SAFETY DATA SHEET
SILVER CONDUCTIVE PAINT

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name          SILVER CONDUCTIVE PAINT
Product No.           SCP, ESCP03B, ESCP26G, ESCP50G, ZE

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

Identified uses       Highly conductive silver loaded paint for track repair and pinpoint shielding
Uses advised against  At this moment in time we do not have information on use restrictions. They will be included in this safety data sheet when available

1.3. Details of the supplier of the safety data sheet

Supplier              ELECTROLUBE. A division of HK WENTWORTH LTD
                      ASHYB PARK, COALFIELD WAY, ASHYB DE LA ZOUCH, LEICESTERSHIRE
                      LE65 1JR
                      UNITED KINGDOM
                      +44 (0)1530 419600
                      +44 (0)1530 416640
                      info@hkw.co.uk

1.4. Emergency telephone number

+44 (0)1530 419600 between 8.30am - 5.00pm GMT Mon – Fri

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)
Physical and Chemical Hazards
Flam. Liq. 2 - H225
Human health
STOT SE 3 - H336
Environment
Not classified.

Classification (1999/45/EEC)
F;R11. R67.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2. Label elements

Label In Accordance With (EC) No. 1272/2008

Signal Word          Danger

Hazard Statements
H225                 Highly flammable liquid and vapour.
H336                 May cause drowsiness or dizziness.

Precautionary Statements
P210                 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280                 Wear protective gloves, eye and face protection.
SILVER CONDUCTIVE PAINT

Supplementary Precautionary Statements

P261 Avoid breathing vapour/spray.

2.3. Other hazards

Not Classified as PBT/vPvB by current EU criteria.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

<table>
<thead>
<tr>
<th>SILVER</th>
<th>30-60%</th>
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<tbody>
<tr>
<td>CAS-No.: 7440-22-4</td>
<td>EC No.: 231-131-3</td>
</tr>
<tr>
<td>Classification (EC 1272/2008)</td>
<td>Aquatic Acute 1 - H400</td>
</tr>
<tr>
<td></td>
<td>Aquatic Chronic 1 - H410</td>
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<tr>
<td>Classification (67/548/EEC)</td>
<td>Not classified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1-ETHOXYPROPAN-2-OL</th>
<th>10-30%</th>
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<tr>
<td>CAS-No.: 1569-02-4</td>
<td>EC No.: 216-374-5</td>
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<td>Flam. Liq. 3 - H226</td>
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<td></td>
<td>STOT SE 3 - H336</td>
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<tr>
<td>R10</td>
<td>R67</td>
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<table>
<thead>
<tr>
<th>ETHANOL</th>
<th>10-30%</th>
</tr>
</thead>
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<tr>
<td>CAS-No.: 64-17-5</td>
<td>EC No.: 200-578-6</td>
</tr>
<tr>
<td>Classification (EC 1272/2008)</td>
<td>Flam. Liq. 2 - H225</td>
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<tr>
<td></td>
<td>F;R11</td>
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</tbody>
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<table>
<thead>
<tr>
<th>ACETONE</th>
<th>5-10%</th>
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<tr>
<td>CAS-No.: 67-64-1</td>
<td>EC No.: 200-662-2</td>
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<tr>
<td>EUH066</td>
<td>Xi;R36</td>
</tr>
<tr>
<td>Eye Irrit. 2 - H319</td>
<td>R66</td>
</tr>
<tr>
<td>STOT SE 3 - H336</td>
<td>R67</td>
</tr>
<tr>
<td>F;R11</td>
<td>EUH066</td>
</tr>
<tr>
<td>Eye Irrit. 2 - H319</td>
<td>R66</td>
</tr>
<tr>
<td>STOT SE 3 - H336</td>
<td>R67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ETHYL ACETATE</th>
<th>1-5%</th>
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<tr>
<td>CAS-No.: 141-78-6</td>
<td>EC No.: 205-500-4</td>
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<tr>
<td>Classification (EC 1272/2008)</td>
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<tr>
<td>EUH066</td>
<td>Xi;R36</td>
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<tr>
<td>Eye Irrit. 2 - H319</td>
<td>R66</td>
</tr>
<tr>
<td>STOT SE 3 - H336</td>
<td>R67</td>
</tr>
</tbody>
</table>

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition Comments

Ingredients not listed are classified as non-hazardous or at a concentration below reportable levels.
SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation
Move the exposed person to fresh air at once. Keep the affected person warm and at rest. Get prompt medical attention.

Ingestion
DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Provide fresh air, warmth and rest, preferably in comfortable upright sitting position. Rinse mouth thoroughly. Get medical attention.

Skin contact
Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Get medical attention if irritation persists after washing.

Eye contact
Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

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

Inhalation
Vapours may cause headache, fatigue, dizziness and nausea.

Ingestion
Nausea, vomiting.

Skin contact
Prolonged skin contact may cause redness and irritation.

Eye contact
Prolonged contact may cause redness and/or tearing.

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

Treat Symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media
Use: Alcohol resistant foam. Powder. Dry chemicals, sand, dolomite etc. Water spray, fog or mist.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

Unusual Fire & Explosion Hazards
Solvent vapours may form explosive mixtures with air. May explode when heated or when exposed to flames or sparks.

Specific hazards
Due to the small packaging, the risk of inhaling gases formed in a fire is minimal.

5.3. Advice for firefighters

Special Fire Fighting Procedures
Move container from fire area if it can be done without risk. Use water to keep fire exposed containers cool and disperse vapours.

Protective equipment for fire-fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Do not discharge onto the ground or into water courses.

6.3. Methods and material for containment and cleaning up

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Absorb in vermiculite, dry sand or earth and place into containers.
6.4. Reference to other sections

Wear protective clothing as described in Section 8 of this safety data sheet. See section 11 for additional information on health hazards. Collect and dispose of spillage as indicated in section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Keep away from heat, sparks and open flame. Avoid spilling, skin and eye contact. Provide good ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Flammable/combustible - Keep away from oxidisers, heat and flames. Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

Storage Class
Flammable liquid storage.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA - 8 Hrs</th>
<th>STEL - 15 Min</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACETONE</td>
<td>WEL</td>
<td>500 ppm</td>
<td>1210 mg/m³</td>
<td>1500 ppm 3620 mg/m³</td>
</tr>
<tr>
<td>ETHANOL</td>
<td>WEL</td>
<td>1000 ppm</td>
<td>1920 mg/m³</td>
<td></td>
</tr>
<tr>
<td>ETHYL ACETATE</td>
<td>WEL</td>
<td>200 ppm</td>
<td>400 ppm</td>
<td></td>
</tr>
<tr>
<td>SILVER</td>
<td>WEL</td>
<td>0.1 mg/m³</td>
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</tbody>
</table>

WEL = Workplace Exposure Limit.

ACETONE (CAS: 67-64-1)

<table>
<thead>
<tr>
<th>DNEL</th>
<th>Industry</th>
<th>Dermal Long Term</th>
<th>Systemic Effects</th>
<th>186 mg/kg/day</th>
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</thead>
<tbody>
<tr>
<td>Industry</td>
<td>Inhalation</td>
<td>Long Term</td>
<td>Systemic Effects</td>
<td>1210 mg/m³</td>
</tr>
<tr>
<td>Industry</td>
<td>Inhalation</td>
<td>Short Term</td>
<td>Local Effects</td>
<td>2420 mg/m³</td>
</tr>
<tr>
<td>Consumer</td>
<td>Dermal</td>
<td>Long Term</td>
<td>Systemic Effects</td>
<td>62 mg/kg/day</td>
</tr>
<tr>
<td>Consumer</td>
<td>Inhalation</td>
<td>Long Term</td>
<td>Systemic Effects</td>
<td>200 mg/m³</td>
</tr>
</tbody>
</table>

PNEC

| Freshwater                  | 10.6 mg/l |
| Marinewater                | 1.06 mg/l |
| Intermittent release       | 21 mg/l   |
| STP                        | 100 mg/l  |
| Sediment (Freshwater)      | 30.4 mg/kg|
| Sediment (Marinewater)     | 3.04 mg/kg|
| Soil                       | 29.5 mg/kg|

8.2. Exposure controls

Protective equipment

Process conditions
Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.

Engineering measures
Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory equipment
No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit. Use respiratory equipment with combination filter, type A2/P3.
Hand protection
Use protective gloves. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. Nitrile gloves are recommended.

Eye protection
Wear approved chemical safety goggles where eye exposure is reasonably probable. EN166

Other 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 at the end of each work shift and before eating, smoking and using the toilet. Wash promptly with soap & water if skin becomes contaminated. When using do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Silver</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Initial boiling point and boiling range (°C)</td>
<td>56 - 132 (132.8 - 269.6 F)</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.44 @ 20 °c (68 F)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&gt; 110 - 175 Pa 50°C</td>
</tr>
<tr>
<td>Flash point (°C)</td>
<td>12 (53.6 F) CC (Closed cup)</td>
</tr>
<tr>
<td>Auto Ignition Temperature (°C)</td>
<td>255 (491 F)</td>
</tr>
<tr>
<td>Flammability Limit - Lower(%)</td>
<td>1.3</td>
</tr>
<tr>
<td>Flammability Limit - Upper(%)</td>
<td>19</td>
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</table>

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile By Vol. (%)</td>
<td>50</td>
</tr>
<tr>
<td>Volatile Organic Compound (VOC)</td>
<td>850 g/litre</td>
</tr>
</tbody>
</table>

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
There are no known reactivity hazards associated with this product.

10.2. Chemical stability
Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions
No information required.

10.4. Conditions to avoid
Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

<table>
<thead>
<tr>
<th>Materials To Avoid</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong acids. Strong oxidising substances.</td>
<td></td>
</tr>
</tbody>
</table>

10.6. Hazardous decomposition products
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Other Health Effects
This substance has no evidence of carcinogenic properties.
Inhalation
High concentrations of vapours may irritate respiratory system and lead to headache, fatigue, nausea and vomiting.

Ingestion
May cause stomach pain or vomiting.

Skin contact
Prolonged or repeated exposure may cause severe irritation.

Eye contact
Irritating to eyes.

Toxicological information on ingredients.

**ETHANOL (CAS: 64-17-5)**

Acute toxicity:
- Acute Toxicity (Oral LD50) 6200 mg/kg Rat
- Acute Toxicity (Dermal LD50) > 20000 mg/kg Rabbit
- Acute Toxicity (Inhalation LC50) > 8000 mg/l (vapours) Rat 4 hours

**ACETONE (CAS: 67-64-1)**

Acute toxicity:
- Acute Toxicity (Oral LD50) 5800 mg/kg Rat
- Acute Toxicity (Dermal LD50) 15800 mg/kg Rabbit
- Acute Toxicity (Inhalation LC50) 76 mg/l (vapours) Rat 4 hours

**ETHYL ACETATE (CAS: 141-78-6)**

Acute toxicity:
- Acute Toxicity (Oral LD50) 5620 mg/kg Rat
- Acute Toxicity (Dermal LD50) 18000 mg/kg Rabbit
- Acute Toxicity (Inhalation LC50) 1620 ppmV (gas) Rat 4 hours

**SILVER (CAS: 7440-22-4)**

Toxic Dose 1 - LD 50
- >2000 mg/kg (oral rat)
Toxic Dose 2 - LD 50
- 100 mg/kg (oral-mouse)

**SECTION 12: ECOLOGICAL INFORMATION**

Ecotoxicity
There are no data on the ecotoxicity of this product. The product is not expected to be hazardous to the environment.

12.1. Toxicity
### Ecological information on ingredients.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Acute Toxicity - Fish</th>
<th>Acute Toxicity - Aquatic Invertebrates</th>
<th>Acute Toxicity - Aquatic Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ETHANOL</strong> (CAS: 64-17-5)</td>
<td>LC50 48 hours 8140 mg/l</td>
<td>EC50 48 hours &gt; 9268 mg/l Daphnia magna</td>
<td>IC50 72 hours 5000 mg/l</td>
</tr>
<tr>
<td><strong>ACETONE</strong> (CAS: 67-64-1)</td>
<td>LC50 96 hours 5540 mg/l Onchorhynchus mykiss (Rainbow trout)</td>
<td>EC50 48 hours 12600 mg/l Daphnia magna</td>
<td>NOEC 96 hours 430 mg/l Freshwater algae</td>
</tr>
<tr>
<td><strong>ETHYL ACETATE</strong> (CAS: 141-78-6)</td>
<td>LC50 270 mg/l</td>
<td>EC50 48 hours 2306 mg/l Daphnia magna</td>
<td></td>
</tr>
</tbody>
</table>

### 12.2. Persistence and degradability

**Degradability**

No data available.

### 12.3. Bioaccumulative potential

**Bioaccumulative potential**

No data available on bioaccumulation.

### 12.4. Mobility in soil

**Mobility:**

Not considered mobile.

### 12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB substances.

### 12.6. Other adverse effects

None known.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

**General information**

Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.

**13.1. Waste treatment methods**

Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Dispose of waste and residues in accordance with local authority requirements.

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**SECTION 14: TRANSPORT INFORMATION**

**14.1. UN number**

<table>
<thead>
<tr>
<th>UN No. (ADR/RID/ADN)</th>
<th>UN No. (IMDG)</th>
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</thead>
<tbody>
<tr>
<td>1263</td>
<td>1263</td>
</tr>
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</table>
14.2. UN proper shipping name

Proper Shipping Name PAINT

14.3. Transport hazard class(es)

ADR/RID/ADN Class 3
ADR/RID/ADN Class Class 3: Flammable liquids.
ADR Label No. 3
IMDG Class 3
ICAO Class/Division 3
Transport Labels

14.4. Packing group

ADR/RID/ADN Packing group II
IMDG Packing group II
ICAO Packing group II

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant No.

14.6. Special precautions for user

EMS F-E, S-E
Emergency Action Code •3YE
Hazard No. (ADR) 33
Tunnel Restriction Code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No information required.

SECTION 15: REGULATORY INFORMATION

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

Statutory Instruments
Guidance Notes
Workplace Exposure Limits EH40.
EU Legislation

Authorisations (Title VII Regulation 1907/2006)
No specific authorisations are noted for this product.

Restrictions (Title VIII Regulation 1907/2006)
No specific restrictions of use are noted for this product.

15.2. Chemical Safety Assessment
No chemical safety assessment has been carried out.

### SECTION 16: OTHER INFORMATION

<table>
<thead>
<tr>
<th>Issued By</th>
<th>Helen O'Reilly</th>
</tr>
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<tbody>
<tr>
<td>Revision Date</td>
<td>APRIL 2013</td>
</tr>
<tr>
<td>Revision</td>
<td>10</td>
</tr>
<tr>
<td>SDS No.</td>
<td>10548</td>
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#### Risk Phrases In Full
- R10 Flammable.
- R11 Highly flammable
- R36 Irritating to eyes.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.

#### Hazard Statements In Full
- H319 Causes serious eye irritation.
- H226 Flammable liquid and vapour.
- H225 Highly flammable liquid and vapour.
- H336 May cause drowsiness or dizziness.
- EUH066 Repeated exposure may cause skin dryness or cracking.
- H410 Very toxic to aquatic life with long lasting effects.
- H400 Very toxic to aquatic life.

Disclaimer
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.