

# MATERIAL SAFETY DATA SHEET

This MSDS is compatible with ISO 11014 – 1:1994 and conforms to ANSI standard Z400.1 – 1993.

## Section 1: Chemical Product and Company Identification

### CHEMICAL SUPPLIER COMPANY NAME

Shin-Etsu MicroSi, Inc.  
 10028 South 51<sup>st</sup> Street  
 Phoenix, AZ 85044

### EMERGENCY TELEPHONE

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

MANUFACTURER'S NAME: Shin-Etsu Chemical Co. Ltd.  
 ADDRESS: 6-1, 2-Chome, Ohtemachi, Chiyodaku, Tokyo 100-0004, JAPAN  
 TELEPHONE NUMBER: 81-3-3246-5345 Tokyo, Japan

DATE PREPARED: 08/20/01

**REVISION DATE: February 24, 2005**

PRODUCT NAMES: **X-23-7783D**  
 CHEMICAL NAME: Organopolysiloxane mixture  
 CHEMICAL FAMILY: Silicone Grease  
 FORMULA: Preparation/Mixture

## Section 2: Composition, Information on Ingredients

PRODUCT COMPOSITION	APPROX %	ACGIH TLV	OSHA PEL	NIOSH REL	CAS NO.	DSL
Aluminum	60-80	10mg/m3 metal dust	15mg/m3 Total dust	10 mg/m3 Total dust	7429-90-5	Y
Zinc Oxide	10-40	2 mg/m3	15 mg/m3	5 mg/m3	1314-13-2	Y
Trade Secret 1 Siloxanes and Silicones	5-15	None	None	None	TS1	N
Trade Secret 2 Alkanes	0-10	None	None	None	TS2	Y

### Trade Secret (TS)

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 text for all R-Phrases is shown in Section 16.

## Section 3: Hazards Identification

HAZARD CLASSIFICATION: NONE (BASED ON IMO AND DOT)  
FIRE AND EXPLOSION: WILL BURN IF INVOLVED IN A FIRE

POTENTIAL HEALTH EFFECTS:  
INGESTION: NO INFORMATION  
INHALATION: NO INFORMATION  
SKIN CONTACT: MAY CAUSE SLIGHT IRRITATION  
EYE CONTACT: EYE IRRITATION MAY RESULT  
OTHER: NONE  
CHRONIC EFFECTS OF OVEREXPOSURE: NONE  
APPEARANCE: SLIGHT ODOR

NFPA Rating:

Component	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
X23-7783D	2	1	0	--

## Section 4: First Aid Measures

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, PROVIDE CPR (CARDIO PULMONARY RESUSITATION) 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 MEDICAL ATTENTION IF IRRITATION PERSISTS.  
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: 150 degrees C Min. (Open cup)  
FLAMMABLE LIMITS IN AIR (% by vol): Not measured  
EXTINGUISHING MEDIA: Foam, Dry Chemical Powder, or Carbon Dioxide  
SPECIAL FIREFIGHTING PROCEDURES: None  
UNUSUAL FIRE AND EXPLOSION HAZARDS: Emits toxic fumes under fire conditions.

## 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. Contain spills. Place in a chemical waste container.

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 Place Below <25 C
- Keep Container Closed When Not In Use.
- Keep away from heat, and flame.
- Wear proper protective equipment and avoid contact with skin, eyes, or clothing.
- Wash hands after handling this material.
- 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.

### SPECIFIC USES:

- This product is intended for use in Semiconductor photolithography processes.

## Section 8: Exposure Controls/Personal Protection

### EXPOSURE GUIDELINES

#### EXPOSURE LIMITS

#### VENTILATION:

#### SPECIAL VENTILATION CONTROLS:

#### RESPIRATORY PROTECTION:

#### PROTECTIVE GLOVES:

#### EYE PROTECTION:

#### SKIN PROTECTION:

#### OTHER EQUIPMENT:

#### WORK/HYGIENE PRACTICES:

Reference Section 2

Special ventilation precautions not required.

None required

None required

Plastic film or rubber gloves

Safety Glasses, Chemical Goggles, or Face shield

Suitable protective clothing to prevent skin contact

Make safety shower, eyewash stations and hand washing equipment available in the work area.

Avoid contact with eyes. Wash hands and face after handling.

## Section 9: Physical and Chemical Properties

#### BOILING POINT:

#### SPECIFIC GRAVITY (@25 °C):

#### VAPOR PRESSURE

#### VAPOR DENSITY (AIR = 1)

#### FREEZING POINT:

#### MELTING POINT:

#### EVAPORATION RATE:

#### SOLUBILITY IN WATER:

#### APPEARANCE - COLOR:

#### PHYSICAL STATE:

#### ODOR:

#### PH

#### VISCOSITY

#### CORROSIVE

Not applicable

2.5 [Water = 1.0]

Negligible

NA

NA

NA

Negligible (Butyl Acetate = 1)

NA

Gray

Grease / Paste

Slight Odor

NA

NA

No

## Section 10: Stability and Reactivity

#### STABILITY:

#### CONDITIONS TO AVOID:

#### INCOMPATIBILITY (MATERIALS TO AVOID):

#### HAZARDOUS DECOMPOSITION PRODUCTS:

#### HAZARDOUS POLYMERIZATION:

Stable

None

None

Flammable hydrogen gas

Will not occur

## Section 11: Toxicological Information

No information is available for the product mixture.

SKIN IRRITATION:				
SKIN RABBIT:	ZnO		500g/kg	Mild
LD50	TS1		>16 ml/kg	
EYE IRRITATION:				
HUMAN	ZnO		500 mg	Mild
TOXICITY DATA				
HUMAN INHALATION	AL	TCLo	206 mg/m3 @5 hours/30 days	
	ZnO	TCLo	600 mg/kg	
HUMAN ORAL	ZnO	TDL0	500 mg/kg	
ACUTE TOXICITY (LD50):				
LD50 (Oral Rat):	ZnO		>8437 mg/kg	
	TS1		>16 ml/kg	
CHRONIC TOXICITY:				
NTP:	Not Listed			
IARC:	Not Listed			
OSHA Regulated:	Reference Section 2.			
AMES TEST RESULTS:				
	None			
OTHER INFORMATION:				
	None			

Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

1999/45/EC Annex II No Toxicological hazards

## Section 12: Ecological Information

BIODEGRADATION:	Not applicable
BIOACCUMULATION:	No information is available for mixture.
AQUATIC TOXICITY:	No information is available for mixture.
OTHER INFORMATION:	None
1999/45/EC Annex III	No Environmental hazards

## Section 13: Disposal Considerations

Waste material can be burned in a chemical incinerator equipped with an afterburner and scrubber. Do not dispose of the emptied container unless the contents have been completely removed. Do not dispose of the emptied container unlawfully.

## Section 14: Transport Information

### ROAD TRANSPORT (49CFR 172):

DOT	Not Regulated
UN NUMBER:	NA
DOT / ADR HAZARD CLASS:	NA
DOT / ADR LABELS:	NA
PLACARD:	NA
DOT / ADR PACKAGING GROUP:	NA
HAZARD NUMBER – ADR:	NA
DOT / ADR PROPER SHIPPING NAME:	NA

EPA HAZARDOUS WASTE CLASS: NA  
MARINE POLLUTANT: NA  
DOT REPORTABLE QUANTITY: NA

**RAIL TRANSPORT:**

RID CLASS No.: NA  
RID PACKING GROUP: NA

**SEA TRANSPORT:**

UN NUMBER SEA: NA  
IMDG CLASS: NA  
IMDG PACKING GROUP: NA  
EmS No.: NA  
MARINE POLLUTANT: NA  
SEA TRANSPORT NOTES: NA

**AIR TRANSPORT:**

IATA/ICAO CLASS: NA  
AIR PACKING GROUP: NA

DOT REPORTABLE QUANTITY (49 CFR 172.101, APP.) and CERCLA REPORTABLE QUANTITY (40 CFR PART 302, TABLE 302.4) Identified by Hazardous Substance Name(s) / (CAS No.), Content(s) and Reportable Quantity (RQ):

Zinc oxide/ CAS 1314-13-2 , ca. 20% : 1000 lbs (454kg)

## Section 15: Regulatory Information

**TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:**

This product is in compliance with rules, regulations, and orders of TSCA and should be used in compliance with TSCA'S Low Volume Exemption (LVE) regulations.

**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. This information must be included in all MSDS's that are copied and distributed for the material.

The Section 313 toxic chemicals contained in this product are: Aluminum, Zinc

**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 RIGHT-TO-KNOW TOXIC SUBSTANCE OR HAZARDOUS SUBSTANCE LIST:**

Florida Toxic Substance(s):	None
Massachusetts' hazardous substance(s):	None
Pennsylvania hazardous substance code(s):	None
New Jersey	None
Illinois	None

**CLEAN AIR ACT AMMENDMENTS (1990), SECTION 112, HAZARDOUS AIR POLLUTANTS:**

This substance is a listed Hazardous Air Pollutant: None

**SECTION 111, VOLITALE ORGANIC SUBSTANCES:**

This substance is designated as a Volatile Organic Substance: None

**CLEAN WATER ACT:** The following chemicals used in the product are listed as a Priority Pollutant in Appendix A to 40 CFR, Part 423—126 Priority Pollutants: None

**CANADA:**

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

Aluminum: Canada Gazette, Part I, January 26, 1991.  
Zinc Oxide: Canada Gazette, Part II, (2) (01 January 26, 1988).  
Silicones: Canada Gazette, Part I, January 26, 1991.

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.

Note: All components of this product are listed in EINICS or ELINCS.

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 X-23-7783D which is manufactured by Shin-Etsu Chemical Co. Ltd. This certification is valid only for this product X-23-7783D. Packaging materials were not considered for this certification.



FLAMMABLE



DANGEROUS TO THE ENVIRONMENT

**LABEL FOR SUPPLY (EU):****RISK PHRASES:**

- R: 15 Contact with water liberates extremely flammable gases  
R: 17 Spontaneously flammable in air.  
R: 50-53 Very Toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.  
S: (2-) Keep out of the reach of children.  
S: 7/8 Keep container tightly closed and dry.  
S: 43 In case of fire use Foam, dry chemical powder or Carbon Dioxide.  
S: 60 This material and its container must be disposed of as hazardous waste.  
S: 61 Avoid release to the environment. Refer to special instructions/Safety Data Sheets.

## Section 16: Other Information

**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.

**ADDITIONAL INFORMATION**

THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS MADE. THE RECOMMENDED HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE.

**European Community Hazards Identification:**

- R: 15 Contact with water liberates extremely flammable gases  
R: 17 Spontaneously flammable in air.  
R: 50-53 Very Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S: (2-) Keep out of the reach of children.  
S: 7/8 Keep container tightly closed and dry.  
S: 43 In case of fire use Foam, dry chemical powder or Carbon Dioxide.  
S: 60 This material and its container must be disposed of as hazardous waste.  
S: 61 Avoid release to the environment. Refer to special instructions/Safety Data Sheets.

Danger Symbol(s): F Flammability  
N Dangerous to the Environment

Revision Comments: Updated from 8/20/2001 version  
Revision Number: 1  
Information Sources: RTECS