

SMART TECHNOLOGY LTD
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ISSUED: 20 October 2009
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MATERIAL SAFETY DATA SHEET – LID3354D

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Electrorheological fluid
Product Number: LID 3354D
Product Type: Adaptive fluid

This electrorheological fluid may be used for experimental and evaluation purposes only.

2. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredients	CAS No.	% by wt
Silicone oil	Proprietary	23
*Lithium salt of resorcinol/ Formalin	Proprietary	37.5
Chloro-fluoro polymer	9002-83-9	39.5

*Information on ingredients:

Ingredient	CAS No.
Resorcinol	108-46-3
Lithium Hydroxide LiOH, hydrated form	1310-66-3
Formalin	50-00-0

Ingredients that have exposure limits

Exposure limits (TWA) Ingredients	ACGIH (TLV)	OSHA (PEL)	OTHER
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Exposure limits (STEL) Ingredients	ACGIH (TLV)	OSHA (PEL)
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3. HAZARDS IDENTIFICATION

Toxicity May cause mild eye irritation
When heated to temperatures above 300°F (150°C) in the presence of air, this product can form formaldehyde vapors. Formaldehyde is a potential cancer hazard and a known skin and respiratory sensitizer. Vapors irritate eyes, nose and throat. Safe handling conditions may be maintained by keeping vapor concentration below the OSHA permissible limit for formaldehyde.
Chlorotrifluoroethylene polymers decompose and depolymerise above 300°C. Decomposition products can be toxic and hazardous, and include hydrogen fluoride, hydrogen chloride, chlorotrifluoroethylene and other toxic organic fluorine compounds.

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Primary route of entry None known
Signs and symptoms
of exposure: Irritation of the eyes
Existing Conditions
aggravated by exposure None known

Ingredients	Literature referenced Target Organ and Other Health effects	Carcinogen		
		NTP	IARC	OSHA
Silicone oil	No data	NO	NO	NO
Lithium salt of resorcinol/ formaldehyde polymer	No data	NO	NO	NO
Chlorofluoro polymer	No data	NO	NO	NO

4. FIRST AID MEASURES

Ingestion Do not induce vomiting. Keep individual calm.
Obtain medical attention
Inhalation: Does not apply
Skin contact: Wash thoroughly with soap and water
Eye Contact: Flush eyes with directed stream of water for at least 15 minutes.

5. FIRE FIGHTING MEASURES

Flash Point: More than 200°F Method: Closed cup
Recommended
Extinguishing Agents Carbon dioxide, foam, dry chemical
Wear NIOSH/MSHA approved positive pressure self-contained
breathing apparatus.
Hazardous Products formed
by Fire or Thermal Decomp Hydrogen fluoride, hydrogen chloride, chlorotrifluoroethylene,
and trace amounts of other fluorine compounds.
Unusual Fire or
Explosion Hazards: None
Explosive Limits:
(% by volume in air) Lower Not available
(% by volume in air) Upper Not available

6. ACCIDENTAL RELIEF MEASURES

Steps to be taken in case
of spill or leak Soak up with an inert absorbent. Store in partly
filled, closed container until disposal.

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7. HANDLING AND STORAGE.

Safe Storage: Store below 100°F
Shelf Life: At least 3 years at 70°F
Handling: Avoid prolonged skin contact. Keep away from eyes.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Eyes: Safety glasses or goggles
Skin: Rubber or plastic gloves
Ventilation: Does not apply

See Section 2 for Exposure Limits

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown liquid
Odor: Mild
Boiling Point: More than 300°F
pH: Does not apply
Solubility in Water: Insoluble
Specific Gravity: 1.47
Volatile Organic Compound
(EPA Method 24) Not available
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate:
(Ether = 1) Not available.

10. STABILITY AND REACTIVITY

Stability: Stable
Hazardous Polymerization: Will not occur
Incompatibility: Oxidizing agents, aluminum, magnesium, sodium
potassium, amines, liquid fluorine, liquid
chlorine trifluoride.
Hazardous Decomposition
Products (non-thermal): None

11. TOXICOLOGICAL INFORMATION

See Section 3

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12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL CONSIDERATIONS

Recommended methods of disposal: Incinerate following EPA and local regulations
EPA Hazardous Waste Number NII - Not a RCRA Hazardous Waste Material

14. TRANSPORT INFORMATION

DOT (49 CFR 172)
Domestic Ground Transport
Proper Shipping Name: Unrestricted
Hazard Class or Division: Unrestricted
Identification Number: None
Marine Pollutant: None
IATA
Proper Shipping Name: Unrestricted
Class or Division: Unrestricted
UN or ID Number: None

15. REGULATORY INFORMATION

CA Proposition 65 No California Proposition 65 chemicals are known to be present

16. OTHER INFORMATION

Estimated NFPA(R) Code:
Health Hazard 0
Fire Hazard 0
Reactivity Hazard 0
Specific Hazard: Does not apply

Estimated HMIS(R) Code:
Health Hazard 0
Flammability Hazard 0
Reactivity Hazards 0
Personal Protection See Section 8

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