

MATERIAL SAFETY DATA SHEET

This MSDS is compatible with ISO 11014 – 1:1994 and conforms to ANSI standard Z400.1 – 2004.

SAFETY DATA SHEET

This SDS complies with 91/155/EEC and 2001/58/EC

Section 1: Chemical Product and Company Identification

CHEMICAL SUPPLIER COMPANY NAME

Shin-Etsu MicroSi, Inc.
 10028 South 51st Street
 Phoenix, AZ 85044

EMERGENCY TELEPHONE

Chemtrec 24 hrs: (800) 424-9300
 Information: (480) 893-8898
 Fax: (480) 893-8637

DATE PREPARED: 2/03/04

DATE REVIEWED: May 4, 2006

PRODUCT NAMES: **MICROPRIME HP PRIMER**
 CHEMICAL FAMILY: PRIMER

Section 2: Composition / Information on Ingredients

PRODUCT COMPOSITION	APPROX %	ACGIH TLV	OSHA PEL	NIOSH REL	CAS NO.	EINECS/ELINCS	DANGER SYMBOL	R-RISK PHRASE	DSL
Hexamethyldisilazane (HMDS)	100	-----	-----	-----	999-97-3	203-603-9	-----	-----	Y

Some items on this MSDS may be designated as trade secrets. Bonafide requests for disclosure of trade secret information to medical personnel must be made in accordance with the provisions contained in 29 CFR 1910.1200 I 1-13. The Full List for all R phrases is shown in Section 16.

Section 3: Hazards Identification

HAZARD CLASSIFICATION: Flammable Liquid (based on IMO and DOT)

FIRE AND EXPLOSION: Flammable and Explosive Hazard

NFPA RATINGS:

Component	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
HMDS	2	4	2	W

POTENTIAL HEALTH EFFECTS

INGESTION: May cause Headache, Nausea, Vomiting, and Abdominal pains.
 INHALATION: May cause dizziness and headaches
 SKIN CONTACT: Causes severe irritation
 EYE CONTACT: Causes severe irritation

Section 4: First Aid Measures

INHALATION: Remove to fresh air. If not breathing, provide CPR (cardio pulmonary resuscitation). Get immediate medical attention.
 SKIN CONTACT: Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing.
 EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.
 INGESTION: If swallowed do not induce vomiting, give large quantities of water to drink. Never give anything to an unconscious person. Get immediate medical attention.

Section 5: Fire-fighting Measures

FLASH POINT: 10°C, 50°F [Mixture]]
FLAMMABLE LIMITS IN AIR (% by vol): Lower: 0.8%, Upper: Not Established %, [HMDS]
EXTINGUISHING MEDIA: Foam, dry chemical, or carbon dioxide
SPECIAL FIREFIGHTING PROCEDURES:

Flammable due to solvent content. Wear supplied breathing air and other protective equipment. Work from the upwind side of the fire. Use suitable extinguishing agents. If possible, move the container to a safe area. If it cannot be removed from fire danger, protect it from destruction then cool container and vicinity by spraying with water. If ignited and it cannot be extinguished easily, evacuate the area and call your emergency responders. Under fire conditions, may emit corrosive Nitrogen Oxide vapors and Silicone Oxide. Ammonia will be generated from reaction with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Solvent vapors may create explosive mixtures with air. Vapors can travel a considerable distance to source of ignition and flash back. Prevent build-up and disperse of explosive atmospheres by using adequate ventilation. Pressure may build up in closed containers.

Section 6: Accidental Release Measures

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Wear proper protective equipment as specified in the protective equipment section.
Warn other workers of spill.
In case of small spills, absorb with inert materials such as earth or dry sand. Place in a chemical waste container.
In case of large spills, dike the spill, if possible. Call emergency services. Absorb the chemical. Place in a chemical waste container.
Eliminate all sources of ignition and ventilate area.
Prevent spills or contaminated rinse water from entering sewers or watercourses.

DISPOSAL METHOD:

Disposal should be made in accordance with federal, state, and local regulations.
Incineration is recommended.

Section 7: Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store upright in a cool, dry place.
Keep container closed when not in use.
Prevent build-up of electro-static charges (e.g. by grounding).
Keep away from heat, sparks, flame, direct sunlight, and other possible sources of ignition.
Do not store with peroxides and oxidizing materials.
Use only with adequate ventilation.
Do not inhale vapors.
Avoid spilling and releasing vapor.
Wear proper protective equipment when handling this material.
Avoid contact with skin, eyes, or clothing.
Wash hands and face after handling this material.
Keep out of reach of children.
Follow all applicable local regulations for handling and storage.
Utilize chemical segregation.

INFORMATION ON EMPTIED CONTAINER

Dispose of this container according to local, state, and federal laws in your country.
Do not reuse this container. This container may be hazardous when emptied.
Residues will be explosive or flammable.
Do not puncture or cut this container.
Do not weld on or near this container.

SPECIFIC USES:

This product is intended for use in Semiconductor photolithography processes.

Section 8: Exposure Controls/Personal Protection

VENTILATION:	Always provide good general, mechanical room ventilation where this chemical is used.
SPECIAL VENTILATION CONTROLS:	Use this material inside totally enclosed equipment, or use it with local exhaust ventilation at points where vapors can be released into the workspace air.
RESPIRATORY PROTECTION:	Use NIOSH approved air-purifying respirator with Ammonia cartridge if ammonia fumes exceed TLV.
PROTECTIVE GLOVES:	Wear chemical impervious gloves at all times while working with this product. Recommended glove types include: Laminate Film, Nitrile, or Tri-polymer. Check with your company's glove supplier to ensure chemical resistance.
EYE PROTECTION:	Safety Glasses, Chemical goggles, face shield
PROTECTIVE CLOTHING:	Wear suitable protective clothing to prevent skin contact. Use of anti-static type aprons is recommended.
OTHER EQUIPMENT:	Make safety shower, eyewash stations, and hand washing equipment available in the work area.
WORK/HYGIENE PRACTICES:	Avoid breathing vapor. Avoid contact with eyes. Wash hands and face after handling.

Section 9: Physical and Chemical Properties

MIXTURE:

BOILING POINT:	134°C
SPECIFIC GRAVITY (@25 °C):	0.95 [Mixture]
VAPOR PRESSURE (50°C)	79mmHg
VAPOR DENSITY	NA
MELTING POINT	NA
SOLUBILITY IN WATER:	Forms 2 layers
APPEARANCE - COLOR:	Transparent, Colorless to Pale Yellow Liquid
PHYSICAL STATE:	Liquid
ODOR:	Strong Amine Odor

	HMDS
Boiling point	126 °C
Melting point	NA °C
Vapor Pressure	20 mmHg (@25 °C)
Vapor Density (air=1)	4.6
Specific Gravity (@25 °C)	0.773
Viscosity	NA
% VOLATILE by VOLUME	100
EVAPORATION RATE (Butyl Acetate = 1):	Slower Than Ether
SOLUBILITY IN WATER:	Not Soluble, Reacts With Water to Emit Ammonia. pH value 13 when reacting with water.

Section 10: Stability and Reactivity

STABILITY:	Stable
INCOMPATIBILITY (MATERIALS TO AVOID):	Oxidizing agents, strong acids, alkaline materials, water, and alcohol. May react quickly with alcohols and water under some conditions with release of moderate amounts of heat. This chemical reacts with water to emit ammonia gas. [HMDS]
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition products: Carbon Monoxide, Carbon dioxide Fumes of aromatic and aliphatic hydrocarbons
HAZARDOUS POLYMERIZATION:	Will not occur under normal temperatures and pressures.

Section 11: Toxicological Information

SKIN IRRITATION

(Rabbit): 500 µL Severe irritant [HMDS]

EYE IRRITATION

No information

ACUTE TOXICITY (LD50)

LD50 (Oral/Rat):	850 mg/kg	[HMDS]
LC50 (Inhalation/Rat):	8700 mg/m ³ /4H	[HMDS]
LC50 (Inhalation/Mouse):	12 g/m ³ /2H	[HMDS]
LD50 (Oral/Rabbit):	1100 mg/kg	[HMDS]
LD50 (Skin Contact/Rabbit):	710 uL/kg	[HMDS]

CHRONIC TOXICITY:

TCLo (Inhalation/Rat): 98 mg/m³/4H/17W-I [HMDS]

CARCINOGENICITY

NTP:	Not listed
IARC:	Not listed
OSHA REGULATED:	Not listed

OTHER INFORMATION:

TUMORIGENIC DATA:

TDLo (Intraperitoneal/Mouse): 1 g/kg tumorigenic agent as stated in RTECS Data. [HMDS]

Section 12: Ecological Information

BIODEGRADATION:	No data is available.
BIOACCUMULATION:	No information is available.
AQUATIC TOXICITY:	No data is available.
OTHER INFORMATION:	None

Section 13: Disposal Considerations

WASTE FROM RESIDUES / UNUSED PRODUCTS:

Waste material should be disposed of by using incineration.

CONTAMINATED PACKAGING:

Contaminated packaging material should be disposed of by incineration as stated above for residues and unused product.

RINSATE: Do not dispose of rinse water containing product in a sanitary sewer system, stormwater drainage system, or wastewater treatment system. Rinsate should be disposed of by incineration as stated above for residues and unused product.

Section 14: Transport Information

ROAD TRANSPORT:

ADR = International Carriage of Dangerous Goods by Road

UN NUMBER:	UN 2924
DOT PROPER SHIPPING NAME	Flammable Liquid, Corrosive N.O.S., (Contains Hexamethyldisilazane)
DOT / ADR HAZARD CLASS:	Flammable 3, Corrosive 8
DOT / ADR LABELS:	3, 8
PLACARD:	Flammable, 3, Corrosive 8
DOT / ADR PACKAGING GROUP:	II

HAZARD NUMBER – ADR: UN 2924
ADR PROPER SHIPPING NAME: Flammable Liquid, Corrosive N.O.S., (Contains Hexamethyl
disilazane)
EPA HAZARDOUS WASTE CLASS: D001 Ignitable,
D003 Reactive
MARINE POLLUTANT: None

DOT REPORTABLE QUANTITY (49 CFR 172.101, APP.) and CERCLA REPORTABLE QUANTITY (40 CFR PART 302, TABLE 302.4) HAZARDOUS SUBSTANCE(S) NAME / (CAS NO.), CONTENT(S) AND RQ: D001 (Ignitable = 100 lbs)

RAIL TRANSPORT:

RID CLASS No.: FLAMMABLE, CORROSIVE
RID PACKING GROUP:

SEA TRANSPORT:

UN NUMBER SEA: FLAMMABLE, CORROSIVE
IMDG CLASS: IMO 3
IMDG PACKING GROUP:
EmS No.:
MARINE POLLUTANT:
SEA TRANSPORT NOTES:

AIR TRANSPORT:

IATA/ICAO CLASS: FLAMMABLE, CORROSIVE

Section 15: Regulatory Information

LABEL FOR SUPPLY:



IRRITANT



FLAMMABLE

RISK PHRASES:

R: 10 Flammable
R: 36 Irritant to eyes.
S: 2 Keep out of the reach of children
S: 25 Avoid contact with eyes

TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:

This product is in compliance with rules, regulations, and/or orders of TSCA.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III SECTION 313

SUPPLIER NOTIFICATION:

This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the Emergency Planning and Community Right To Know Act of 1986 and 40 CFR 372.

The toxic chemicals contained in this product are: None

CALIFORNIA PROPOSITION 65:

This regulation requires a warning for California Proposition 65 chemical(s) under the statute.

The California proposition 65 chemical(s) contained in this product are: None

STATE TOXIC SUBSTANCE OR HAZARDOUS SUBSTANCE LIST (State Right-to-Know):

Florida Toxic Substance(s): None

Massachusetts hazardous substance code(s): None

CANADA:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

EUROPEAN UNION:

This product has been reviewed for compliance with the following European Community Directives: Directive 67/548/EEC, Directive 2001/59/EC, Directive 1999/45/EC, Directive 91/155/EC, and Directive 2001/58/EC.

WEEE CERTIFICATION: Waste Electrical and Electronic Equipment (WEEE), European Union Directive 2002/96/EC. Shin Etsu MicroSi does not consider MP-HP a product that qualifies as one of the 10 categories of electrical and electronic equipment listed in Annex 1A of Directive 2002/96/EC. Also, the products manufactured by Shin Etsu MicroSi do not intentionally contain any of the regulated substances, preparations, or components listed in Annex II of Directive 2002/96/EC. This certification is valid only for this product: MP-HP. Packaging materials were not considered for this certification.

RoHS CERTIFICATION: The Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS), EU Directive (2002/95/EC). We hereby certify that the hazardous substances regulated by the RoHS Directive 2002/95/EC are not used intentionally as ingredient(s) for MP-HP which is manufactured by Shin-Etsu Chemical Co. Ltd. This certification is valid only for this product, MP-HP. Packaging materials were not considered for this certification.

WGK: 1-SI-1&1&M-SI-1&1&1
EINECS: European Inventory of Existing Commercial Chemical Products.
ELINCS: European List of Notified Chemical Substances

Section 16: Other Information

Full Text:**European Community Hazards Identification:**

R: 10 Flammable
R: 36 Irritant to eyes.
S: 2 Keep out of the reach of children
S: 25 Avoid contact with eyes

Danger Symbol(s): F Flammable
Revision Comments: Updated from 2/3/04
Revision Number: 2
Information Sources: RTECS

FOR INDUSTRIAL USE ONLY

THIS MATERIAL SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION, AND INVESTIGATION. THE DATA DESCRIBED IN THIS MSDS CONSIST OF DATA ON LITERATURE, OUR ACQUISITIONAL DATA, AND ANALOGICAL INFERENCE BY DATA OF SIMILAR CHEMICAL SUBSTANCES OR PRODUCTS. SHIN-ETSU CHEMICAL CO. LTD. PROVIDES NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.

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