

## MATERIAL SAFETY DATA SHEET CONDUCTIVE SILVER ELECTRONIC PASTE

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

#### 1.1 Product Identifiers

Product name : CONDUCTIVE SILVER ELECTRONIC PASTE  
Brand : DML DM-SIP  
Product codes : DM-SIP-3067S

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

Identified uses : Laboratory chemicals, Manufacture of substances

#### 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

### SECTION 2: Hazards Identification

#### 2.1 Classification of the substance or mixture

##### Classification (EC 1272/2008)

Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 4), H332  
Eye irritation (Category 2), H319

#### 2.2 Label elements

Pictogram



Signal word: Warning  
Hazard statements :  
H302 + H332 Harmful if swallowed or if inhaled  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.

Precautionary statements :  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.  
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.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P403 + P235 Store in a well-ventilated place. Keep cool.

#### 2.3 Other hazards

No data available.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2 Mixtures

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component / CAS #	EC #	%	Classification
Silver 7440-22-4	231-131-3	40-65	
Benzyl Alcohol 100-51-6	202-859-9	1-30	Acute Tox. 4; H302 + H332 Eye Irrit. 2; H319
2-Ethyl-1-hexanol 104-76-7	203-234-3	1-30	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H332, H315, H319, H335

See Section 16 for full text of H phrases.

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#### SECTION 4: FIRST AID MEASURES

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##### 4.1 Description of first aid measures

###### Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Apply artificial respiration if patient is not breathing. Obtain medical attention immediately. DO NOT induce the patient to vomit, medical advice is required.

###### Ingestion

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

###### Skin contact

Remove contaminated clothing and shoes without delay. Wear impermeable gloves. Wash immediately with plenty of soap and water. Pay particular attention to skin crevices, nail folds, etc. Do not reuse contaminated clothing without laundering. Do not reuse contaminated leatherware. Obtain medical attention.

###### Eye contact

Rinse thoroughly with plenty of with soapwater for at least 15 minutes. Contact an ophthalmologist.

##### 4.2 Most important symptoms and effects, both acute and delayed

Not applicable

##### 4.3 Indication of any immediate medical attention and special treatment needed

Not applicable

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#### SECTION 5: FIRE-FIGHTING MEASURES

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##### 5.1 Extinguishing media

###### Suitable extinguishing media

Use water spray, alcohol foam, carbon dioxide or dry chemical to extinguish fires. In cases of larger fires, water spray should be used.

##### 5.2 Special hazards arising from the substance or mixture

Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire.

##### 5.3 Advice for firefighters

###### Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

##### 5.4 Further information

No data available

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#### SECTION 6: ACCIDENTAL RELEASE MEASURES

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##### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. 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. Discharge into the environment must be avoided.

##### 6.3 Methods and materials for containment and cleaning up

Wipe up with absorbent material (e.g. cloth, fleece) and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

##### 6.4 Reference to other sections

For disposal see section 13.

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#### SECTION 7: HANDLING AND STORAGE

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##### 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**

Areas containing this material should have fire safe practices and electrical equipment in accordance with applicable regulations and/or guidelines. Standards are primarily based on the material's flashpoint, but may also take into account properties such as miscibility with water or toxicity. All local and national regulations should be followed. Store in a cool, dry, well ventilated place and keep container tightly closed. Avoid flammable gas mixtures. Take precautionary measures against electrostatic loading - earthing necessary during loading operations.

**Storage Temperature:** Fridge, 4°C

**Storage class (TRGS 510):** Non-combustible

**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**

Component	CAS-No.	Value Form of exposure	Control parameter	Basis
Silver	7440-22-4	TWA	0.1 mg/m <sup>3</sup>	UK. EH40 WEL – Workplace Exposure Limits
	Remarks	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used		
		TWA	0.1 mg/m <sup>3</sup>	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
		Indicative		

**8.2 Exposure Controls****Protective equipment****Appropriate engineering controls**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**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.

**Skin protection**

Prevent contamination of skin or clothing when removing protective equipment. Barrier creams may be used in conjunction with the gloves to provide additional skin protection. Wear impermeable gloves and suitable protective clothing.

**Hand protection**

Use neoprene, nitrile, or rubber gloves to prevent skin contact. 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.

**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**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particulerespirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or GEN (EU).

**Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

Appearance	Paste
Colour	Silver
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	No data available
Explosive properties	No data available
Oxidizing properties	No data available

**9.1 Other information**

No data available

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**SECTION 10: STABILITY AND REACTIVITY**

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**10.1 Reactivity**

No data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

No data available

**10.4 Conditions to avoid**

Heat, flames and sparks. May form peroxides of unknown stability.

**10.5 Incompatible materials**

Strong oxidizing agents, Strong bases, Strong acids.

**10.6 Hazardous decomposition products**

Other decomposition products - no data available

In the event of fire - see section 5

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**SECTION 11: TOXICOLOGICAL INFORMATION**

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**Acute toxicity:**

LD50 Oral - Rat - 1,230 mg/kg (Benzyl alcohol)

Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Excitement. Behavioral:Coma.

LD50 Oral - Rat - male - 1,620 mg/kg (Benzyl alcohol)

LD50 Oral - Rat - 3,730 mg/kg (2-Ethyl-1-hexanol)

Remarks: Brain and Coverings:Recordings from specific areas of CNS. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Dyspnea.

LD50 Dermal - Rat - &gt; 3,000 mg/kg (2-Ethyl-1-hexanol)

(OECD Test Guideline 402)

**Skin corrosion/irritation:**

Skin - Rabbit (Benzyl alcohol)

Result: No skin irritation - 24 h

(OECD Test Guideline 404)

Skin - Rabbit (2-Ethyl-1-hexanol)

Result: Skin irritation - 24 h

(OECD Test Guideline 404)

**Serious eye damage/eye irritation:**

Eyes - Rabbit (Benzyl alcohol)

Result: Eye irritation - 24 h

(OECD Test Guideline 405)

Eyes - Rabbit (2-Ethyl-1-hexanol)

Result: Moderate eye irritation - 24 h

**Respiratory or skin sensitization:**

No data available

**Germ cell mutagenicity:**

No data available

**Carcinogenicity**

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

**Reproductive toxicity:**

Reproductive toxicity - Mouse - Oral (2-Ethyl-1-hexanol)

Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth). Effects on Newborn: Live birth index (# fetuses per litter; measured after birth). Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Developmental Toxicity - Rat – Oral (2-Ethyl-1-hexanol)

Specific Developme

**Specific target organ toxicity – single exposure:**

No data available

**Specific target organ toxicity – repeated exposure:**

No data available

**Aspiration hazard:**

No data available

**Additional Information:**

stupor, narcosis (Benzyl alcohol)

Central nervous system depression

Liver - Irregularities - Based on Human Evidence

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

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**SECTION 12: ECOLOGICAL INFORMATION**

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**TOXICITY, PERSISTENCE AND DEGRADABILITY, BIOACCUMULATIVE POTENTIAL, MOBILITY IN SOIL, OTHER ADVERSE EFFECTS**

**HAZARDOUS INGREDIENT TOXICITY DATA**

Component / CAS #	Toxicity to Algae	Toxicity to Fish	Toxicity to Water Flea
Silver 7440-22-4	No data available	No data available	No data available
Benzyl Alcohol 100-51-6	No data available	LC50 - Lepomis macrochirus (Bluegill) - 10 mg/l - 96 h LC50 - Pimephales promelas (fathead minnow) - 460 mg/l - 96 h	EC50 - Daphnia magna (Water flea) - 55 mg/l - 24 h - Daphnia magna (Water flea) - 230 mg/l - 48 h (OECD Test Guideline 202)
2-Ethyl-1-hexanol 104-76-7	Growth inhibition EC50 - Chlorella emersonii - 10 - 50 mg/l - 48 h	LC50 - Leuciscus idus (Golden orfe) - 17.1 mg/l - 96 h NOEC - Leuciscus idus (Golden orfe) - 14 mg/l - 96 h	Immobilization EC50 - Daphnia magna (Water flea) - 39 mg/l - 48 h

**Persistence and degradability**

Biodegradability Biotic/Aerobic - Exposure time 28 d (Benzyl alcohol)

Result: 92 - 96 % - Readily biodegradable

aerobic Biochemical oxygen demand - Exposure time 7 d

(OECD Test Guideline 301C)

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**Other adverse effects**

Not applicable

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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**13.1 Waste treatment methods**

The company encourages the recycle and reuse of products and packaging, where possible and permitted.

**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.

**Disposal methods**

When recycle or reuse is not possible, the company recommends that our products, especially when classified as hazardous, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed. For disposal within the European Community, waste codes according to Directive 2008/98/EC should be assigned by the user based on the application for which the product was used.

**Disposal-relevant information**

Do not release directly or indirectly to surface water, ground water, soil or public sewage system.

**Contaminated packaging**

Dispose of as unused product.

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**SECTION 14: TRANSPORT INFORMATION**

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**14.1 UN number**

ADR/RID	IMDG	IATA
-	-	-

**14.2 UN proper shipping name**

ADR/RID	IMDG	IATA
Not dangerous goods	Not dangerous goods	Not dangerous goods

**14.3 Transport hazard class(es)**

ADR/RID	IMDG	IATA
-	-	-

**14.4 Packaging group**

ADR/RID	IMDG	IATA
-	-	-

**14.5 Environmental hazards**

ADR/RID	IMDG Marine pollutant	IATA
no	no	no

**14.6 Special precautions for user**

No data available

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**SECTION 15: REGULATORY INFORMATION**

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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

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**SECTION 16: OTHER INFORMATION**

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**Revision Date:** 04-Apr-2020

**General Information**

The information contained herein is, to the best of our knowledge and belief, accurate. 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 furnished 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. Since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable local laws and regulations.

**Hazard statements in full**

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.