

Material Safety Data Sheet

IDENTITY(As Used on Label and List)

PZT SOL-GEL SOLUTION

Section

Manufacture's Name: Mitsubishi Materials Corporation	Emergency Telephone Number: 81-795-68-2320
Address(Number, Street, City, State and ZIP Code): 12-6 Technopark, Sanda, Hyougo 669-1339, Japan	Telephone Number for Information: 81-795-68-2320
	Date Prepared: January 30, 2002
	Signature of Prepare(optional): Satoru Mori

Section -Hazardous Ingredients/Identity Information

Components	CAS No.	WT%	OSHA TWA(mg/m ³)	ACGIH TWA(mg/m ³)
Pb (oxide)	1317-36-8	0.5 ~ 15	-	0.1
Zr (oxide)	1314-23-4	0 ~ 7	-	5
Ti (oxide)	13463-67-7	0 ~ 5	-	-
2-methoxyethanol	109-86-4	65 ~ 99	-	16

Section -Physical/Chemical characteristics

Boiling Point: 125	Specific Gravity(H ₂ O=1): 1
Vapor Pressure(Pa): 830 (at 20)	Melting Point: Not available
Vapor Density(air=1): 2.6	Evaporation Rate(butyl acetate=1): <1
Solubility in Water: Soluble	
Appearance and Odor: Yellow liquid with slight odor	

Section -Fire and Explosion Hazard Data

Flash Point(Method Used): 27 (close)	Flammable Limits: 1.8 ~ 14vol%
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Extinguishing Media:

Dry chemical, CO₂, foam

Special Fire Fighting Procedures:

Use self-contained breathing apparatus

Unusual Fire and Explosion Hazards:

Handle as a flammable liquid

Section -Reactivity Data

Stability: Stable	Condition to Avoid: High temp.
Incompatibility(Materials to Avoid): Ignition sources	
Hazardous Decomposition or Byproducts: CO, PbO on combustion	
Hazardous Polymerization: Will not occur	Condition to Avoid: Not applicable

Section -Health Hazard Data

Route(s) of Entry: Inhalation? Yes Skin? Yes Ingestion? Yes	Carcinogenicity: Mutagenic NTP? Not available IARC Monographs? Yes(2B) OSHA Regulated? Not available
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Health Hazards(Acute and Chronic):

Acute: Headache,dizziness,nausea,eye irritation

Chronic: Blood disease,Disease of generative function

Congenital variation,De-fatting of the skin

Signs and Symptoms of Exposure: Headache,dizziness,nausea,eye irritation

Medical Conditions Generally Aggravated by Exposure: Unknown

Emergency and First Aid Procedures

Inhalation: Remove to fresh air. Call a physician.

Eye: Immediately flush eyes with plenty of water. Call a doctor.

Skin: Wash with soap and water.

Section -Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled:

Remove all sources of ignition.

Waste Disposal Method:

Contact local industrial waste disposal company for disposal.

Other Precautions: Avoid exposure to vapors.

Section -Control Measures

Ventilation Local Exhaust: Recommended Mechanical(General): Desirable	Special: Not applicable Other: Not applicable
Protective Gloves: Rubber	Eye Protection: Safety goggle

Other Protective Clothing or Equipment:

Protective clothing to prevent all body contact.

Work/Hygienic Practices: Wash thoroughly after handling

Section -Additional Comments

UN Number : 1993 (Flammable Liquid)

While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Mitsubishi Materials Corporation makes no warranty with respect hereto and disclaims all liability from reliance thereon.