SHIPLEY

MATERIAL SAFETY DATA SHEET
MICROPOSIT 453 DEVELOPER
31220 1.00 US Current 01.07.1996

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code	31220
Trade Name	MICROPOSIT 453 DEVELOPER
Manufacturer/Supplier	Shipley 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	01.07.96
MSDS data revised	
Prepared By:	Tammy Blakeslee, C.I.H.
Local Sales Company	Shipley Company, 455 Forest Street, Marlboro, MA 01752 (508-481-7950)

2. COMPOSITION/INFORMATION ON THE INGREDIENTS

Component	Min%	Max%	EEC Classification
potassium hydroxide (1310-58-3)	1	2	Corrosive R35
water (7732-18-5)	97	98	
Inorganic Borates	1.00	2	

3. HAZARD IDENTIFICATION

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.

4. FIRST AID MEASURES (continued)

	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: STEL 2mg/m3 15min TWA. Ceiling limit. UK EH40: OES 2mg/m3 15min TWA.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

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.

11. TOXICOLOGICAL INFORMATION (continued)

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	II
N.O.S. 1:	Not applicable.
N.O.S. 2:	Not applicable.
Subsidiary Risks	None.
Emergency Response Guidebook #	60
ADR/RID Substance Identification Number	CLASS 8 - 42(b)
RQ	Potassium Hydroxide (1000#)
Marine Pollutant	None.

15. REGULATORY INFORMATION

TSCA Listed	Yes
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.

15. REGULATORY INFORMATION (continued)

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

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.

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