ELECTRONIC MATERIALS

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

MICROPOSIT(TM) 351 Developer

Revision date: 05/03/2004

Supplier

Rohm and Haas Electronic Materials LLC
455 Forest Street
Marlborough, MA 01752 United States of America

For non-emergency information contact: 508-481-7950

Emergency telephone number

Chemtrec	800-424-9300
Rohm and Haas Emergency	215-592-3000

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Sodium hydroxide	1310-73-2	< 5.0 %
Water	7732-18-5	> 80.0 %
sodium tetraborate decahydrate	1303-96-4	< 10.0 %
Inorganic Borates		< 1.0 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form	liquid
Colour	colourless

Hazard Summary **DANGER!**
Corrosive alkaline liquid and vapor causes severe skin and eye burns. Causes respiratory irritation. Onset of symptoms may be delayed.

Potential Health Effects

Primary Routes of Entry: Inhalation, ingestion, eye and skin contact.

Eyes: Will cause severe conjunctival irritation, corneal damage, and may result in loss of vision.

Skin: Material will cause chemical burns.

Ingestion: Swallowing may have the following effects:
corrosion of mouth, throat and digestive tract

Inhalation: Inhalation may have the following effects:
severe irritation of nose, throat and respiratory tract
Higher concentrations may have the following effects:
severe irritation to nose, throat and respiratory tract and possibly lung damage

Target Organs: Eye
Respiratory System
Skin

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA

4. FIRST AID MEASURES

Inhalation: Remove from exposure. If there is difficulty in breathing, give oxygen. Immediate medical attention is required

Skin contact: Immediately flush the skin with large quantities of water, preferably under a shower. If skin contact occurs, remove contaminated clothing and wash skin thoroughly. Continue washing for at least 20 minutes. Contaminated clothing should be washed or dry- cleaned before re-use. Immediate medical attention is required

Eye contact: Immediately flush the eye with plenty of water for at least 20 minutes, holding the eye open. Immediate medical attention is required

Ingestion: Do not induce vomiting. Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Immediate medical attention is required Never administer anything by mouth if a victim is losing conciousness, is unconcious or is convulsing.

Notes to physician

Treat symptomatically. Treat skin burns conventionally.

5. FIRE-FIGHTING MEASURES

Flash point Nonflammable

Suitable extinguishing media: Use water spray, foam, dry chemical or carbon dioxide.

Specific hazards during fire fighting: This product may give rise to hazardous vapors in a fire.

Special protective equipment for fire-fighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: May emit corrosive vapor or mist.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear suitable protective clothing.
Wear respiratory protection.
Material can create slippery conditions.

Environmental precautions
Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods for cleaning up
Spills may be absorbed with appropriate absorbent material for alkaline materials.
Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Handling
Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Avoid breathing vapor. Keep container tightly closed.
Further information on storage conditions: Practice good personal hygiene to prevent accidental exposure.

Storage
Storage conditions: Store in original container. Storage area should be: cool dry well ventilated out of direct sunlight away from incompatible materials

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Sodium hydroxide	ACGIH	Ceiling	2 mg/m3
	OSHA_TRANS	PEL	2 mg/m3
	Z1A	Ceiling	2 mg/m3
	Rohm and Haas	Ceiling	2 mg/m3

Component	Regulation	Type of listing	Value
sodium tetraborate decahydrate	ACGIH	TWA	5 mg/m3

Eye protection: Chemical goggles and face shield.

Hand protection: Neoprene gloves. Other chemical resistant gloves may be recommended by your safety professional. Gauntlet sleeves.

Skin and body protection: rubber or neoprene apron

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.

Engineering 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Form	liquid
Colour	colourless
pH	> 12
Boiling point/range	> 100 °C (> 212 °F)
Melting point/range	0 °C (32 °F)
Flash point	Nonflammable
Vapour pressure	2.3 hPa at 20 °C (68 °F)
Water solubility	Miscible
Relative density	1.00
VOC's	0 g/l

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Hazardous reactions	Stable under normal conditions.
Conditions to avoid	contact with incompatible materials
Materials to avoid	Acids.
Hazardous decomposition products	None known.,
polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Component: **Sodium hydroxide**
Acute oral toxicity LD50 rat 4,090 mg/kg

Component: **Sodium hydroxide**
Acute oral toxicity LDLo rat 500 mg/kg

Component: **sodium tetraborate decahydrate**
Acute oral toxicity LD50 rat 4,500 - 5,000 mg/kg

Component: **Inorganic Borates**
Acute oral toxicity LD50 rat 2,660 mg/kg

Component: **Sodium hydroxide**
Acute dermal toxicity LD50 rabbit 1,350 mg/kg

Component: **Inorganic Borates**
Acute dermal toxicity LD50 rabbit > 2,000 mg/kg

Component: **Inorganic Borates**
Subchronic toxicity No evidence of carcinogenicity was seen in the following species: mice

Component: **Inorganic Borates**
Mutagenicity
No mutagenic activity was observed in bacterial cells.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Sodium hydroxide
Ecotoxicity effects

Toxicity to fish	LC50 18 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna 25 mg/l

Inorganic Borates
Ecotoxicity effects

Toxicity to fish	LC50 807 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna 864 mg/l

13. DISPOSAL CONSIDERATIONS

Environmental precautions: Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Disposal
Dispose in accordance with all local, state (provincial), and federal regulations. Under RCRA, it is the responsibility of the product's user to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
Do not remove label until container is thoroughly cleaned. Empty containers may contain hazardous residues. This material and its container must be disposed of in a safe way.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Sodium hydroxide solution
UN-No	UN 1824
Class	8
Packing group	II
Reportable Quantity	Sodium hydroxide

IMO/IMDG

Proper shipping name	SODIUM HYDROXIDE SOLUTION
UN-No	UN 1824
Class	8
Packing group	II
Reportable Quantity	Sodium hydroxide

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations

15. REGULATORY INFORMATION

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Immediate health hazard

SARA TITLE III: Section 313 Information (40CFR372)
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D):
U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
This product does not contain any substances subject to Section 12(b) export notification.

US. Toxic Substances Control Act (TSCA) All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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.

16. OTHER INFORMATION

Hazard Rating

	Health	Fire	Reactivity
NFPA	3	0	1

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
BAc	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
|	Bar denotes a revision from prior MSDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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