COLOUR FROG

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Technical Datasheet - Correx Signs

Correx - 4mm

ENVIRONMENT
PVC Free, Recyclable

EFFECT OF HEAT/BURNING
Propylene ethylene copolymer is sensitive to oxidisation in the presence of heat and/or UV light, and thus all Correx sheets contain anti-oxidants and other stabilisers to improve their heat and light stability. These additives are melt blended with the polymer during granule manufacture and so do not constitute any extra health hazard under normal handling conditions.

(a) Effect of heat
Correx can be handled at normal processing temperatures. Small quantities of fumes are evolved at about 220°C due to a partial volatilisation of some stabilisers and/or of lower molecular weight hydrocarbons. These gradually increase until at about 300°C decomposition and oxidative pyrolysis proceeds at an appreciable rate. The softening temperature for Correx sheet is approximately 144°C and its crystalline melting point is approximately 160 - 175°C. If for any reason Correx sheet should become molten, and any of the molten polymer comes into contact with the skin, medical attention must be sought immediately.

(b) Burning behaviour
Typical thermal properties for propylene ethylene copolymer are as follows:

Softening temperature (BS 2782: 102D, ISO R306): 144°C
Crystalline melting point: 160 - 175°C
Flash ignition temperature: ca 350°C
Self-ignition temperature: ca 380°C
Calorific value: 11000 cal. kg
Specific heat: 0.46 cal gm °C
Limiting oxygen index (ASTM D2863): 0.174 - 0.180
Burn rate - Correx sheet (FMVSS 302): 5.3 - 8.2 cm/min

When Correx is heated in air above 300°C, decomposition and oxidative pyrolysis takes place. The heat of oxidation may produce a rapid rise in temperature which accelerates the pyrolysis. Under these conditions carbon monoxide, formaldehyde and acrolein are evolved. These evolved gases may ignite. Once ignition occurs sufficient heat will be generated to accelerate further the pyrolysis, thereby releasing further quantities of low molecular weight fractions. Burning is accompanied by the release of flaming molten droplets of polymer which could ignite other flammable materials which are nearby. Carbonisation also occurs and some of the carbon is released as soot. The main combustion product inflaming conditions is generally carbon dioxide. However, in confined spaces rapid deoxygenation of the air can occur, resulting in increased amounts of carbon monoxide.

Appreciable quantities of acrolein and other toxic aldehydes can also evolve over a limited range of temperatures. This pyrolysis is very similar to that of wood and other cellulosic materials though there are differences in detail.

The comments made on the burning behaviour of Correx can only be of a general nature, since the conditions in a fire situation will depend upon many factors, such as location, the presence of other flammable materials and the availability of air, and can never be fully predicted. Should a fire involving Correx occur, however, any commonly available fire extinguisher may be used. It has been found that powder extinguishants are very effective in quenching flames although they do not have the cooling ability needed for a deep seated fire. Water sprays are especially effective in rapidly cooling and damping down a fire, but the use of jets of water in the early stages of a fire is not recommended since they could help to spread the flames.

TOXICITY
Translucent Correx is chemically inert and is generally recognised as being non-toxic. UV stabilised Correx can also be handled under normal circumstances without any extra health hazard. However, the UV stabilised polymer does not possess food contact approval.