1. PRODUCT AND COMPANY IDENTIFICATION

MICROPOSIT™ THINNER TYPE P

Revision date: 01/01/2004

Supplier
ROHM AND HAAS ELECTRONIC MATERIALS LLC
A Subsidiary of The Dow Chemical Company
455 FOREST STREET
MARLBOROUGH, MA 01752 United States

For non-emergency information contact: 215-592-3000

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

Emergency telephone number 1 800 424 9300

Local emergency telephone number 989-636-4400

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic grade propylene glycol monomethyl</td>
<td>108-65-6</td>
<td>100.0%</td>
</tr>
<tr>
<td>ether acetate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview
Appearance
Form  liquid
Colour clear
Odour sweet
Hazard Summary

**WARNING!**
Combustible liquid and vapor. Causes irritation to eyes, nose, and respiratory tract.
Prolonged, repeated contact, inhalation, ingestion, or absorption through the skin, may cause toxic effects to internal organ systems (liver, kidney, central nervous system).

Potential Health Effects

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

Eyes: May cause pain, transient irritation and superficial corneal effects.

Skin: Material may cause irritation.
Prolonged or repeated exposure may have the following effects:
drowsiness
defatting and drying of the skin which can lead to irritation and dermatitis
central nervous system depression
kidney damage
liver damage

Ingestion: Swallowing may have the following effects:
iritation of mouth, throat and digestive tract
headache
nausea
vomiting
Repeated doses may have the following effects:
central nervous system depression
liver damage
kidney damage

Inhalation: Inhalation may have the following effects:
irritation of nose, throat and respiratory tract
Higher concentrations may have the following effects:
systemic effects similar to those resulting from ingestion

Target Organs: Eye
Respiratory System
nervous system
Liver
Kidney
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. Seek medical attention if symptoms persist.

Skin contact: Wash skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.

Eye contact: Immediately flush the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Ingestion: Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Induce vomiting if person is conscious. Immediate medical attention is required. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing.
Notes to physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point 46 °C (115 °F)
Lower explosion limit 1.5 %(V)
Upper explosion limit 7.0 %(V)
Suitable extinguishing media: Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.

Specific hazards during fire fighting: 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.
Special protective equipment for fire-fighters: Wear full protective clothing and self-contained breathing apparatus.
Further information: Pressure may build up in closed containers with possible liberation of combustible vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear suitable protective clothing.
Wear respiratory protection.
Eliminate all ignition sources.

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
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer into suitable containers for recovery or disposal.
Finally flush area with plenty of water.

7. HANDLING AND STORAGE

Handling
Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed.
Further information on storage conditions: Keep away from heat, sparks, flame, and other sources of ignition. Practice good personal hygiene to prevent accidental exposure.
Storage
Storage conditions: Store in original container. Keep away from heat and sources of ignition. Storage area should be: cool dry well ventilated out of direct sunlight

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)
Exposure limits are listed below, if they exist.

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic grade propylene</td>
<td>Rohm and Haas</td>
<td>TWA</td>
<td>30 ppm</td>
</tr>
</tbody>
</table>

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glycol monomethyl ether acetate

Rohm and Haas          STEL          90 ppm
Rohm and Haas          Absorbed via skin

Eye protection: goggles
Hand protection: Butyl rubber gloves. Other chemical resistant gloves may be recommended by your safety professional.
Skin and body protection: Normal work wear.
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                      clear
Odour                       sweet
pH                          ca.7
Boiling point/range         145 °C (294.4 °F)
Flash point                 46 °C (115 °F)
Lower explosion limit       1.5 %(V)
Upper explosion limit       7.0 %(V)

Component: Electronic grade propylene glycol monomethyl ether acetate
Vapour pressure             3.7 mmHg at 20 °C
Relative vapour density     Heavier than air.
Water solubility            insoluble
Relative density            0.96
Evaporation rate            Slower than ether
VOC’s                       966 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         High temperatures  Static discharge
Materials to avoid          Oxidizing agents
Hazardous decomposition products None known,
11. TOXICOLOGICAL INFORMATION

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

Component: **Electronic grade propylene glycol monomethyl ether acetate**

- **Acute oral toxicity**
  - LD50 rat 8,532 mg/kg

Component: **Electronic grade propylene glycol monomethyl ether acetate**

- **Acute inhalation toxicity**
  - LC50 rat 6 h 23.49 mg/l

Component: **Electronic grade propylene glycol monomethyl ether acetate**

- **Acute dermal toxicity**
  - LD50 rabbit >5,000 mg/kg

Component: **Electronic grade propylene glycol monomethyl ether acetate**

- **Toxicity to reproduction**
  - Dermal teratology testing of this solvent (with less than 3% beta isomer) revealed no maternally toxic, teratogenic or fetotoxic responses in rats or rabbits exposed to concentrations of 1,000 and 2,000 mg/kg per day.

Component: **Electronic grade propylene glycol monomethyl ether acetate**

- **Mutagenicity**
  - No significant mutagenic response was observed and the carcinogenic potential of the material is therefore considered to be low.

12. ECOLOGICAL INFORMATION

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

**Electronic grade propylene glycol monomethyl ether acetate**

- **Ecotoxicity effects**
  - **Toxicity to fish**
    - LC50 Fathead minnow (Pimephales promelas) 96 h 161 mg/l
  - **Toxicity to aquatic invertebrates**
    - EC50 Daphnia magna 48 h >500 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. Incineration is the recommended method of disposal for containers. 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
Not regulated per 49CFR 173.150(f)(2)

IMO/IMDG
Proper shipping name ESTERS, N.O.S. (Propylene glycol monomethyl ether acetate)
UN-No 3272
Class 3
Packing group III

15. REGULATORY INFORMATION

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Immediate, delayed, flammability 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

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

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.