



MATERIAL SAFETY DATA SHEET

Carbon Resistive Paste

SECTION 1: Identification of the substance / mixture and of the company / undertaking

1.1 Product Identifiers

Product name : Carbon Resistive Paste
 Brand : DML DM-CAP
 Product codes : DM-CAP-4321-S, Research Sample, This MSDS is for product trials
 REACH No. : Not available. Annual tonnage does not require a registration.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scientific research and development, professional use only. Screen Printing Paste

1.3 Details of the supplier of the safety data sheet

Company : Dycotec Materials Ltd
 Unit 12 Star West,
 Westmead Drive, Westlea,
 Swindon, Wiltshire SN5 7SW, UK
 Telephone : +44 (0) 1788 814025
 E-mail address : info@dycotecmaterials.com

1.4 Emergency telephone number

Emergency Phone No. : +44 (0) 7495 248908 Only available during office hours

SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

Physical hazards :
 Health hazards : H302; H315; H317; H319; H332
 Environmental hazards : H411
 Physicochemical : Stable. Solidify/Cured by thermal process. Fully cured product residues are generally not regarded as hazardous waste

2.2 Label elements

Pictogram



Signal word : Warning
 Hazard statements :
 H302 – Harmful if swallowed
 H315 – Causes skin irritation
 H317 – May cause an allergic skin reaction
 H319 – Causes serious eye irritation
 H332 – Harmful if inhaled
 H411 – Toxic to aquatic life with long lasting effects

Precautionary statements :
 P264 – Wash hand thoroughly after handling.
 P270 – Do not eat, drink or smoke when using this product.
 P280 – Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P312 – IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P330 – Rinse mouth
 P302 + P352 – IF ON SKIN: Wash with plenty of soap and water.
 P333 + P313 – If skin irritation or rash occurs: Get medical advice/attention.
 P362 – Take off contaminated clothing and wash before reuse.
 P261 – Avoid breathing dust/fumes/gas/mist/vapours/spray.
 P272 – Contaminated work clothing should not be allowed out of the workplace.
 P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes.
 Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313 – If eye irritation persists: Get medical advice / attention
 P271 – Use only outdoors or in a well-ventilated area.
 P304+P340+P312 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell
 P273 – Avoid release to the environment
 P391 – Collect spillage
 P501 – Dispose off contents/container in accordance with local/regional/national/international regulations

2.3 Other hazards

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.2 Mixtures**

| | | |
|--------------------------------|------------------------|-----------|
| Blended Epoxy Resin; Synonyms: | | 15 - 35 % |
| CAS #: | EC #: | |
| Classification | H315, H317, H319, H411 | |
| | | |

| | | |
|---------------------------|------------------|---------|
| Benzyl Alcohol; Synonyms: | | 3 – 10% |
| CAS #: 100-51-6 | EC #: 202-859-9 | |
| Classification | H302, H332, H319 | |
| | | |

| | | |
|---------------------------------|-------|---------|
| Blended Resin Filler; Synonyms: | | 1 - 10% |
| CAS #: | EC #: | |
| Classification | | |
| | | |

| | | |
|----------------------|-----------------|----------|
| Terpineol; Synonyms: | | 10 - 20% |
| CAS #: 8000-41-7 | EC #: 232-268-1 | |
| Classification | H315, H319 | |
| | | |

| | | |
|---|-----------------|----------|
| 4-Hydroxy-4-methyl-2-pentanone; Synonyms: Diacetone alcohol | | 10 – 20% |
| CAS #: 123-42-2 | EC #: 204-626-7 | |
| Classification | H319 | |
| | | |

| | | |
|-----------------------------------|-------|----------|
| Blended Carbon Mixture; Synonyms: | | 10 – 40% |
| CAS #: | EC #: | |
| Classification | | |
| | | |

| | | |
|-----------------------------|-------|---------|
| Curing promotor ; Synonyms: | | 1 – 3 % |
| CAS #: | EC #: | |
| Classification | H315 | |
| | | |

The full text for all Hazard Statements are displayed in Section 16.

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures****General information**

Remove affected person from source of contamination. Remove contaminated clothing. First aid personnel must be aware of own risk during rescue. Consult a physician. Show this safety data sheet to the doctor in attendance.

Inhalation

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Ingestion

Never give anything by mouth to an unconscious person. Rinse mouth with plenty of water. Consult a physician

Skin contact

Wash off with soap and plenty of water. Consult a physician

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam. Carbon dioxide. Dry powder.

Unsuitable extinguishing media for safety reasons: water jet

5.2 Special hazards arising from the substance or mixture

Harmful vapours. Carbon dioxide

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary

5.4 Further information

The product itself does not burn under normal storage condition.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Wipe up with inert absorbent material and disposal of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool, dry and well-ventilated place. Store in tightly sealed containers to prevent misoture absorption and loss of volatiles. Excessive heat over long periods of time will degrade the resin. Kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters – Components with workplace control parameters

No occupational exposure limits known.

8.2 Exposure Controls

Protective equipment



Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Eye/face protection

Use approved safety glasses with side shields. Eyewear complying with an approved standard should be worn if a risk assessment indicate eye contact is possible. The following protection should be worn: Chemical splash goggles or face shield.

Hand protection

Handle with gloves. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Wear protective gloves made of the following material: Nitrile rubber. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact

Hygiene measures

Do not smoke in work area. Wash hands thoroughly after handling. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke. Contaminated clothing should be placed in a closed container for disposal of decontamination. Warn cleaning personnel of any hazardous properties of the product.

Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P3. In confined or poorly ventilated spaces, a supplied air respirator must be worn.

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|--|-------------------|
| Appearance | Paste |
| Colour | Black |
| Odour | No data available |
| Odour Threshold | No data available |
| pH | No data available |
| Melting / freezing point | No data available |
| Initial boiling point and boiling range | No data available |
| Flash point | No data available |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |
| Upper/lower flammability or explosive limits | No data available |
| Vapour pressure | No data available |
| Vapour density | No data available |
| Relative density | No data available |
| Water solubility | No data available |
| Partition coefficient | No data available |
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| Viscosity | See TDS |
| Explosive properties | No data available |
| Oxidizing properties | No data available |

9.1 Other information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions. Stable at normal ambient temperatures.

10.3 Possibility of hazardous reactions

The product can polymerize if the shelf life or storage temperature are greatly exceeded. Heat develops during polymerization. Reacts with peroxide and other radical components.

10.4 Conditions to avoid

See section 7 – Handling and storage

10.5 Incompatible materials

Strong oxidizing agents, Strong acids, Strong alkalis, Peroxides, Amines

10.6 Hazardous decomposition products

Does not decompose when used and stored as recommended.

Other decomposition products - no data available

In the event of fire - see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity:

LD50 rat (oral): > 2000 mg/kg

LD50 rat (dermal): >2000 mg/kg

LD50 rat (inhalation): 4h not determined

This product has not been tested. The statement has been derived from the properties of the individual components.

Skin corrosion/irritation:

Skin-Rabbit; Irritating to skin 4 hour;

This product has not been tested. The statement has been derived from the properties of the individual components.

Serious eye damage/eye irritation:

Rabbit: Irritant

This product has not been tested. The statement has been derived from the properties of the individual components.

Respiratory or skin sensitization:

Buehler test guinea pig: skin sensitizing

This product has not been tested. The statement has been derived from the properties of the individual components.

Germ cell mutagenicity:

The substance was not mutagenic in bacteria. The substance was mutagenic in various cell culture test systems; however, these results could not be confirmed in test with mammals. The product has not been tested. The statement has been derived from the properties of the individual components.

Carcinogenicity: No data available

Reproductive toxicity: No data available

Specific target organ toxicity – single exposure:

A single exposure may have relevant toxic effects on organs named in section 2 of this safety data sheet

Specific target organ toxicity – repeated exposure:

After repeated exposure the prominent effect is local irritation. The product has not been tested. The statement has been derived from the properties of the individual components.

Aspiration hazard: No data available

Signs and Symptoms of Exposure: No data available

Additional Information: No data available.

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Do not empty into drains, soil or bodies of water. Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment

12.1 Toxicity

no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

no data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods**General Information**

When handling waste, the safety precautions applying to handling of the product should be considered. Do not dump into any sewers, on the ground, or into any body of water. Not to be disposed of together with household waste. Any disposal practice must be in compliance with all local and national laws and regulations. Handle and dispose contaminated packages in the same way as the product itself. Fully cured product residues are generally not regarded as hazardous waste.

Disposal methods

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

| | | |
|---------|--------|--------|
| ADR/RID | IMDG | IATA |
| UN3082 | UN3082 | UN3082 |

14.2 UN proper shipping name

| | | |
|---|------|------|
| ADR/RID | IMDG | IATA |
| Environmentally Hazardous Substance, Liquid, N.O.S. : contains - Epoxy resin | | |

14.3 Transport hazard class(es)

| | | |
|---------|------|------|
| ADR/RID | IMDG | IATA |
| 9, EHSM | | |

14.4 Packaging group

| | | |
|---------|------|------|
| ADR/RID | IMDG | IATA |
| III | | |

14.5 Environmental hazards

| | | |
|---------|-----------------------|------|
| ADR/RID | IMDG Marine pollutant | IATA |
| yes | yes | yes |

14.6 Special precautions for user

Read safety instructions, SDS and emergency procedures before handling

SECTION 15: REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

no data available

15.2 Chemical Safety Assessment

no data available

SECTION 16: OTHER INFORMATION

General Information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is finished without warranty and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.
This is an experimental product. This safety data sheet is for product trials only!

Hazard statements in full

H302 – Category 4 – Harmful if swallowed
H315 – Category 2 – Causes skin irritation
H317 – Category 1 – May cause an allergic skin reaction
H319 – Category 2 – Causes serious eye irritation
H332 – Category 4 – Harmful if inhaled
H411 – Category 2 – Toxic to aquatic life with long lasting effects