

MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

COMPANY INFORMATION

Multi-Seals, Inc.
540 North Main Street
Manchester, CT 06040
USA

Phone: 860-643-7188
Fax: 860-643-5669

EMERGENCY TELEPHONE NUMBER

USA 860-643-7188 (24 hrs)

PRODUCT INFORMATION

Description: Epoxy Resin Compounds
General Use: Electrical/Electronic Encapsulant, Sealant

Nomenclature:

DC-007 RED		DC-207 RED		DC-207 BLACK
M5-92 RED		M5-92 BLACK		M17-19 RED
M17-19 BLACK				

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

Product:	Ingredient	Percent	CAS #
DC-007 RED:			
	Benzophenonetetracarboxylic dianhydride (BTDA)	10.000- 30.000	02421-28-5
DC-207 RED:			
	Epoxy Cresol Novolac	15.000- 40.000	29690-82-2
	Diaminodiphenylsulfone	15.000- 30.000	00080-08-0
DC-207 BLACK:			
	Epoxy Cresol Novolac	15.000- 40.000	29690-82-2
	Diaminodiphenylsulfone	15.000- 30.000	00080-08-0
M5-92 RED:			
	Epoxy Cresol Novolac	40.000- 80.000	29690-82-2
	Diaminodiphenylsulfone	15.000- 30.000	00080-08-0
M5-92 BLACK:			
	Epoxy Cresol Novolac	40.000- 80.000	29690-82-2
	Diaminodiphenylsulfone	15.000- 30.000	00080-08-0
M17-19 RED:			
	Epoxy Cresol Novolac	15.000- 40.000	29690-82-2
	Diaminodiphenylsulfone	15.000- 30.000	00080-08-0
M17-19 BLACK:			
	Epoxy Cresol Novolac	15.000- 40.000	29690-82-2
	Diaminodiphenylsulfone	15.000- 30.000	00080-08-0

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SECTION 3 HAZARDS IDENTIFICATION

3a Emergency Overview

Appearance: See Section 2 for color of specific products, solids in either small geometric shapes or in granular form.

Odor: Slight Phenolic odor

3b Potential Health Effects

Primary Routes of Exposure: Dermal, Inhalation, Ingestion

Eye Contact: Solids or grains may cause slight, temporary mechanical eye irritation and/or scratch the surface of the eye.

Inhalation: In dust form, product can cause mechanical irritation of the respiratory passages. Refer to Section 8.

Skin Contact: Prolonged or repeated contact may cause irritation or allergic reaction. Dry absorption unlikely.

Ingestion: Product is considered to have a moderate order of acute oral toxicity.

Overexposure Effects: Harmful if swallowed. Can cause skin irritation, skin rashes and blood effects (hemolysis, methemoglobinemia, and other disorders. Blood effects may be severe enough to cause oxygen deficiency. Anorexia, nausea and vomiting have also been seen with chemicals of this class after oral administration. Other symptoms include headache, nervousness, blurred vision and reversible nerve effects (peripheral neuropathy). Some components have been reported to cause liver damage, jaundice, and fatal agranulocytosis.

Aggravated Medical Conditions: Individuals with pre-existing eye, skin and respiratory disorders;
Individuals with glucose 6 phosphate dehydrogenase deficiency;
Individuals hypersensitive to sulfonamides.

SECTION 4 FIRST AID MEASURES

Eye Contact: Flush eyes with plenty of water while holding eyelids open. Get medical attention.

Skin Contact: Remove contaminated clothing/shoes and wipe excess powder from skin. Flush skin with water. Follow by washing with soap and water. If irritation occurs, get medical attention. Do not reuse clothing until cleaned.

Inhalation: Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

Ingestion: Give 3-4 glasses of water but do not induce vomiting. If vomiting occurs give more water. Get medical attention. Have physician determine if vomiting or stomach evacuation is necessary.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point (Closed Cup) > 200°F (> 93°C)

Extinguishing Method: Water Fog, Carbon Dioxide, Dry Chemical, Foam

Fire Fighting Procedures: No special fire fighting procedures required.

Fire and Explosion Hazards: No unusual fire or explosion hazards.

Hazardous Products/Combustion: Carbon Dioxide, Sulfur compounds, Nitrogen compounds, Carbon Monoxide, Hydrogen Chloride, Possible Organics, Aldehydes, Silicon Dioxide

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SECTION 6 ACCIDENTAL RELEASE MEASURES

Clean-up:

- Contain spill in natural form or with sand/dirt (inert materials)
- Eliminate all ignition sources
- Prevent runoff into storm sewers, ditches and waterways
- Sweep, vacuum or shovel spilled 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)
- Dispose of spilled product in accordance with federal, state and local environmental control regulations.

SECTION 7 HANDLING AND STORAGE

Handling Instructions:

- Avoid breathing dust
- Do not breathe fumes when product is in molten state
- Avoid contact with skin, eyes or clothing
- Wash hands thoroughly after handling
- Minimize dust generation and accumulation
- Avoid physical contact when molten
- Handle gently, product in geometric form can break easily

Storage Instructions:

- Keep containers closed and sealed when not in use.
- Store in a cool (less than 80 F), dry area out of direct sunlight

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:

- Use local exhaust ventilation near the source when product is in granular form or during the heat cure cycle.

Personal Protection:

- No respirator for dust is required if ingredient exposure limits are not exceeded. Use a dust mask for general dust inhalation protection. Always wear safety glasses with side shields or approved goggles when handling this product in granular form. Use gloves: cotton, PVC, Rubber (Latex, Nitrile, Butyl).

Other Personal Protection:

- A safety shower and eye wash station should be within reasonable distance (10-seconds/100 ft.) of the work area.

EXPOSURE LIMITS/REGULATORY INFORMATION

<u>Substance Description</u>	<u>Regu. Agen.</u>	<u>PEL/TLV</u>	<u>STEL</u>	<u>CEIL</u>
Epoxy Cresol Novolac	OSHA	N/D	N/E	N/D
Benzophenonetetra-carboxylicdianhydride (BTDA)	OSHA	0.25mg/m ³	N/D	N/D
Diaminodiphenylsulfone	OSHA	N/E	N/E	N/E
	ACGIH	N/E	N/E	N/E

NOTE: N/D - Not Determined
N/E - Not Established

NOTE: Individual ingredients listed above are identified as being present in the product compounds but are not necessarily identifiable or releasable unless under thermal/mechanical stresses.

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SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9a Physical Properties

Appearance:	Solid geometric or granular form, See nomenclature for color.
Odor:	Slight phenolic odor
Melting Point:	85°C-100°C (185°F-212°F)
Boiling Point:	N/A
Vapor Pressure:	N/A
Vapor Density:	Nil
Solubility in Water:	Nil
Specific Gravity:	1.1-1.7 g/cc @ 20°C, H ₂ O = 1.0
Percent Volatile:	0.6-0.8 % by weight

Volatile Organic Compounds

VOC-%	0-0.8% by weight
VOC-gm/l	N/D
VOC-lbs/gal	N/D

SECTION 10 STABILITY AND REACTIVITY

Incompatibilities

Strong oxidizing agents (ex. Liquid Oxygen, etc)

Decomposition

Carbon Dioxide
Carbon Monoxide

Polymerization

Upon introduction of heat greater than 85°C-100°C (185°F-212°F) endothermic at beginning of reaction followed by exothermic emission.

Conditions To Avoid

None

Stability

Stable

SECTION 11 TOXICOLOGICAL INFORMATION

Toxicity Data

Testing has not been performed on these products. For data on components, call 860-643-7188 USA

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicological Information

No specific studies have been conducted by Multi-Seals, Inc., on the ecotoxicity or environmental fate of these materials as sold; however, commonly available data on the ecotoxicity and environmental fate of certain of the constituents of these materials 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.

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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 unused quantities 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 prior to disposal.

SECTION 14 TRANSPORTATION INFORMATION

DOT/IATA PROPER SHIPPING NAME

Plastic granules or preformed geometric shapes

DOT/IATA PACKAGING GROUP

Not regulated

DOT/IATA HAZARD CLASS OR DIVISION

Not regulated

DOT/IATA LABEL

Not regulated

DOT/IATA PLACARD

Not regulated

DOT/IATA UN NUMBER

Not regulated

PRODUCT REPORTABLE QUANTITY (RQ in LBS)

Not regulated

ADR

Not regulated

IMO (IMDG)

Not regulated

SCHEDULE B

3907.30.0000

SECTION 15 REGULATORY INFORMATION

OSHA STATUS

These products, as sold, are hazardous under the criteria of the Federal (USA) OSHA Hazard Communication Standard 29 CFR 1910.1200. Thermal processing and decomposition fumes from these products may be hazardous as noted in Sections 2 and 3.

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SECTION 15 cont. REGULATORY INFORMATION

RCRA STATUS

The product user has the responsibility at disposal time to determine if the material should be classified as a hazardous waste, (40 CFR 261.20-24 USA Environmental Protection Agency). These products, as sold, are classified as RCRA non-hazardous waste.

CALIFORNIA PROPOSITION 65

These products contain no chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm.

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All Ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

SARA TITLE III: SECTION 311/312:

The following components are considered hazardous under the OSHA Hazard Communication Standard (HCS) and are regulated under Section 311/312 (40 CFR 370).

Benzophenonetetracarboxylic dianhydride
Diaminodiphenylsulfone
Epoxy Cresol Novolac

EUROPEAN UNION (EU)

Symbol	Risk Phrases	Safety Phrases
Xi	R36/37/38,R42/43	S36/37/39, S38/51

SECTION 16 OTHER INFORMATION

HMIS:

Health	Flammability	Reactivity	Hazard Rating	
3 (chronic)	1	1	Least - 0	Slight - 1
			Moderate - 2	High - 3
			Extreme - 4	

WHMIS: Class D, Div. 2, Subdiv. A, B

Revision Section/Reason

All sections:

QC-043	
Rev. A, Ver. 0: 03/01/96	Change to ANSI Z400.1, 16 Section Format. Incorporate M5-13, M5-82, M5-92, DC-2XX Series Epoxies. Consolidate all epoxies to menu type format.
Rev. A, Ver. 1: 04/04/96	Minor corrections/clarifications to text of various sections following professional review.
Rev. A, Ver. 2: 04/15/96	Added M17-19 Black and M17-19 Red to MSDS.
Rev. A, Ver. 3: 06/12/96	Deleted the word "for" in section 4, Eye Contact....
Rev. A, Ver. 4: 03/04/97	Changed font from 12 to 10 cpi. Adjusted text on pages as required.
Rev. A, Ver. 5: 02/09/99	Deleted disclaimers from pages 2-7. Consolidated text, formatted to 7 pages.
Rev. A, Ver. 6: 03/07/00	Deleted DC-001 Black and DC-007 Black from MSDS. Added DC-202 Black to the MSDS. Added TSCA statement.
QC-071	
Rev. -, 12/06/02	Transfer all information referring to DC-007, DC-207, M5-92, AND M17-19 to separate MSDS as new form, QC-071.

Prepared by: Stephen A. Turkington 12/02/02

NOTICE: The data and recommendations presented herein are based upon our research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made, and the products discussed are distributed without warranty, expressed or implied, and the person receiving them shall make his or her own determination of the suitability thereof for his particular purpose.

DISCLOSURE: Any ingredient claimed as a trade secret will be disclosed in accordance with CFR 29 1910.1200 (i). Known to be present only as a trace impurity in the finished product: NONE See Section 8 of this MSDS for any noted exposure limits for these compounds. This Material Data Safety Sheet (MSDS) has been prepared in compliance with the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. The listed components are considered to be hazardous under that standard.