

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Code** 38640  
**Trade Name** MICROPOSIT REMOVER 1112 A  
**Manufacturer/Supplier** Shipley Company  
**Address** 455 Forest St.  
 Marlborough, Massachusetts 01752  
**Phone Number** (508) 481-7950  
**Emergency Phone Number** (508) 481-7950  
**Chemtec #** (800) 424-9300  
**MSDS first issued** 9 October 1996  
**MSDS data revised** 1 February 1999  
**Prepared By:** Amy C. Nichols  
**Local Sales Company** Shipley Company, 455 Forest Street, Marlboro, MA 01752  
 (508-481-7950)

2. COMPOSITION/INFORMATION ON THE INGREDIENTS

Hazardous Components in Preparation for US

Component Name	Codes	Concentration
water	7732-18-5	10.00 - 15.00
diethylene glycol n-butyl ether	112-34-5	27.00 - 28.00
dipropylene glycol monomethyl ether	34590-94-8	13.00 - 14.00
ethylene glycol n-butyl ether	111-76-2	25.00 - 26.00
furfuryl alcohol	98-00-0	1.00 - 2.00
Polyether		1.00 - 10.00
monoethanolamine	141-43-5	15.00 - 16.00

3. HAZARD IDENTIFICATION

**Main Hazards** - Corrosive - Combustible - Skin - Eye - Liver - Kidney - Respiratory System - Nervous System - Sensitizer - Blood  
**Routes of Entry** Inhalation, ingestion, eye and skin contact, absorption.  
**Carcinogenic Status** Not considered carcinogenic by NTP, IARC and OSHA  
**Target Organs** - Eye - Skin - Liver - Kidney - Lung - Respiratory System - Nervous System - Blood  
**Health Effects - Eyes** Liquid will cause severe conjunctival irritation, corneal damage, and may result in loss of vision. Vapor or mist will cause severe conjunctival irritation and corneal damage.  
**Health Effects - Skin** Material will cause severe irritation and may cause chemical burns. Repeated and/or prolonged contact may lead to: - drowsiness - kidney damage - allergic sensitization - hemolysis - central nervous system depression - reduction in the oxygen carrying capacity of the blood  
**Health Effects - Ingestion** Material is toxic by skin absorption.  
 Swallowing may have the following effects:  
 - corrosion of mouth, throat and digestive tract  
 A large dose may have the following effects:  
 - liver damage - kidney damage - central nervous system depression - reduction in the oxygen carrying capacity of the blood  
**Health Effects - Inhalation** Exposure to vapor or mist may have the following effects:  
 - severe irritation of nose, throat and respiratory tract  
 Exposure to mist at high concentrations may have the following effects:  
 - severe irritation to nose, throat and respiratory tract and possibly lung damage - liver damage - kidney damage - central nervous system depression - reduction in the oxygen carrying capacity of the blood

4. FIRST AID MEASURES

**First Aid - Eyes** Immediately flush the eye with plenty of water for at least 20 minutes, holding the eye open. Obtain medical attention immediately.  
**First Aid - Skin** Immediately flush the skin with large quantities of water, preferably under a shower. Remove contaminated clothing while flushing skin. Continue washing for at least 15 minutes. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention immediately.  
**First Aid - Ingestion** Do not induce vomiting. Wash out mouth with water. Obtain medical attention immediately  
**First Aid - Inhalation** Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately  
**Advice to Physicians** Treat symptomatically. Treat skin burns conventionally.

5. FIRE FIGHTING MEASURES

**Extinguishing Media** Use dry chemical. Use water spray, fog or alcohol resistant foam.  
**Special Fire-Fighting Procedures** This product may give rise to hazardous vapors in a fire. Vapors can travel a considerable distance to a source of ignition and result in flashback.  
**Unusual Fire & Explosion Hazards** Pressure may build up in closed containers with possible liberation of combustible vapors.  
**Protective Equipment for Fire-Fighting** Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

**Spill Procedures** Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal.  
**Personal Precautions** Wear appropriate protective clothing. Wear respiratory protection.  
**Environmental Precautions** Prevent the material from entering drains or water courses. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

7. HANDLING AND STORAGE

**Handling** Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Emergency shower and eye wash facilities should be readily available. Avoid inhaling vapor. Keep container tightly closed when not in use.

<b>Storage</b>	Store in original containers. Storage area should be:  - cool - dry - well ventilated - out of direct sunlight - away from incompatible materials
<b>Other</b> None known.	
8.	<b>EXPOSURE CONTROLS/PERSONAL PROTECTION</b>
<b>Occupational Exposure Standards</b>	
diethylene glycol n-butyl ether	None assigned.
dipropylene glycol monomethyl ether	ACGIH: TLV 100ppm (600mg/m3) 8h TWA. OSHA: PEL 100ppm (600mg/m3) 8h TWA.
ethylene glycol n-butyl ether	ACGIH: TLV 25ppm (120mg/m3) 8h TWA. OSHA: PEL 50ppm (240mg/m3) 8h TWA. Can be absorbed through skin.
furfuryl alcohol	ACGIH: TLV 10ppm (40mg/m3) 8h TWA. ACGIH: STEL 15ppm (60mg/m3) 15min TWA. Can be absorbed through skin. OSHA: PEL 50ppm (200mg/m3) 8h TWA. UK EH40: OES 5ppm (20mg/m3) 8h TWA. UK EH40: OES 15ppm (60mg/m3) 15min TWA. Can be absorbed through skin.
monoethanolamine	ACGIH: TLV 3ppm (7.5mg/m3) 8h TWA. ACGIH: STEL 6ppm (15mg/m3) 15min TWA. OSHA: PEL 3ppm (6mg/m3) 8h TWA.
<b>Engineering Control Measures</b>	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
<b>Respiratory Protection</b>	Respiratory protection if there is a risk of exposure to high vapor concentrations. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
<b>Hand Protection</b>	Butyl rubber or nitrile gloves.
<b>Eye Protection</b>	Chemical goggles and face shield.
<b>Body Protection</b>	- rubber apron
9.	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>
<b>Physical State</b>	Liquid
<b>Color</b>	Pale Yellow
<b>Odor</b>	Organic
<b>VOC (g/l)</b>	931.04
<b>Specific Gravity</b>	1.0 - 1.1
<b>pH</b>	>12
<b>Boiling Range/Point (°C/F)</b>	100 / 212
<b>Flash Point (PMCC) (°C/F)</b>	82 / 179
<b>Explosion Limits (%)</b>	2-butoxyethanol 1.1% furfuryl alcohol 1.8% dipropylene glycol methyl ether 1.0%
<b>Solubility in Water</b>	Completely soluble.
<b>Vapor Density (Air = 1)</b>	Heavier than air.
<b>Evaporation Rate</b>	Not applicable.
<b>Vapor Pressure</b>	ethanolamine: 0.4 mmHg at 20 °C.  ethylene glycol n-butyl ether: 0.6 mmHg at 20 °C.  dipropylene glycol methyl ether: <0.1 mmHg at 20 °C.  furfuryl alcohol: 1 mmHg at 32 °C.
10.	<b>STABILITY AND REACTIVITY</b>
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	- contact with incompatible materials
<b>Incompatibilities</b>	- Acids - Oxidizing agents
<b>Hazardous Polymerization</b>	Will not occur.
<b>Hazardous Decomposition Products</b>	- oxides of nitrogen - carbon monoxide - Carbon Dioxide
11.	<b>TOXICOLOGICAL INFORMATION</b>
<b>Acute Data</b>	Ethylene glycol n-butyl ether: Oral LD50 (rat) 470mg/kg. Oral LD50 (guinea pig) 1,400mg/kg. Dermal LD50 (rabbit) 220mg/kg. Dermal LD50 (guinea pig) >2000mg/kg. Inhalation LC50 (mouse) 700ppm 7h. Inhalation LC50 (rat) 450ppm 4h.  Diethylene glycol n-butyl ether: Oral LD50 (rat) 5600mg/kg. Dermal LD50 (rat) 4000mg/kg.  Monoethanolamine: Oral LD50 (rat) 1000mg/kg. No adverse effects are expected.
<b>Chronic/Subchronic Data</b>	No adverse effects are expected.
<b>Genotoxicity</b>	Ethylene glycol n-butyl ether: Invitro tests were inconclusive. Animal tests negative.
<b>Reproductive/Developmental Toxicity</b>	Experimental studies in animals have provided some evidence of embryo/fetotoxicity and birth defects only at doses producing marked maternal toxicity.
<b>Additional Data</b>	None.
12.	<b>ECOLOGICAL INFORMATION</b>
<b>Mobility</b>	The product will dissolve rapidly in water. The product is poorly absorbed onto soils or sediments. The product will leach into soil.
<b>Persistence/Degradability</b>	The product is expected to be readily biodegradable.
<b>Bio-accumulation</b>	Product is not expected to bioaccumulate.

	<b>Ecotoxicity</b>	<p>The product is rated as practically non-toxic to aquatic species.</p> <p>Monoethanolamine: Tests on the following species gave a 96h LC50 of 140mg/litre:</p> <p>- daphnia</p> <p>Tests on the following species gave a 96h LC50 of 150mg/litre:</p> <p>- rainbow trout</p> <p>Ethylene glycol n-butyl ether: Tests on the following species gave a 96h LC50 of &gt;1,000mg/litre:</p> <p>- rainbow trout</p> <p>Tests on the following species gave a 96h LC50 of 127mg/litre:</p> <p>- bluegills</p> <p>Diethylene glycol n-butyl ether: Tests on the following species gave a 96h LC50 of 2,850mg/litre:</p> <p>- daphnia</p> <p>Tests on the following species gave a 96h LC50 of 1,150mg/litre:</p> <p>- guppies</p> <p>Dipropylene glycol methyl ether: Tests on the following species gave a 96h LC50 of 1,919mg/litre:</p> <p>- daphnia</p> <p>Tests on the following species gave a 96h LC50 of &gt;10,000mg/litre:</p> <p>- fathead minnows</p> <p>Furfuryl alcohol: Tests on the following species gave a 96h LC50 of 32mg/litre:</p> <p>- fathead minnows</p>
13.		<b>DISPOSAL CONSIDERATIONS</b>
	<b>Product Disposal</b>	Dispose of in accordance with all applicable local and national regulations.
	<b>Container Disposal</b>	Labels should not be removed from containers until they have been cleaned. Empty containers may contain hazardous residues. Dispose of containers with care.
14.		<b>TRANSPORT INFORMATION</b>
	<b>DOT Ground:</b>	Ethanolamine Solution
	<b>UN Proper Shipping Name</b>	Ethanolamine Solution
	<b>UN Class</b>	(8) Corrosive
	<b>UN Number</b>	UN 2491
	<b>UN Packaging Group</b>	III
	<b>N.O.S. 1:</b>	Not applicable.
	<b>N.O.S. 2:</b>	Not applicable.
	<b>Subsidiary Risks</b>	None.
	<b>ADR/RID Substance Identification Number</b>	CLASS 8 - 54(c)
	<b>CERCLA RQ</b>	None.
	<b>Marine Pollutant</b>	None.
15.		<b>REGULATORY INFORMATION</b>
	<b>TSCA Listed</b>	All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.
	<b>TSCA Exemptions</b>	
	<b>TSCA Sec.12(b) Export Notification</b>	U.S. exporters of this product are required to notify the U.S. Environmental Protection Agency (EPA) that a regulated substance(s) is leaving the U.S. market. This product contains the following substance(s) which are subject to Section 12(b) export notification:
	<b>WHMIS Classification</b>	- Diethylene glycol n-butyl ether (CAS# 112-34-5) E, D.2.B.
	<b>MA Right To Know Law</b>	All components have been checked for inclusion on the Massachusetts Substance List (MSL). Those components present at the de minimus concentration have been identified in the hazardous ingredients section of the MSDS.
	<b>California Proposition 65</b>	This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.
	<b>SARA TITLE III-Section 311/312 Categorization (40 CFR 370)</b>	Immediate, delayed, flammability hazard
	<b>SARA TITLE III-Section 313 (40 CFR 372)</b>	This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (quantity present is found elsewhere on this MSDS)
		- 2-butoxyethanol as glycol ethers (111-76-2)
		- Diethylene glycol n-butyl ether as glycol ethers (112-34-5)
16.		<b>OTHER INFORMATION</b>
	<b>NFPA Rating- FIRE</b>	2
	<b>NFPA Rating- HEALTH</b>	2
	<b>NFPA Rating- REACTIVITY</b>	1
	<b>NFPA Rating- SPECIAL</b>	None.
	<b>Revisions Highlighted</b>	TSCA Sec.12(b) Export Notification

## Abbreviations

CAS#: Chemical Abstract Services Number

ACGIH: American Conference of Governmental Industrial Hygienists

OSHA: Occupational Safety and Health Administration

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit

NTP: National Toxicology Program

IARC: International Agency for Research on Cancer

R: Risk

S: Safety

LD50: Lethal Dose 50%

LC50: Lethal Concentration 50%

BOD: Biological Oxygen Demand

Koc: Soil Organic Carbon Partition Coefficient.

Tlm: Median Tolerance Limit

## Disclaimer

[The data contained herein is based on information that Shipley Company believes to be reliable, but no expressed or implied warranty is made with regard to the accuracy of such data or its suitability for a given situation. Such data relates only to the specific product described and not to such products in combination with any other product and no agent of Shipley Company is authorized to vary any of such data. Shipley Company and its agents disclaim all liability for any action taken or foregone on reliance upon such data.](#)