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 MSDS NO. FP4451
 HYSOL FP4451

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SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

COMPANY IDENTIFICATION

Dexter Electronic Materials Division
 15051 E. Don Julian Road
 Industry, California 91746
 USA
 Phone: 1-626-968-6511
 Fax: 1-626-336-0526

EMERGENCY TELEPHONE NUMBERS

Transportation:
 Chemtrec, USA, 1-800-424-9300
 International 1-703-527-3887
 Non-Transportation:
 1-800-399-6503

PRODUCT NAME
 HYSOL FP4451

PRODUCT CODE
 FP4451

PRODUCT DESCRIPTION
 One Component Epoxy

GENERAL USE
 Electronic Encapsulant

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE DESCRIPTION	PERCENT	CAS#
Diglycidylether of bis. A	1.000- 5.000	1675-54-3
Trade Secret 0105	1.000- 5.000	PROPRIETARY
Substituted Phthalic Anhydride	10.000- 30.000	25550-51-0
Substituted Phthalic Anhydride	1.000- 5.000	34090-76-1
Cycloaliphatic Epoxy Resin	1.000- 5.000	2386-87-0
Bisphenol A/ECH based epoxy re	1.000- 5.000	25068-38-6
Carbon Black	0.406	1333-86-4
Cristobalite	0.381	14464-46-1

DISCLOSURE

This product is hazardous under the criteria of the USA OSHA Hazard Communication Standard 29 CFR 1910.1200.

Any ingredient claimed as a trade secret will be disclosed in accordance with 29 CFR 1910.1200 (i).

See Section 8 of this MSDS for any noted exposure limits for these compounds.

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

 Caution!
 Liquid
 Aromatic Odor
 Possible Irritation to Eyes, Skin and Lungs

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SECTION 3. HAZARDS IDENTIFICATION
(CONTINUED)

EYE CONTACT

Contact may cause eye irritation.

SKIN CONTACT

Prolonged or repeated contact may cause irritation.

INHALATION

May cause irritation to the respiratory tract.

INGESTION

Moderately toxic, may cause vomiting.

PRIMARY ROUTE OF EXPOSURE

Eyes, skin and lungs

MEDICAL CONDITIONS AGGRAVATED

Preexisting skin and eye disorders may be aggravated by exposure to this product.

Preexisting skin or lung allergies may increase the chance of developing increased allergic symptoms from exposure to this product.

CARCINOGENICITY

IARC - 2A Cristobalite, 2A Quartz, 2B Carbon Black

OSHA - Not Listed

NTP - 2 Cristobalite, 2 Quartz

WARNING: Contains Cristalline Silica which may cause cancer.

However, no exposure should occur once the product is cured unless the cured product is sanded, cut or ground.

TARGET ORGANS

Ingredients may be toxic to the following organs:

Eyes, skin, lungs

SECTION 4. FIRST AID MEASURES

EYE CONTACT

Immediately wash/flush eyes with water for minimum 15 minutes.
Seek medical attention.

SKIN CONTACT

Rinse skin immediately with plenty of water.
Remove contaminated clothing and shoes.
Seek medical attention, if irritation develops.

INHALATION

Remove victim to fresh air. If breathing is difficult get immediate medical attention. If not breathing give artificial respiration and call for emergency medical attention.

INGESTION

If swallowed, do NOT induce vomiting.
Seek prompt medical attention.

NOTE TO PHYSICIAN

Treatment should be directed at the control of symptoms and the clinical conditions.

ANTIDOTES

There are no specific antidotes.

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SECTION 5. FIRE FIGHTING MEASURES

FLASH POINT
N/D F

N/D C >300°F

FLASH METHOD
Open Cup

EXTINGUISHING METHOD
Water fog, carbon dioxide, dry chemical, foam.

FIRE FIGHTING PROCEDURES
Recommended use of self contained breathing apparatus (SCBA).

FIRE AND EXPLOSION HAZARDS
No unusual fire or explosion hazards.

HAZARDOUS PRODUCTS/COMBUSTION
Carbon dioxide
Carbon monoxide
Possible organics
Oxides of nitrogen

SECTION 6. ACCIDENTAL RELEASE MEASURES

CLEAN-UP
Contain spill in natural form or with sand or dirt (inert material).
Eliminate all ignition sources.
Prevent runoff to storm sewers, ditches and waterways.
Shovel or scrape (non-metallic) absorbed waste materials into disposal container.
Seal lid tightly with tape or locking ring and label properly.
Clean up spill immediately, observing precautions including adequate ventilation and/or personal protective equipment (See Section 8).

SECTION 7. HANDLING AND STORAGE

HANDLING
If skin contact occurs immediately wash with soap and water.

STORAGE
Dry atmospheric conditions.
Keep containers closed and tightly sealed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS
Use local exhaust ventilation near the source.

EYE PROTECTION
Wear safety glasses with side shields or goggles.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
 (CONTINUED)

SKIN PROTECTION

Gloves: PVC, Rubber (Latex, Nitrile, Butyl)

RESPIRATORY PROTECTION

No respirator is required if ingredient exposure limits are not exceeded. An OSHA approved (29 CFR 1910.134 USA Dept. of Labor), air-purifying, half-face respirator with HEPA (high efficiency particulate air) cartridge should be used if exposure limits are exceeded.

OTHER PROTECTION

A safety shower and eye wash station should be within reasonable distance of the work area.

EXPOSURE LIMITS/REGULATORY INFORMATION

SUBSTANCE DESCRIPTION	REG. AGCY	PELTL	STEL	CEIL
Diglycidylether of bis. A	OSHA ACGIH	N/D N/D	N/D N/D	N/D N/D
Trade Secret 0105	OSHA ACGIH	N/D N/D	N/D N/D	N/D N/D
Substituted Phthalic Anhydride	OSHA ACGIH	N/D N/D	N/D N/D	N/D N/D
Substituted Phthalic Anhydride	OSHA ACGIH	N/D N/D	N/D N/D	N/D N/D
Cycloaliphatic Epoxy Resin	OSHA ACGIH	N/D N/D	N/D N/D	N/D N/D
Bisphenol A/ECH based epoxy resin	OSHA ACGIH	N/D N/D	N/D N/D	N/D N/D
Carbon Black	OSHA ACGIH	3.5000 3.5000	N/D N/D	N/D N/D
Cristobalite	OSHA ACGIH	0.0500 0.0500	N/D N/D	N/D N/D

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS

CEIL Ceiling Exposure Limit
 PELTL PEL/TLV (TWA)
 STEL Short Term Exposure Limit
 N/D = Not Determined

UNIT OF MEASURE

Mg/M3 Milligrams per Cubic Meter (Solid)
 PPM Parts Per Million (Liquid)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
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APPEARANCE & ODOR

Viscous black liquid, aromatic odor.

SPECIFIC GRAVITY

1.76

VAPOR PRESSURE (mm Hg)

N/D

VAPOR DENSITY (Air = 1.0)

N/D

EVAPORATION RATE

N/D

SOLUBILITY IN WATER

Insoluble

SOLUBILITY IN OTHER SOLVENTS

Ketones

VOLATILE ORGANIC COMPOUNDS

VOC - % 0

VOC - grams/Liter 0

VOC - lbs/Gal 0

ASTM D2369

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES

Strong oxidizing agents

DECOMPOSITION

Carbon dioxide

Carbon monoxide

Possible organics

Oxides of nitrogen

POLYMERIZATION

Exothermic

CONDITIONS TO AVOID

High temperature, open flames

STABILITY

Stable

SECTION 11. TOXICOLOGICAL INFORMATION

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SECTION 11. TOXICOLOGICAL INFORMATION
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DERMAL EFFECTS

TOXICITY DATA

Testing has not been performed on this product.
For data on components, please phone 626-968-6511.

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No specific studies have been conducted by Dexter on the ecotoxicity or environmental fate of this material; however, commonly available data on the ecotoxicity and environmental fate of certain of the constituents of this material indicate that uncontrolled releases to soil, groundwater, or surface waters could entail acute and/or chronic ecological effects, depending on the quantity and concentration of such releases. Releases of volatile components to the atmosphere are not believed to entail significant ecological consequences provided such releases are within the exposure levels set forth in Section 8. Accordingly, all appropriate measures should be taken to avoid uncontrolled releases of this material to the environment, and any spills or other uncontrolled releases which may occur should be contained and cleaned up immediately in accordance with Section 6.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Disposal of waste properly and in accordance with legal requirements is the responsibility of the owner/generator of the waste, and may be subject to state and/or local regulations, which may change frequently. Accordingly, applicable legal requirements should be confirmed with all relevant authorities prior to treatment, storage or disposal of waste containing the material described in this MSDS.

It is recommended that all waste resulting from use of this material be: first, reused or reintroduced into the process; second, reclaimed, regenerated or otherwise recycled, if reuse is not possible; third, burned for energy recovery or incinerated as preferred means of disposal, with appropriate treatment of combustion residues to render them inert, if recycling is not possible; fourth, treated to render it inert prior to disposal.

SECTION 14. TRANSPORT INFORMATION

DOT/IATA PROPER SHIPPING NAME
Not Regulated

DOT/IATA PACKING GROUP
Not Regulated

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SECTION 14. TRANSPORT INFORMATION
(CONTINUED)

DOT/IATA HAZARD CLASS OR DIV
Not Regulated

DOT/IATA LABEL
Not Regulated

DOT/IATA PLACARD
Not Regulated

DOT/IATA UN NUMBER
Not Regulated

PRODUCT REPORTABLE QTY (LBS)
Not Regulated

ADR
Not Regulated

IMO (IMDG)
Not Regulated

SCHEDULE B
3907.30.0000

SECTION 15. REGULATORY INFORMATION

Component Diglycidylether of b is subject to the following

Environmental List

311/312 SARA Sect. 311/312

Component Trade Secret 0105 is subject to the following

Environmental List

311/312 SARA Sect. 311/312

Component Substituted Phthalic is subject to the following

Environmental List

311/312 SARA Sect. 311/312

Component Substituted Phthalic is subject to the following

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SECTION 15. REGULATORY INFORMATION
 (CONTINUED)

Environmental List

311/312 SARA Sect. 311/312

Component Cycloaliphatic Epoxy is subject to the following

Environmental List

311/312 SARA Sect. 311/312

Component Bisphenol A/ECH base is subject to the following

Environmental List

311/312 SARA Sect. 311/312

Component Carbon Black is subject to the following

Environmental List

PROP65-C CA PROP 65 Carcinogen
 311/312 SARA Sect. 311/312

Component Cristobalite is subject to the following

Environmental List

PROP65-C CA PROP 65 Carcinogen
 311/312 SARA Sect. 311/312

SECTION 16. OTHER INFORMATION

HMIS					
Health	Flammability	Reactivity		Hazard Rating	
1	0	1	Least	0	Slight 1
			Moderate	2	High 3
					Extreme 4

WHMIS
 Class D, Div 2, Subdiv B

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SECTION 16. OTHER INFORMATION
(CONTINUED)

REVISION NO.
003

REVISION DATE
3/26/1997

REVISION SECTION/REASON
Section 3 / Carbon Black IARC 2B

APPROVED BY
HSE - Industry, California

CREATED BY
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KEY TO ABBREVIATIONS:

EQ=Equal LT=Less Than GT=Greater Than
AP=Approximately TR=TRace ND=No Data available
N/D = Not Determined