



ENVIRONMENTAL INFORMATION

Environmental matters related to thermal removal of insulation of enamelled winding wire.

Stripping of enamelled wire by heating, e.g. over a welding flame or high frequency heater, induces pyrolytic formation of various reactive aeriform compounds. The dominating health hazard can be derived from isocyanates, a group of hydrocarbons that may be experienced as irritating and poisonous at exposure. Isocyanates are formed in various levels and structures depending on enamel but are present in the combustion fume from most isolation varnishes, independent of winding wire manufacturer. Dahréntråd's enamels are:

- **Polyurethane**
- **Polyamide imide**
- **Aromatic polyamide**
- **THEIC-modified polyester**
- **THEIC-modified polyester imide**

In the immediate fumes from the combustion, levels of isocyanates exceeding current Swedish threshold limits values have been measured. The risk for exposure is however minimised if the stripping occurs in a ventilated environment. Therefore all removal of insulation by heating must be performed in connection to functional suction fans, which contributes to levels of isocyanates well below the current Swedish threshold limits values. For a total elimination of isocyanates it is recommended that, whenever possible, mechanical or chemical stripping is applied.

Further information material can be obtained from Dahréntråd:

1. Pyrolysis products from some winding wire enamels
ABB Corporate Research CRVKD 90/1098
2. What happens to the isocyanates in the environment
Literature study performed at ABB Corporate Research CRVKD 90/1023