SAFETY DATA SHEET

MaceKote 8539

Revision Date 8/14/2015 Version: 1.0.0

SECTION 1: Identification of the substance/ mixture and of the company/ undertaking

Trade name:	MaceKote 8539
Description:	Water-borne polyurethane dispersion
Supplier:	Mace Polymers & Additives Inc.
Street:	38 Roberts Road
P.O. Box:	PO Box 1517
Postal code/city:	Dudley, MA 01571
Country:	USA
Telephone:	(508) 943-9052
Fax:	(508) 943-6527
E-mail (competent person):	egulla@maceco.com

Emergency telephone number: CHEMTREC (800) 424-9300 (US)

SECTION 2: Hazards identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the Substance or mixture:
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
CARCINOGENICITY - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms:

Signal word: WARNING

Hazard statements:
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H351 Suspected of causing cancer
H360 May damage fertility or the unborn child
H372 May cause damage to organs through prolonged or repeated exposure.

General:
P101 If medical advice is needed, have product container or label at hand
P102 Keep out of reach of children
P103 Read label before use

Precautionary statements:
P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray
P264 Wash hands thoroughly after handling
P271 Use only outdoors or in a well-ventilated area
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection
P312 Call a POISON CENTER if you feel unwell

SECTION 3: Composition/ information on ingredients

Substance/Mixture: Mixture

Other means of Identification: Not available

CAS number/ other identifiers

Ingredient name	*% by weight*	*CAS numbers*
DPM Glycol Ether	3-6	34590-94-8
N-Methyl-2-pyrrolidone	6-8	872-50-4
Triethylamine	1-3	121-44-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

Description of necessary first aid measures:

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

Most important symptoms/ affects, acute and delayed

Potential acute health affects

Eye contact: Causes serious eye irritation

Inhalation: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure

Skin contact	No known significant effects or critical hazards.
Ingestion	May be irritating to mouth, throat and stomach.

Overexposure signs-symptoms

Eye contact	Adverse symptoms may include the following: pain or irritation, watering, and redness
Inhalation	Adverse symptoms may include the following: Reduced fetal weight/increase in fetal deaths/ skeletal malformations
Skin contact	Adverse symptoms may include the following: Reduced fetal weight/increase in fetal deaths/ skeletal malformations
Ingestion	Adverse symptoms may include the following: Reduced fetal weight/increase in fetal deaths/ skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours..
Specific treatments	No specific treatment
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon monoxide
Unsuitable extinguishing	None known

Special hazards arising from the substance or mixture: Carbon oxides, nitrogen oxides (NOx)

Advice for firefighters	Wear self-contained breathing apparatus for firefighting if necessary
Further information	Use water spray to cool unopened containers

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spills:	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and Storage

Precautions for safe handling

Protective measures Put on appropriate personal protective equipment (see Section 8). Avoid exposure obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers.
Use appropriate containment to avoid environmental contamination.

SECTION 8: Exposure controls/personal protection

Control parameters/ Occupational exposure limits

Ingredient name	*Exposure limits*
DPM Glycol Ether	STEL 150ppm TWA 100ppm IDLH 600ppm TWA 100ppm, 600 mg/m3
Triethylamine	ACGIH TLV TWA: 1 ppm STEL: 3 ppm OSHA PEL (Vacated) TWA: 10 ppm (Vacated) TWA: 40 mg/m3 (Vacated) STEL: 15 ppm (Vacated) STEL: 60 mg/m3 TWA: 25 ppm TWA: 100 mg/m3 NIOSH IDLH IDLH: 200 ppm
N-Methyl-2-pyrrolidone	AIHA WEEL (United States, 10/2011): Absorbed through skin. TWA: 10 ppm 8 hours.

Appropriate engineering controls:

If user operations generate dust, fumes, gas, 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

Environmental exposure controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume

scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels

Individual protection measures:

Wash hands, forearms and face thoroughly after handling chemical Hygiene measures: products, before eating, smoking and using the lavatory and at the end of the working period. 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.

Eye/face protection 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection Hand protection: 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body 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

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: 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.

SECTION 9: Physical and chemical properties

Appearance/Form:	Hazy translucent liquid	(Values are not product specifications)	
Odor:	Mild amine (no threshold data)		
Boiling Point:	100°C (212°F)		
Freeze Point:	0°C (32°F)		
pH	8.00 +/-		
Density	8.51 lbs./gal. (theoretical)	**Specific Gravity:**	1.02
Solids Content	35% +/- 1%	**Volatiles:**	65%
Bulk Density:	No data	**Solubility in Water:**	Dispersible
Vapor Pressure:	No data	**Vapor Density:**	> 1 (air = 1)
Melting point:	No data	**Partition coefficient n-octanol/water:**	No data
Flash Point:	Not applicable in liquid state, solid material may support combustion after water removed.		

SECTION 10: Stability and reactivity

Reactivity No specific test data related to reactivity for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous reactions

Under normal conditions of storage an use, hazardous reactions will not occur.

Conditions to avoid No specific data

Incompatible materials No specific data.

Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Material	Results	Dose	Species
DPM Glycol Ether	LD50 Oral LD50 Dermal LC50 Inhalation	>5000 mg/kg >9500 mg/kg >275 ppm (7 hours)	Rat Rat Rat
Triethylamine	LD50 Oral LD50 Dermal LC50 Inhalation	460 mg/kg 415 mg/kg 1250 ppm	Rat Rabbit Rat
N-Methyl-2-pyrrolidone	LD50 Dermal LD50 Oral	13 g/kg 6600 mg/kg	Rabbit Rat

Irritation/Corrosion

Material	Results	Species	Score	Exposure
DPM Glycol Ether	Not classified			
N-Methyl-2-pyrrolidone	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- - -	24 hours 500 milligrams 500 milligrams
Triethylamine	Not listed	Not listed		

Carcinogenicity: Not available

Reproductive toxicity Not available

Teratogenicity Not available

Specific target organ toxicity (single exposure)

Material	Category	Route of exposure	Target organs
DPM Glycol Ether	Inhalation: May cause respiratory irritation		
N-Methyl-2-pyrrolidone	Category 3	Not applicable.	Respiratory tract irritation and narcotic effects
Triethylamine	Category 3	Not applicable.	Respiratory system, Central nervous system (CNS)

Specific target organ toxicity (repeated exposure)

Material	Category	Route of exposure	Target organs
DPM Glycol Ether	Not classified		

N-Methyl-2-pyrrolidone	Category 2	Not determined	Not determined
Triethylamine	Category 2	Not determined	Liver, Kidney

Aspiration hazard

Name	Result
DPM Glycol Ether	No information available
Triethylamine	No information available
N-Methyl-2-pyrrolidone	No information available

Information on the likely Routes of exposure: Not available

Potential acute health affects

Eye contactCauses serious eye irritation

Inhalation: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure

Skin contact: No known significant effects or critical hazards

Ingestion: May be Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Causes eye irritation

Inhalation Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure

Skin contact No known significant effects or critical hazards

Ingestion: May be irritating to mouth, throat and stomach

Delayed and immediate effects and also chronic effects from short and long term exposure

Potential immediate: Not available

Potential delayed effects Not available

Long term exposure

Potential Immediate: Not available

Potential delayed effects Not available

Potential chronic health effects: Not available

General: May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity No known significant effects or critical hazards

Teratogenicity No known significant effects or critical hazards

Developmental effects No known significant effects or critical hazards

Fertility effects No known significant effects or critical hazards

Numerical measures of toxicity: No known significant effects or critical hazards

SECTION 12: Ecological information

Numerical measures of toxicity Acute toxicity estimates

Product/ingredient name	Result	Species	Exposure
DPM Glycol Ether	Not classified		
N-Methyl-2-pyrrolidone	Acute LC50 > 500 mg/L CE50 > 1000 mg/L	Oncorhynchus mykiss (rainbow trout Daphnia magna (Big water flea	96 hours 24 hours

Triethylamine	Not available		

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
DPM Glycol Ether	-	-	Readily
N-Methyl-2-pyrrolidone	-	-	Readily
Triethylamine	-	-	Readily

Bioaccumulative potential: Not available.

Mobility in soil

Soil water partition Coefficient (K_{OC}): Not available.

Other adverse effect No known significant effects or critical hazards

SECTION 13: Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewer

SECTION 14: Transport information

Not regulated by the US DOT.

SECTION 15: Regulatory information

US Toxic Substances Control Act: The components of this product are on the TSCA inventory.

Canadian Environmental Protection Act: The ingredients of this product are on the DSL.

EPA Sara Title III Section 313 (EPCRA) and 40 CFR 372: This product contains the following chemicals subject to the reporting requirements of the above regulations: n-Methyl-2-pyrrolidone (NMP); Triethylamine

California Prop. 65: WARNING- This product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm: n-Methyl-2-pyrrolidone (NMP)

Europe: All the raw materials used in this product are listed in EINECS or ELINCS

SECTION 16: Other information

Hazardous Material Information System (U.S.A.)

HEALTH	1
FIRE	0
REACTIVITY	0
PERSONAL PROTECTION	H

HMIS/ NFPA Definitions:			
0	Least	3	High
1	Slight	4	Extreme
2	Moderate		

Hazard rating and rating systems: This information is intended solely for the use of individuals trained in the particular system.

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality. It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.