment	

HMIS RATING

2. Composition/Information on Ingredients

OSHA Hazardous Ingredients:

OSHA	CAS No.	Chemical Identity	Exposure Limits				Carcinogen Status			
			ACGIH		OSHA		MFR	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	872-50-4	n-Methyl Pyrrolidinone (nMP)	NE	NE	NE	NE	NE	NR	NR	NR
	Common Name									

NE = Not Established NR = Not Reviewed * = OSHA Hazardous Ingredient

3. HAZARDS IDENTIFICATION

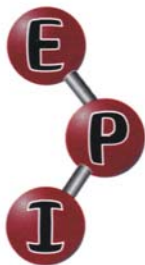
POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY : Inhalation; Skin Contact; Eye Contact; Ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE: nMP vapors may cause irritation to the eye, nose, and throat. Symptoms of irritation may include: red, itchy eyes, dryness of the throat and tightness in the chest. Exposure to very high concentrations of nMP may cause: headache, nausea, narcosis, fatigue and loss of appetite.

CHRONIC INHALATION : Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage. Symptoms include loss of memory, loss of



Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



intellectual ability, and loss of coordination..

ACUTE SKIN CONTACT : In a repeated insult patch test using nMP, 50 human subjects showed no irritation during the first 24-hour exposure. However, through repeated and prolonged contact, some mild transient irritation reactions were noted. No evidence pointing to sensitization was noted. Although these tests indicate the material is only mildly irritating to the skin, experience over many years has included reports of skin effects, usually associated with continued or repeated gross contact with nMP such as might be associated with washing by hand of metal or other parts in open containers of the solvent. Based on this experience, repeated or prolonged skin contact should be avoided. nMP can penetrate the skin and may cause effects similar to those identified under acute inhalation symptoms.

CHRONIC SKIN CONTACT : Chronic skin exposure to organic solvents may cause effects similar to those identified under chronic inhalation effects.

ACUTE EYE CONTACT : Vapors of nMP may cause irritation to the eyes with symptoms of tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. This product also contains an amine at less than 1%. Vapors of this amine can cause a blurring of vision known as "glauropsia" or "halo vision". Glauropsia is not detrimental to the eye per se, but it predisposes a person to physical accidents and reduces the ability of the affected individual to undertake skilled tasks such as driving a motorized vehicle or operating heavy equipment. However, these effects are usually reversible.

CHRONIC EYE CONTACT : Prolonged vapor contact may cause conjunctivitis.

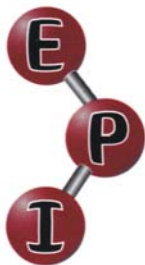
ACUTE INGESTION : Can result in irritation in the digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea. Vomiting may cause aspiration of solvent resulting in chemical pneumonitis.

CHRONIC INGESTION... : None determined.

CARCINOGENICITY. : The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Persons with preexisting eye, skin and respiratory tract disorders may be more susceptible to the effects of this product.



Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



4. First Aid Measures

FIRST AID FOR EYES...: Flush immediately with clean, lukewarm water (low pressure) for at least 15 minutes, while holding eyelids open. Obtain medical attention if irritation persists.

FIRST AID FOR SKIN...: Remove contaminated clothing. Wash affected areas thoroughly with soap and water. Wash contaminated clothing before reuse.

FIRST AID FOR INHALATION: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention.

FIRST AID FOR INGESTION: DO NOT INDUCE VOMITING. DO NOT GIVE ANYTHING BY MOUTH TO AN CONSCIOUS PERSON. Consult a physician.

5. FIRE FIGHTING MEASURES

FLASH POINT.....: Not applicable (water based product), however, solid material will support combustion if water has been evaporated.

FLAMMABLE LIMITS:

UPPER EXPLOSIVE LIMIT (UEL) (%): 12.2 NMP

LOWER EXPLOSIVE LIMIT (LEL) (%): 2.2 NMP

EXTINGUISHING MEDIA : Carbon Dioxide; Dry Chemical; Foam; Water

SPECIAL FIRE FIGHTING PROCEDURES: Full emergency equipment with self-contained breathing apparatus should be worn. During a fire irritating, toxic gases (see Reactivity Data) and smoke are present from decomposition/combustion. Closed container may explode when exposed to extreme heat. Solid residue will support combustion after the water has evaporated.

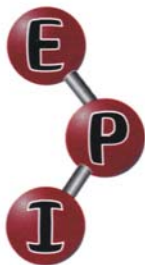
6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES: Remove all sources of ignition. Ventilate the area. Equip clean-up crew with appropriate protective equipment (See Employee Protection Recommendations). Dike or impound spilled material and control further spillage if feasible. Notify appropriate authorities if necessary. Cover spill with sawdust, vermiculite, Fuller's earth or other absorbent material; collect material in open containers. Remove containers to safe place and cover. Flush spill area with water.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE(MIN/MAX): 41 F (5 C)/122 F (50 C)

SHELF LIFE : Approximately 6 months at 71 F (25 C) in closed original container.



Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



SPECIAL SENSITIVITY : Material is water based and can freeze at temperatures below 32 F. nMP is hygroscopic.

HANDLING/STORAGE PRECAUTIONS: Protect from freezing. Containers should be tightly sealed to prevent contamination with foreign materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION REQUIREMENTS: Liquid chemical goggles or full-face shield. Contact lenses should not be worn.

SKIN PROTECTION REQUIREMENTS..... : Chemical resistant gloves (natural latex and neoprene recommended). Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered only by the cream to a minimum.

VENTILATION/RESPIRATORY REQUIREMENT: Exhaust ventilation sufficient to keep the airborne concentrations of the hazardous constituents below the appropriate TLV or other exposure limit must be utilized. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent the build up of explosive atmospheres and to prevent off gases from entering the work place. In addition, a respirator that is recommended or approved for use in organic vapor containing environments (air purifying or fresh air supplied) may be necessary. In spray applications an organic vapor/particulate respirator or air supplied unit is necessary. The use of a positive pressure supplied air respirator is mandatory when: airborne concentrations are not known; when airborne concentrations are 10 times the TLV; or if spraying is performed in a confined space or area with limited ventilation. Consider type of application and environmental concentrations. Take into account other materials being used concurrently. Observe OSHA regulations for respirator use (29 CFR 1910.134).

ADDITIONAL PROTECTIVE MEASURES..... : Safety showers and eye wash stations should be easily accessible to the work area. Worker training is important. Follow all label precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR.....: Slight Solvent Odor

PHYSICAL STATE.....: Liquid

SOLUBILITY IN WATER.....: Disperses

SPECIFIC GRAVITY.....: 1.07

BOILING POINT.....: water 212F (100 C)

VAPOR DENSITY.....: nMP: 3.4 (Air = 1)

PH.....: 7.5-9.5

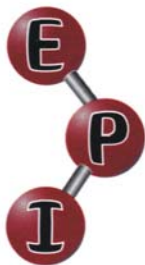
% VOLATILE BY WEIGHT.....: Approximately 65% (50% water)

10. STABILITY AND REACTIVITY

Stability: This is a stable material.

Incompatibility: Strong oxidizing or reducing agents.

Hazardous Decomposition Products: By fire: CO, CO₂, oxides of nitrogen



Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



Hazardous Polymerization: Will not occur.

Instability Conditions: temperatures below 32 F (0 C).

11. TOXICOLOGICAL INFORMATION

Acute Oral Effects (LD50): 3914 mg/kg (Rat) (RTECS)

Acute Dermal Toxicity (LD50): 2472 mg/kg intraperitoneal (Rat) (RTECS)

Inhalation Toxicity (LC50): LCLo: 1 gm/m³ (Rat) (RTECS)

Eye Effects: Moderate irritation to Rabbit eyes (Standard Draize Test) (RTECS)

Skin Effects : Contact may cause mild irritation, skin absorption may occur. Prolonged contact has been reported to cause severe dermatitis with redness, cracking, swelling, blisters and edema. (MDL Services, Inc. MSDS)

Chronic Toxicity: In animal studies in rats and mice, n-methylpyrrolidone (NMP) was embryotoxic by the oral and intraperitoneal routes at very high dose levels which were close to the LD50 of NMP (1400 mg/kg -Rat). In a dermal exposure study with rats, NMP was only embryotoxic at the high dose level; this effect was attributed to maternal toxicity.* In a 2 year inhalation study, NMP did not cause any chronic or carcinogenic effects in rats at 0.04 or 0.4 mg/L (10 and 100 ppm respectively). Testicular effects were seen after oral and inhalation exposure at high dose levels in animal studies (Oral exposure: 2000 mg/kg -Rats -28 days; Inhalation exposure: 3mg/l** -6 hours/5 days a week for 90 days).* In the inhalation test, the 0.5 mg/l (125 ppm) level was a clear no-adverse-effect concentration. The likelihood of exposure via a liquid respirable aerosol route should be low for both consumer and workplace settings.*

Developmental Toxicity: One dermal teratology study in rats showed evidence of teratogenic effects at doses of 750 mg/kg, which were attributed to maternal toxicity.

Other toxicity Data: Rats exposed to NMP vapors for a single uninterrupted six hour period survived the highest concentrations studied, and showed no evidence of toxic effects during a two-week observation period. Rats exposed to saturated vapor concentrations of NMP for 6H/day for 10 days also showed no evidence of toxic effects.

* Supplier Material Safety Data Sheet

** This dose level is for above the vapor saturation point.

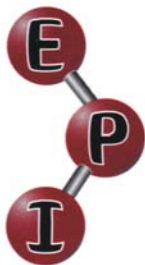
12. ECOLOGICAL INFORMATION

Additional Information: No ecological information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose in accordance with federal, state and local regulations for water based products.

14. TRANSPORT INFORMATION



Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



DOT:

Proper Shipping Name: Aqueous Polyurethane Dispersion
Hazard Class: Non-Regulated
ID Number:
Packing Group: Chemicals NOI

15. REGULATORY INFORMATION

OSHA STATUS. : This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS. : On TSCA Inventory

CERCLA REPORTABLE QUANTITY..: None

SARA TITLE III:

SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: None

SECTION 311/312'

HAZARD CATEGORIES : Immediate Health Hazard; Delayed Health Hazard SECTION 313
TOXIC CHEMICALS ...: N-Methylpyrrolidinone (CAS 872-50-4) Approx. 16%

RCRA STATUS : If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

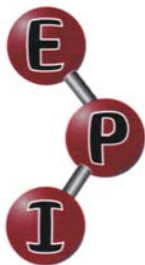
COMPONENT NAME
/CAS NUMBER CONCENTRATION STATE CODE

n-Methyl Pyrrolidinone (nMP)
872-50-4 Approx. 16 % PA1, CA2, MA, NJ2

Water
7732-18-5 45-50 % PA3, NJ4

Polyurethane
NJTSRN (31765300002)-5228P
Approx. 35 % PA3, NJ4

Polyether resin
NJTSRN (31765300002)-11104



Engineered Polymers, LLC.
2842 Progress Road Madison, WI 53716

Phone: (608) 661-2800
Fax: (608) 661-2817

www.engineeredpolymers.net

An Amber Chemical Group Company
www.amberchemical.com

REACTAMINE[®] 1KSP



Less than 3 % PA3, NJ4

CA2 = Warning! This chemical is known to the State of California to cause birth defects or other reproductive harm.

MA = Massachusetts Hazardous Substance List

NJ2 = New Jersey Environmental Hazardous Substance List

NJ4 = New Jersey Other -included in 5 predominant ingredients > 1%

NJTSTRN = New Jersey Trade Secret Registry Number

PA1 = Pennsylvania Hazardous Substance List

PA3 = Pennsylvania Non-Hazardous present at 3% or greater.

16. OTHER INFORMATION

Disclaimer: The following supercedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict liability, tort or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.