

**PRODUCT IDENTIFICATION:**

SUPPLIER:  
POLUX LIMITED  
ELLIOTT STREET  
ROCHDALE  
LANCASHIRE  
OL12 0LH

Product: Thermocouple Wires, Copper Conductors, Nickel Conductors and Electrical Resistance Wires covered in Continuous Filament Glass Fibre Yarn in Cable Form.

**COMPOSITION AND INFORMATION ON INGREDIENTS**

The nominal compositions of the products are given in the attached appendix.

**HAZARD IDENTIFICATION**

When used at ambient temperatures in the as-supplied form the products are not known to present significant health hazards with the exception of mechanical damage and skin irritation by glass fibre. However, users should note that dust, fine metal particulate and fume can be generated by a variety of processes and uses, e.g. cutting, machining, grinding, welding / brazing, exposure to elevated temperatures, winding, cable stripping and cable laying. These operations should be performed in well ventilated conditions, with the use of local exhaust ventilation where necessary. Exposure limits are as recommended by the Health & Safety Executive and users should refer to Guidance Note EH40 and other appropriate sources for current limits and recommendations for the latest statement of these limits.

Current literature lists certain compounds of arsenic, chromium, cobalt as R45 - May cause Cancer. Certain nickel and their associated compounds are listed as R49 - May cause cancer by inhalation. Health & Safety Executive and other appropriate guidance should be regularly checked to ensure that users are aware of any fresh data.

Metal fumes and dust may cause respiratory tract irritation and metal fume fever if inhaled.

**FIRST AID MEASURES****Eyes:**

Dust acts as a foreign body. Irrigate with copious amounts of clean, cold water. Seek medical advice.

**Skin:**

Copious amounts of water to be poured over the skin to rinse particles away. Do not rub into skin. If irritation develops, seek medical attention.

**Inhalation:**

Remove to fresh air and seek medical attention.

**Ingestion:**

Seek medical attention.

## **FIRE FIGHTING MEASURES**

The products, if exposed to fire or excessive heat can give off fumes which may be toxic. The cured varnish on the glass fibre begins to decompose above 200°C to release carbon dioxide, water and any residual solvent, leaving a carbon residue. The cured varnish has the propensity to combust spontaneously if placed in elevated temperatures directly from normal room temperature. The product should therefore be heated gradually.

The packaging supplied with the product may be combustible and release noxious, irritating and toxic fumes if exposed to fire or excessive heat.

Under unusual and particularly favouring conditions, such as significant accumulation, very fine particulate size and strong ignition sources, fire or explosion may occur.

An explosive reaction can occur if molten metal is in contact with water.

## **ACCIDENTAL RELEASE MEASURES**

This material is classed as solid waste. The current legislation in respect of pollution and environmental protection should be observed when clearing out material and disposing of same.

## **HANDLING AND STORAGE**

### **HANDLING PRECAUTIONS:**

Handling practices should take particular account of potential hazards arising from the weight of the material, sharp edges and ends, the possible movement of material when the means of securing it is released and the springing of binding tapes etc. Particular care should be taken not to abrade the surface of the glass fibre or to generate dust.

Care should be taken to heat the product gradually, ensuring adequate ventilation during the process, in order to prevent accumulation of any gases or vapours (see Fire Hazards).

Wire ends are sharp and can cause injury if mishandled or "fly loose" as a result of a break, cutting or incorrect control of the wire or cable. Personal Protective Equipment must be used where appropriate.

Materials supplied may have residual surface lubricant films. Where appropriate, suitable gloves should be worn. When handling the product good personal hygiene practices should be adhered to.

### **STORAGE:**

Good housekeeping and handling practices should be observed at all times. Exposure to organic solvents can result in distortion/collapse of reels and must therefore be avoided.

In general, metals should not be allowed to come into contact with, or stored near acids or alkalis. Contact with these substances may produce noxious or inflammable gases.

**EXPOSURE CONTROLS AND PERSONAL PROTECTION**

Exposure controls for hazardous components:

**SKIN:**

Skin irritation may be experienced by some people when handling glass fibre. Appropriate Personal Protective Equipment (PPE) should be used to prevent this. Dermatitis due to sensitisation may occur in some individuals from exposure to nickel and chromium dust and fumes therefore appropriate PPE should be used. Nickel is classified as "irritant" when in a finely divided form.

**EYES:**

Particles of glass fibre or metal coming into contact with the eyes will cause irritation.

**INHALATION:**

Airborne glass fibre dust can cause irritation of the upper respiratory tract. Care must be taken to ensure that the glass fibre is not abraded excessively. Metal fumes and dust may cause respiratory tract irritation and metal fume fever. Users need to ensure an adequate level of ventilation and dust extraction is in use to ensure dust, fibre or fume levels are kept below the minimum occupational exposure limits and other current HSE guidance levels.

**PHYSICAL AND CHEMICAL PROPERTIES**

|                |   |
|----------------|---|
| Appearance:    | Single or multi core cables solid or stranded conductors with varnished glass fibre insulation with or without metal overbraid. |
| Melting Point: | > 900°C   |
| Density        | Conductors 7 - 9 g/cm <sup>3</sup> Insulation dependant on construction.  |

**STABILITY AND REACTIVITY**

In general, metals should not be allowed to come into contact with, or stored near, acids or alkalis. Contact with these substances may produce noxious or inflammable gases.

Some cured varnishes have the propensity to combust spontaneously if placed in elevated temperatures directly from normal room temperature. The product should therefore be heated gradually.

| <b>TOXICOLOGICAL INFORMATION</b>   |  |
|--|--|
| Prolonged and repeated over-exposure to dust or fumes of some materials may cause adverse health affects including the following (detailed by material):   |  |
| <b>MATERIAL</b>  | <b>AFFECT</b>  |
| Iron   | Siderosis, Iron oxide fume   |
| Chromium   | There are reports of a nodular type of pulmonary disease with impairment of lung function. As trioxide it may be oxidising and corrosive and cause skin sensitisation. |
| Nickel   | Respiratory irritation and pneumonitis. Nickel and its salts are potent skin sensitisers.  |
| Manganese  | Pneumonitis, including irritability, difficulty in walking, speech disorders, compulsive behaviour, mask-like face and Parkinson like syndrome.                        |
| Tungsten   | Some evidence of pulmonary involvement.  |
| Molybdenum   | Irritation of nose and throat, weight loss.  |
| Copper   | Metal fume fever. Can be harmful as oxide if swallowed.  |
| Cobalt   | May cause interstitial pneumonitis and sensitisation of the respiratory system.  |
| The above list should not be considered exhaustive and the user should refer to other appropriate literature and sources of information if their COSHH Assessment indicates the presence of any risk e.g. through exposure to dust or fumes. |  |
| <b>ECOLOGICAL INFORMATION</b>  |  |
| Mobility   | Not mobile in the environment  |
| Degradability  | Very slow degradation may take place depending upon the particular Conductor alloy.  |
| Accumulation   | Bioaccumulation potential very low.  |
| Ecotoxicity  | Non-ecotoxic   |
| <b>WASTE DISPOSAL</b>  |  |
| Disposal of packing by burning can release noxious or irritating gases. Current legislation in respect of pollution and environmental protection should be observed when disposing of both the packaging and the products.                   |  |
| <b>TRANSPORT INFORMATION</b>   |  |
| Not required   |  |
| <b>REGULATORY INFORMATION</b>  |  |
| Not applicable   |  |
| <b>OTHER INFORMATION</b>   |  |
| None applicable  |  |

## GLASS INSULATED CABLES

### Appendix

#### Nominal Compositions

| MATERIAL             | NOMINAL COMPOSITION                                 |  |
|----------------------|---|--|
| GLASS FIBRE          |   | Silica<br>Lime<br>Oxide of aluminium, magnesium and boron.<br>Certain other oxides may be present to provide special properties. |
| CROMALOY 5           | 80%<br>20%  | Nickel<br>Chrome   |
| CROMALOY 1           | 60%<br>16%<br>24%                                   | Nickel<br>Chrome<br>Iron   |
| CONSTANTAN           | 44%<br>56%  | Nickel<br>Copper   |
| NICKEL               | 99%   | Nickel   |
| CROMALOY 3           | 30-37%<br>18-20%<br>45-50%                          | Nickel<br>Chrome<br>Iron   |
| CROMALOY A           | 4.5%<br>22%<br>73.5%                                | Aluminium<br>Chrome<br>Iron  |
| KUTHERM 10           | 95%<br>5%   | Copper<br>Tin Bronze   |
| KUTHERM 3            | 99%<br>1%   | Copper<br>Tin  |
| 80/20% COPPER NICKEL | 80%<br>20%<br>0.5%                                  | Copper<br>Nickel<br>Manganese  |
| 85/15% COPPER NICKEL | 85%<br>15%<br>0.5%                                  | Copper<br>Nickel<br>Manganese  |
| 90/10% COPPER NICKEL | 90%<br>10%<br>0.5%                                  | Copper<br>Nickel<br>Manganese  |
| CUPRONIC             | 99.5%<br>0.5%                                       | Copper<br>Nickel   |
| CUPRONIC 12          | 99.5%<br>0.5%                                       | Copper<br>Nickel   |
| NICR (+)             | 90%<br>10%  | Nickel<br>Chrome   |
| NIAL (-)             | 94%<br>2%<br>3%<br>1%                               | Nickel<br>Aluminium<br>Manganese<br>Silicon  |
| COPPER               | 100%  | Copper   |
| IRON                 | 99.75%<br>0.25%                                     | Iron<br>Manganese  |
| STAINLESS STEEL 304  | 0.05%<br>0.52%<br>1.47%<br>18.80%<br>9.50%<br>69.9% | Carbon<br>Silicon<br>Manganese<br>Chrome<br>Nickel<br>Iron   |