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Dispersion of nanotubes in an epoxy resin	Date : 06 March 2008
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Producer

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1. Identification of the product and the company

Company identification: See producer
Identification of the product: **EpoCyl™** series: **HM 01**
Chemical Name: Bisphenol A Epichlorhydrin polymers plus additives
Chemical Family: Carbon/epoxy resin mixture

2. Hazards identification

Product is black epoxy based mixture.

Health hazards: Irritating to eyes and skin.
May cause sensitization by skin contact.
Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Safety hazards: Material will not burn unless preheated.

3. Information on ingredients

Components	N° CAS	% (wt.)	Classification
Epoxy Resin (Bisphenol-A-epichlorhydrin)	25068-38-6	50 – 99 %	Xi, N R36/38 R43 R51/53
Glycidoxypropyltrimethoxysilane	2530-83-8	Less than 1 %	Xn, Xi, Xn Muta. Cat 3 R22, R36, R68
Synthetic graphite (Carbon nanotubes)	7782-42-5	0.2 - 4 %	/

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4. First aid measures

- After skin contact: In case of contact with hot product, immediately flood the affected area with cold water. Wipe excess material from exposed area. Flush exposed skin with water and follow by washing with soap. Carefully remove clothing; if clothing is stuck to a burn area do not pull it off, but cut around it. Cover burn area with a clean material. Transport to nearest medical facility for additional treatment.
- Eye contact: Hold the eyes open and rinse with water for a sufficiently long period of time (at least 10 minutes). Obtain medical attention if pain, blurred vision, swelling, burning or redness persist.
- After inhalation: if vapours are inhaled, move the person into fresh air, keep warm and allow to rest. If breathing is difficult, oxygen may be administered and medical attention should be obtained.
- Ingestion: Do not induce vomiting. Rinse out mouth with water, and then drink sips of water to remove taste from mouth. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Obtain medical attention.

5. Fire – fighting measures

- Suitable Extinguishing: Water fog, foam, Carbon Dioxide, Dry Chemical media
- Specific hazards: Material will not burn unless preheated. Clear fire area of all non-emergency personnel. Cool fire exposed containers with water. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure.
- Protective equipments: wear self-contained breathing apparatus. Wear suitable protective clothing
- Combustion products: May form toxic materials, carbon monoxide, carbon dioxide, silica, formaldehyde.

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6. Accidental release measures

- Personal precautions: May burn although not readily ignitable. Equip cleanup crew with proper protection (see chapter 8).
- Environmental precautions: Prevent entry to sewers, rivers and public waters. Construct a dike to prevent spreading. Remove contaminated soil to remove contaminated trace.
- Spill Procedures: Soak up with an absorbent such as clay, sand or other suitable material. Place in appropriate chemical waste container. Approach suspected leak areas with caution.

7. Handling and storage

- Storage: Keep only in the original closed container in a dedicated place. Keep containers in a cool, dry place with adequate ventilation. Keep away from open flames and high temperature. Storage temperature between 5-40°C
- Handling: Good ventilation of the workplace required. Handle in accordance with good industrial hygiene and safety procedures. Contact with the skin and the eyes must be avoided. Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Launder contaminated clothing before reuse. To prevent thermal burns avoid contact with hot product.

8. Exposure controls / personal protection

- Hand protection: Protecting gloves, for example in nitrile rubber.
- Skin and body protection: Wear chemical-resistant gloves and other clothing as required to minimize contact.
- Respiratory protection: Wear appropriate respirator when ventilation is inadequate or when the product is heated.
- Eye protection: Chemical goggles or safety glasses.

In case of contact, ensure prompt removal from eyes, skin and clothing. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and leaving work. Facilities storing or utilizing this material should be equipped with an eyewash facility.

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9. Physical and chemical properties

Form and Color: black viscous liquid, resin
 Odor: Nearly Odorless
 Thermal decomposition: > 200°C
 Flash point: > 200°C
 Specific Gravity: 1.15-1.20 g/ml at 25°C
 Solubility in water: negligible

NOTE: The physical data presented above are typical values and should not be construed as a specification

10. Stability and reactivity

Stability: Stable under normal conditions. Hazardous polymerization will not occur.

Materials to avoid: Can react vigorously with strong oxidizing agents, strong Lewis or mineral acid, and strong mineral and organic bases. Avoid contact with water. Reaction with some curing agents may produce considerable heat and possible violent decomposition

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11. Toxicological information

Sensitization: May cause skin sensitization

Inhalation: under conditions where exposure to vapors or mists is possible, could cause respiratory tract irritation

Skin: May be mildly irritating to the skin. Contact with hot material can cause thermal burns which may result in permanent damage

Eyes: May be mildly irritating to the eyes. Contact with hot material can cause thermal burns which may result in permanent damage or blindness

The reaction product: bisphenol-A-(epichlorhydrin); epoxy resin has not been classified by the International Agency for Research on Cancer (IARC)

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12. Ecological information

Biodegradability: not biodegradable

Environmental precautions: Do not allow to enter ground soil, sewage, drains.

13. Disposal considerations

Product: If the material becomes a waste, consider it as special waste. It can be destroyed by incineration in accordance with local, state and federal regulations.

Container: Empty containers can be landfilled after cleaning, when in compliance with the Environmental Protection Regulation

14. Transport information

Land transport

ADR:

UN-No: 3082
 Class: 9
 Classification code: M6
 Packaging group: III
 Risk No.: 90
 ADR/RID-Labels: 9
 Proper shipping name: Environmentally Hazardous Substance, Liquid, N.O.S.
 Contains: Bisphenol A Epoxy Resin

RID:

UN-No: 3082
 Class: 9
 Classification code: M6
 Packaging group: III
 Risk No.: 90

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ADR/RID-Labels: 9
 Proper shipping name: Environmentally Hazardous Substance, Liquid, N.O.S.
 Contains: Bisphenol A Epoxy Resin

Sea transport

IMDG:

UN-No: 3082
 Class: 9
 Packaging group: III
 ADR/RID-Labels: 9
 Proper shipping name: Environmentally Hazardous Substance, Liquid, N.O.S.
 Contains: Bisphenol A Epoxy Resin

Air transport

IATA-DGR:

UN/ID No: UN 3082
 Class: 9
 Packaging group: III
 ADR/RID-Labels: 9
 Proper shipping name: Environmentally Hazardous Substance, Liquid, N.O.S.
 Contains: Bisphenol A Epoxy Resin

15. Regulatory information

Labelling according to EEC Directive

Labelling required

Symbol(s) :	Xi N	Irritant Dangerous for the environment
R Phrase(s) :	R36/38 R43 R51/53	Irritating to eyes and skin May cause sensitization by skin contact Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

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S Phrase(s) :

S28	After contact with skin, wash immediately with plenty of soap and water
S37/39	Wear suitable gloves and eye/face protection
S61	Avoid release to the environment. Refer to special instruction/safety data sheets

Hazardous components which must be listed on the label reaction product: Bisphenol A-(epichlorhydrin);epoxy resin

Notification status

EINECS: yes
TSCA: yes

16. Other information

List of R Phrase(s) :

R36/38	Irritating to eyes and skin
R43	May cause sensitization by skin contact
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

The contents and format of this MSDS are in accordance with EEC Regulation REACH 1907/2006 art. 31.

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