

Material Safety Data Sheet



T-9039

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Revised 31-JAN-2006

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CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Tradenames and Synonyms

Pyralin Thinner

Company Identification

MANUFACTURER/DISTRIBUTOR

HD Microsystems(TM)
Cheesequake Road
Parlin
New Jersey
USA
08859

PHONE NUMBERS

Product Information : (800) 346-5656
Transport Emergency : (800) 424-9300 (Outside the US (703)
527-3887)
Medical Emergency : (800) 441-7515 (Outside the US (302)
774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*n-Methylpyrrolidone	872-50-4	30-60
Propylene Glycol Monomethyl Ether	107-98-2	30-60

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

This product is a physical mixture. The health effects information about this product is based on the individual ingredients:

OVERVIEW: The most likely routes of overexposure to this product are skin contact and inhalation. Skin irritation and/or other effects of skin contact are easily avoided by using proper gloves (see section titled GLOVES) and washing affected areas immediately if contact occurs. Volatile solvents will start evaporating during room temperature use

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(HAZARDS IDENTIFICATION - Continued)

of the product, such as thinning, pouring from jar to dispensing machine, and spin coating. Mist and solvent vapors will evolve if spray application is used. During wafer drying, 125 - 150 C, and final curing, 350 - 450 C, the remaining solvent(s) will evaporate. Potential overexposure to other chemicals used in the operation such as wafer etchants and cleaners should also be considered. Well designed area and personal air sampling and analysis can show if exposures are within established limits. Properly designed local ventilation and process enclosure are effective ways to limit employee exposure where needed. In addition to meeting exposure limits, it is always prudent to use all practical means to minimize employee exposure to chemicals. A significant difference in overall exposure can be made with practical measures such as:

- * Inhalation - minimizing by keeping jars of product covered
- * Eye - avoiding contact by wearing chemical splash goggles where there is splash potential
- * Ingestion - avoiding by washing hands before eating, drinking or smoking, and restricting these activities to outside the work area.

>>>1-Methoxy-2-Propanol

****Toxic effects described in animals include: BY SKIN OR EYE CONTACT: Slight skin irritation; Eye irritation; Central nervous system effects; BY INHALATION: Central nervous system effects; Liver effects; Lung effects. Toxic effects of repeated or prolonged animal exposures include: BY SKIN OR EYE CONTACT: Kidney effects; Death; BY INHALATION: Central nervous system effects; Lower weight gain; Liver effects; Kidney effects; BY INGESTION: Weight loss; Central nervous system effects; Kidney effects; Liver effects; ****Additional animal tests have shown: Developmental toxicity at dosage levels showing maternal toxicity; No reproductive toxicity. ****Human health effects of overexposure may include: BY SKIN OR EYE CONTACT: Skin irritation with discomfort or rash; Eye irritation with discomfort, tearing, or blurring of vision; BY INHALATION: Irritation of the upper respiratory passages with coughing and discomfort; BY INGESTION: Temporary nervous system depression with anaesthetic effects, e.g., dizziness, headache, confusion, incoordination, and loss of consciousness. ***In addition: BY SKIN OR EYE CONTACT: Skin permeation can occur in amounts capable of producing effects of systemic toxicity.

>>>N-Methyl-2-Pyrrolidone

****Toxic effects described in animals include: BY SKIN OR EYE CONTACT: Mild skin irritation; No skin sensitization; BY INHALATION: Respiratory effects. Toxic effects of repeated or prolonged animal exposures include: BY INHALATION: Respiratory effects; Bone marrow effects; Lymph system effects; Testicular effects; ****Additional animal tests

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(HAZARDS IDENTIFICATION - Continued)

have shown: No carcinogenic activity; No developmental toxicity; No genetic damage in bacterial or mammalian cell cultures; No reproductive toxicity. ****Human health effects of overexposure may include: By contact with liquid or vapor: Eye irritation with discomfort, tearing, or blurring of vision; BY SKIN OR EYE CONTACT: Eye irritation with discomfort, tearing, or blurring of vision; Skin irritation with itching, burning, redness, swelling or rash; BY INHALATION: Runny nose; Sore throat; Sneezing; Irritation of the nose and throat; Nonspecific discomfort, e.g., nausea, headache or weakness. ****Human effects of higher level acute, repeated or chronic overexposure may include: BY SKIN OR EYE CONTACT: Skin reddening; Skin irritation with discomfort or rash; Dermatitis; Swelling; Burning. ***In addition: BY SKIN OR EYE CONTACT: There are inconclusive or unverified reports of human sensitization.

Individuals may have increased susceptibility to the hazards of overexposure to ingredient(s) of this product if they have pre-existing diseases of the: Central nervous system; Liver.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

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(FIRST AID MEASURES - Continued)

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be beneficial. Suspend 50 g activated charcoal in 400 mL water and mix well. Administer 5 mL/kg, or 350 mL for an average adult.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : 130 F (54 C) Calculated

Extinguishing Media

Dry Chemical, Carbon Dioxide, Water Spray.

Fire Fighting Instructions

Wear full protective equipment. Thoroughly decontaminate all equipment used in firefighting efforts before returning to service.

Toxic decomposition products may form under fire conditions. (See Decomposition Section.); Wear a full facepiece, positive pressure, self-contained breathing apparatus (SCBA); Dispose of residues per federal, state, and local regulation. (See Waste Disposal Section.).

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Spill Clean Up

Spill, Leak or Release:
FOR SMALL SPILLS, absorb on rags, sand or other absorbent material;

FOR LARGE SPILLS, get workers out of affected area. If flammable liquids or vapors may be present, turn off electrical devices or other sources of sparks or flames.

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(ACCIDENTAL RELEASE MEASURES - Continued)

WEAR PROTECTIVE EQUIPMENT. Use supplied-air respiratory protection if vapor concentrations are not known; Contain spill at source by diking or absorbing with sand. Do not allow spill to spread to or intentionally flush to sewer or ground. Wash area thoroughly. Adequately ventilate area; Spill residue, cleaning rags and absorbent may be considered hazardous. (See Waste Disposal Section.).

HANDLING AND STORAGE

Handling (Personnel)

Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Wash contaminated clothing prior to reuse.

Contaminated clothing and cleaning materials, etc. should be considered hazardous until decontaminated or properly disposed of. (See Waste Disposal Section.).

Handling (Physical Aspects)

Contains photoreactive chemicals. Open and use under yellow light.

Storage

Store product below 90F to ensure product viscosity stability.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation.

Personal Protective Equipment

Respiratory Protection:

A NIOSH/MSHA approved full-face mask equipped with chemical cartridges approved for methylamine may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, when exposure levels are not known, or in any other circumstances where air purifying respirators may not provide adequate protection; For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without

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(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

sufficient ventilation, use an approved air- purifying respirator. In dusty atmospheres, use an approved dust respirator;

Selection of a suitable respirator will depend on the properties of the contaminant(s) and their actual or expected air concentration(s) versus applicable limits. Consult ANSI Standard Z88.2 for decision logic to select appropriate NIOSH/MSHA approved respirators; A NIOSH/MSHA/OSHA approved air purifying respiratory with a dust/mist cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known or any other circumstances where air purifying respirators may not provide adequate protection;

Use a positive pressure air-supplied respirator if concentrations may exceed exposure limits. Air-purifying respirators are inadequate for this material; If respirators are needed to meet applicable limits, a respiratory protection program up to the level of OSHA Standard 29 CFR 1910.134 is mandatory. This includes air monitoring, selection, medical approval, training, fit testing, inspection, maintenance, cleaning, storage, etc; An OSHA/NIOSH respirator for protection against Nuisance Dust is recommended.

Gloves:

Gloves should be used when the possibility of skin contact exists; The suitability of a particular glove and glove material should be determined as part of an overall glove program. Considerations may include chemical breakthrough time; permeation rate; abrasion, cut and puncture resistance; flexibility; duration of contact; etc.

Other Protection Practices:

Appropriate eye protection such as chemical splash goggles should be used if the possibility of eye contact exists; Protective outer clothing should be used where the possibility of body contact exists. Additional engineering controls, work practices and training may be required depending on exposure levels. These are discussed in the OSHA Respiratory Protection Standard (29 CFR 1910.134) and OSHA Hazard Communication Standard (29 CFR 1910.1200). Do not breath dust. Avoid contact with eyes, skin, or clothing wash thoroughly after handling.

Exposure Guidelines

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Applicable Exposure Limits

n-Methylpyrrolidone

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * () : 5 ppm, 8 & 12 Hr. TWA, Skin
WEEL (AIHA) : 10 ppm, 8 Hr. TWA, Skin

Propylene Glycol Monomethyl Ether

PEL (OSHA) : None Established
TLV (ACGIH) : 100 ppm, 369 mg/m³, 8 Hr. TWA
STEL 150 ppm, 553 mg/m³
AEL * () : None Established

* AEL is 's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Form : Liquid.
Color : Colorless to Amber.
Solubility in Water : Slight
Odor : Aromatic.

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and recommended storage conditions.

Conditions to Avoid

Reducing agents; Oxidizing agents; Bases; Acids; Strong Acids; Strong Oxidizers; Inert gases; Direct Sunlight.

Incompatibility with Other Materials

Reducing agents; Oxidizing agents; Bases; Acids; Strong Acids; Strong Oxidizers; Inert gases; Direct Sunlight.

Decomposition

Carbon monoxide (CO); Nitrogen oxides; Carbon dioxide; water; Various hydrocarbons

Polymerization

Does not normally polymerize significantly.

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TOXICOLOGICAL INFORMATION

Animal Data

>>>N-Methyl-2-Pyrrolidone

Inhalation 4 hour ALC: 1.7 mg/L in rats (Moderately toxic)

Skin absorption LD50: > 8,000 mg/kg in rabbits (Slightly toxic)

Oral LD50: 4,320 mg/kg (Slightly toxic).

>>>1-Methoxy-2-Propanol

Inhalation 4 hour LC50: 15,000 ppm in rats

Skin absorption LD50: 14,000 mg/kg in rabbits

Oral LD50: 5,200 mg/kg in rats.

DISPOSAL CONSIDERATIONS

Waste Disposal

Components of this product may be considered hazardous;
Consult applicable Federal, State, and local
regulations for allowable disposal methods.

Container Disposal

Empty product containers should be considered hazardous
until decontaminated or properly disposed of. (See Waste
Disposal Section.).

REGULATORY INFORMATION

U.S. Federal Regulations

This product complies with TSCA inventory reporting requirements.

State Regulations (U.S.)

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE
CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM-
n-Methylpyrrolidone

Canadian Regulations

Class B, Div 3; D2B.

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OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : HD MicroSystems(TM)
Address : Cheesequake Road
Parlin, NJ 08859
Telephone : 1-800-346-5656

Indicates updated section.

End of MSDS