

1.	CHEMICAL PRODUCT AND COMPANY IDENTIFICATION	
	Product Code	31220
	Trade Name	MICROPOSIT 453 DEVELOPER
	Manufacturer/Supplier	Shibley Company
	Address	455 Forest St. Marlborough, Massachusetts 01752
	Phone Number	(508) 481-7950
	Emergency Phone Number	(508) 481-7950
	Chemtrec #	(800) 424-9300
	MSDS first issued	1 July 1996
	MSDS data revised	23 September 1998
	Prepared By:	Amy C. Nichols
	Local Sales Company	Shibley Company, 455 Forest Street, Marlboro, MA 01752 (508-481-7950)
2.	COMPOSITION/INFORMATION ON THE INGREDIENTS	

Components in Product

Component Name	CAS# / Codes	Concentration		
potassium hydroxide	1310-58-3	1.00 - 2.00		
water	7732-18-5	97.00 - 98.00		
Inorganic Borates		1.00 - 2.00		

3.	HAZARD IDENTIFICATION	
	Main Hazards	- Corrosive - Skin - Eye - Respiratory System
	Routes of Entry	Inhalation - Skin Contact
	Carcinogenic Status	Not considered carcinogenic by NTP, IARC and OSHA
	Target Organs	- Eye - Skin - Lung
	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 chemical burns. Effects may be delayed.
	Health Effects - Ingestion	Swallowing may have the following effects: - corrosion of mouth, throat and digestive tract
	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
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	No specific measures necessary.
	Unusual Fire & Explosion Hazards	None known.
	Protective Equipment for Fire-Fighting	Wear full protective clothing and self-contained breathing apparatus.
6.	ACCIDENTAL RELEASE MEASURES	
	Spill Procedures	Spills may be absorbed with appropriate absorbent material for alkaline materials. Transfer into suitable containers for recovery or disposal.
	Personal Precautions	Wear appropriate protective clothing. Wear respiratory protection. Material can create slippery conditions underfoot.
	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.
	Storage	Store in original containers. Storage area should be: - cool - dry - well ventilated - out of direct sunlight - away from incompatible materials
	Other	
	None known.	
8.	EXPOSURE CONTROLS/PERSONAL PROTECTION	
	Occupational Exposure Standards	
	potassium hydroxide	ACGIH: 2mg/m3 Ceiling limit. UK EH40: OES 2mg/m3 15min TWA.
	Engineering Control Measures	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.

	Respiratory Protection	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.
	Hand Protection	Neoprene or nitrile gloves.
	Eye Protection	Chemical goggles and face shield.
	Body Protection	- rubber apron
9.	PHYSICAL AND CHEMICAL PROPERTIES	
	Physical State	Liquid
	Color	Clear
	Odor	Odorless
	VOC (g/l)	0.0
	Specific Gravity	1.00
	pH	>13
	Boiling Range/Point (°C/F)	133 / 272
	Flash Point (PMCC) (°C/F)	Not applicable.
	Explosion Limits (%)	Not applicable.
	Solubility in Water	Completely soluble.
	Vapor Density (Air = 1)	Not applicable.
	Evaporation Rate	Not applicable.
	Vapor Pressure	Not applicable.
10.	STABILITY AND REACTIVITY	
	Stability	Stable under normal conditions.
	Conditions to Avoid	- contact with incompatible materials
	Incompatibilities	- Acids - Aldehydes - Hydrocarbon solvents - Aromatic hydrocarbons - Strong oxidizing agents - Reducing agents
	Hazardous Polymerization	Will not occur.
	Hazardous Decomposition Products	None known.
11.	TOXICOLOGICAL INFORMATION	
	Acute Data	Potassium Hydroxide: Oral LD50 (rat) 365mg/kg.
	Chronic/Subchronic Data	No relevant studies identified.
	Genotoxicity	No adverse effects are expected.
	Reproductive/Developmental Toxicity	No adverse reproductive or fetal developmental effects are expected.
	Additional Data	None.
12.	ECOLOGICAL INFORMATION	
	Mobility	The product will dissolve rapidly in water. The product is involatile and water soluble and will partition to the aqueous phase.
	Persistence/Degradability	The product is expected to be readily biodegradable.
	Bio-accumulation	Product is not expected to bioaccumulate.
	Ecotoxicity	Potassium Hydroxide: Tests on the following species gave a TLM24 of 80mg/litre: - mosquito fish
13.	DISPOSAL CONSIDERATIONS	
	Product Disposal	Dispose of in accordance with all applicable local and national regulations.
	Container Disposal	Labels should not be removed from containers until they have been cleaned. Empty containers may contain hazardous residues. Dispose of containers with care.
14.	TRANSPORT INFORMATION	
	DOT Ground:	Potassium Hydroxide Solution
	UN Proper Shipping Name	Potassium Hydroxide Solution

	UN Class	(8) Corrosive
	UN Number	UN1814
	UN Packaging Group	III
	N.O.S. 1:	Not applicable.
	N.O.S. 2:	Not applicable.
	Subsidiary Risks	None.
	ADR/RID Substance Identification Number	CLASS 8 - 42(b)
	CERCLA RQ	Potassium Hydroxide (1000#)
	Marine Pollutant	None.
15.	REGULATORY INFORMATION	
	TSCA Listed	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.
	TSCA Exemptions	
	WHMIS Classification	E
	MA Right To Know Law	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.
	California Proposition 65	This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.
	SARA TITLE III-Section 311/312 Categorization (40 CFR 370)	Immediate, delayed health hazard
	SARA TITLE III-Section 313 (40 CFR 372)	This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.
16.	OTHER INFORMATION	
	NFPA Rating- FIRE	0
	NFPA Rating- HEALTH	3
	NFPA Rating- REACTIVITY	2
	NFPA Rating- SPECIAL	None.
	Revisions Highlighted	UN Packaging Group

	Abbreviations	<p>CAS#: Chemical Abstract Services Number</p> <p>ACGIH: American Conference of Governmental Industrial Hygienists</p> <p>OSHA: Occupational Safety and Health Administration</p> <p>TLV: Threshold Limit Value</p> <p>PEL: Permissible Exposure Limit</p> <p>STEL: Short Term Exposure Limit</p> <p>NTP: National Toxicology Program</p> <p>IARC: International Agency for Research on Cancer</p> <p>R: Risk</p> <p>S: Safety</p> <p>LD50: Lethal Dose 50%</p> <p>LC50: Lethal Concentration 50%</p> <p>BOD: Biological Oxygen Demand</p> <p>Koc: Soil Organic Carbon Partition Coefficient.</p> <p>TLm: Median Tolerance Limit</p>
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MATERIAL SAFETY DATA SHEET

MICROPOSIT 453 DEVELOPER

31220 3.00 US US 23.09.1998 MSDS_US