HD 8961

Version 2.0

Revision Date 02/15/2017 Ref. 130000146479

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	HD 8961
Product Use	:	Electrical/electronic industries PBO Precursor Coating for Electronics Industry
Restrictions on use	:	For Industrial and Professional Use Only, For Experimental Use Only
Manufacturer/Supplier	:	Hitachi Chemical DuPont MicroSystems Ltd. 4-13-1 Higashi-cho, Hitachi-shi Ibaraki, 317-8555 Japan
Product Information	:	03-3868-8124
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency	:	CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)
Importer/Distributor	:	HD MicroSystems™ 250 Cheesequake Road, Parlin, New Jersey 08859
Telephone	:	800-346-5656

SECTION 2. HAZARDS IDENTIFICATION

Product hazard category

Flammable liquids	Category 4
Acute toxicity (Oral)	Category 4
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity - single exposure	Category 3

Label content

Pictogram :

Signal word : Danger

Hazardous warnings : Combustible liquid.
Harmful if swallowed.
Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Hazardous prevention measures	:	Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/ eye protection/ face protection. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents/ container to an approved waste disposal plant.

Other hazards
The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 40 - 50 %

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
γ-Butyrolactone	96-48-0	50 - 60 %
Methanol	67-56-1	0.1 - 1 %

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice	:	No applicable data available.
Inhalation	:	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	:	Wash off with soap and water. Get medical attention if irritation develops and persists. Wash contaminated clothing before re-use.
Eye contact	:	Immediately flush eyes for at least 15 minutes. Get medical attention.
Ingestion	:	If swallowed Rinse mouth with water. Call a physician or poison control centre immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center.
Most important symptoms/effects, acute and delayed	:	No applicable data available.
Protection of first-aiders	:	No applicable data available.
Notes to physician	:	No applicable data available.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, Carbon dioxide (CO2), Dry chemical, Foam
Unsuitable extinguishing media	:	No applicable data available.
Specific hazards	:	Hazardous decomposition products formed under fire conditions. (see also section 10) Avoid breathing decomposition products.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus and protective suit.
Further information	:	Evacuate personnel to safe areas. Stop spill/release if it can be done with minimal risk. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Safeguards (Personnel)	:	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Wear suitable protective equipment.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Clean contaminated floors and objects thoroughly while observing environmental regulations.
Spill Cleanup	:	Contain spill. Soak up with inert absorbent material. Collect and contain contaminated absorbent and dike material for disposal. Keep in suitable, closed containers for disposal. Ventilate the area. Clean contaminated surface thoroughly.
Accidental Release Measures	:	Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	:	Avoid contact with skin, eyes and clothing. Use sufficient ventilation to keep employee exposure below recommended limits. Wash thoroughly after handling. To avoid spills during handling keep bottle on a metal tray. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Contaminated work clothing should not be allowed out of the workplace. Remove contaminated clothing and protective equipment before entering eating areas. Remove and wash contaminated clothing before re-use.
Handling (Physical Aspects)	:	Keep away from heat and sources of ignition.
Dust explosion class	:	No applicable data available.
Storage	:	Keep frozen. Keep away from direct sunlight. Keep in a cool, well-ventilated place.
Storage period	:	No applicable data available.
Storage temperature	:	<= -18 °C (<= -0.40 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls	:	Use sufficient ventilation to keep employee exposure below recommended limits.
Personal protective equipment		
Respiratory protection	:	Provide adequate ventilation. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer. Respirator with filter for organic vapour Have available emergency self-contained breathing apparatus or full-face airline respirator when using this chemical.
Hand protection	:	Material: butyl-rubber Additional protection: Gloves must be inspected prior to use.
Hand protection	:	Material: Natural Rubber Additional protection: Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Hand protection	:	Additional protection: The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.
Hand protection	:	Additional protection: The exact break through time can be obtained from the protective glove producer and this has to be observed.
Hand protection	:	Additional protection: Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Eye protection	:	Wear safety glasses or coverall chemical splash goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Lightweight protective clothing Safety shoes

Exposure Guidelines
Exposure Limit Values

γ-Butyrolactone
No applicable data available.

Methanol

Permissible exposure limit:	(OSHA)	200 ppm	260 mg/m3	8 hr. TWA
TLV	(ACGIH)	200 ppm	TWA	
TLV	(ACGIH)	250 ppm	STEL	
AEL *	(DuPont)	200 ppm	8 & 12 hr. TWA, Skin	

Biological Exposure Indices

Methanol

BEI	(ACGIH)	15 mg/l Methanol/Urine Sampling time: End of shift.

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	:	liquid
Form	:	liquid
Color	:	red
Odor	:	ester-like
Odor threshold	:	No applicable data available.
pH	:	No applicable data available.
Melting point/range	:	No applicable data available.
Boiling point/boiling range	:	No applicable data available.
Flash point	:	71 °C

Method: Setaflash closed cup - SCC

Evaporation rate	:	No applicable data available.
Flammability (solid, gas)	:	No applicable data available.
Upper explosion limit	:	No applicable data available.
Lower explosion limit	:	No applicable data available.
Vapour Pressure	:	No applicable data available.
Vapour density	:	No applicable data available.
Density	:	1.19 g/cm3
Specific gravity (Relative density)	:	No applicable data available.
Water solubility	:	insoluble
Solubility(ies)	:	No applicable data available.
Partition coefficient: n-octanol/water	:	No applicable data available.
Auto-ignition temperature	:	No applicable data available.
Decomposition temperature	:	No applicable data available.
Viscosity, kinematic	:	No applicable data available.
Viscosity, dynamic	:	2,000 mPa.s at 25 °C (77 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Decomposes on heating. The product is chemically stable under recommended conditions of storage, use and temperature.
Possibility of hazardous reactions	:	Heating can release hazardous gases. Decomposes on heating.
Conditions to avoid	:	Heat, flames and sparks.

		Extremes of temperature and direct sunlight.
Incompatible materials	:	Peroxides alkaline substances Powdered metal salts Strong acids and strong bases oxidizers
Hazardous decomposition products	:	Hazardous thermal decomposition products may include: Carbon dioxide (CO2), Carbon monoxide, Hydrocarbons, Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION

γ-Butyrolactone

Inhalation	:	An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.
Dermal LD50	:	5,640 mg/kg , Guinea pig
Oral LD50	:	1,582 mg/kg , Rat Central nervous system effects
Skin irritation	:	No skin irritation, Rabbit
Eye irritation	:	Irreversible effects on the eye, Rabbit
Skin sensitization	:	Does not cause skin sensitisation., Mouse
Repeated dose toxicity	:	Oral Rat - 90 d NOAEL: 225 mg/kg No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Reduced body weight gain
Carcinogenicity	:	Not classifiable as a human carcinogen. Animal testing did not show any carcinogenic effects.
Mutagenicity	:	Animal testing did not show any mutagenic effects. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.

Did not cause genetic damage in cultured bacterial cells.

Teratogenicity : Animal testing showed no developmental toxicity.

Methanol

Inhalation Acute toxicity estimate : 3 mg/l , animals (unspecified species)
Target Organs: Central nervous system, Eye
Central nervous system effects
narcosis
eye effects

Dermal Acute toxicity estimate : 300 mg/kg , animals (unspecified species)
Target Organs: Central nervous system, Eye
Central nervous system effects
narcosis
eye effects

Oral Acute toxicity estimate : 100 mg/kg , animals (unspecified species)
Target Organs: Central nervous system, Eye
Central nervous system effects
narcosis
eye effects

Skin irritation : No skin irritation, Rabbit

Eye irritation : No eye irritation, Rabbit
Slight irritation observed but insufficient to warrant classification

Skin sensitization : Does not cause skin sensitisation., Guinea pig

Carcinogenicity : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity : Weight of evidence does not support classification as a germ cell mutagen.
Animal testing did not show any mutagenic effects.
Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
Genetic damage in cultured bacterial cells was observed in some laboratory tests but not in others.

Reproductive toxicity : No toxicity to reproduction
Evidence suggests the substance is not a reproductive toxin in animals.

Teratogenicity : Evidence suggests the substance is not a developmental toxin in animals.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

Material	IARC	NTP	OSHA
4-Methylpentan-2-one	2B		

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

γ-Butyrolactone

96 h LC50 : Leuciscus idus (Golden orfe) 316 mg/l DIN 38412

72 h EC50 : Desmodesmus subspicatus (green algae) > 1,000 mg/l

48 h EC50 : Daphnia magna (Water flea) > 500 mg/l Directive 67/548/EEC, Annex V, C.2.

Methanol

96 h LC50 : Lepomis macrochirus (Bluegill sunfish) 15,400 mg/l

96 h LC50 : Selenastrum capricornutum (green algae) 22,000 mg/l

48 h EC50 : Daphnia (water flea) > 10,000 mg/l

Environmental Fate

γ-Butyrolactone

Bioaccumulation : Bioaccumulation is unlikely.

Methanol

Bioaccumulation : Bioaccumulation is unlikely.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product	:	Dispose of in accordance with local regulations. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Never place unused product down any indoor or out door drain.
Waste disposal methods - Container	:	Do not reuse empty container. Contaminated/not cleaned containers should be treated/handled like product waste. Dispose of container properly. Refer to applicable Local, State/Provincial, and Federal Regulations, as well as industry Standards.
Contaminated packaging	:	No applicable data available.

SECTION 14. TRANSPORT INFORMATION

Not regulated by DOT in non-bulk package.
Regulated by DOT/49CFR as Combustible Liquid when transported in a bulk package (>=119 gallons(450 litres)).
Not a dangerous good in the meaning of IMDG-Code, ICAO/IATA-DGR.

SECTION 15. REGULATORY INFORMATION

TSCA	:	Product or component subject of a TSCA Low Volume Exemption (LVE), 40CFR723.50(c)(1). There are use restrictions, exposure and/or release controls that are binding to users or processors of the LVE substance. Failure to comply with the restrictions or controls may result in discontinued supply of this product and/or notification to EPA.
SARA 313 Regulated Chemical(s)	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
PA Right to Know	:	Substances on the Pennsylvania Hazardous Substances List present at a

Regulated Chemical(s)		concentration of 1% or more (0.01% for Special Hazardous Substances): Formaldehyde
NJ Right to Know Regulated Chemical(s)	:	Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Ethanol, Methanol
CERCLA Reportable Quantity	:	518135 lbs Based on the percentage composition of this chemical in the product.: Formaldehyde
SARA Reportable Quantity	:	518135 lbs Based on the percentage composition of this chemical in the product.: Formaldehyde
California Prop. 65	:	WARNING! This product contains a chemical or chemicals known to the State of California to cause cancer.4-Methylpentan-2-one, Formaldehyde WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.4-Methylpentan-2-one, Methanol, N-Methyl-2-pyrrolidone, 2-Ethoxyethanol

SECTION 16. OTHER INFORMATION

Restrictions for use : For research use only.

Revision Date : 02/15/2017

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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