

## **COLD WEATHER WORKING - GENERAL GUIDANCE FOR EPOXY AND POLYESTER BASED PRODUCTS**

### **– EPOXY RESIN BASED PRODUCTS:**

During periods of cold weather, the following guidelines apply to all applicators of Parex Technical Mortars epoxy based products. These should not be taken as an exhaustive list and normal engineering judgement must be made in each application.

The following notes should help in their effective use:

- **Temperature:** All applicators should note that in line with most other chemical reactions, these products will exhibit extended pot life and possible changes in workability and strength development at temperatures below 10° C.  
In general, Parex Technical Mortars epoxy based products should not be used below 5° C and placed at 5° C and rising. However, if the following precautions are taken, then it should be possible to use the products at lower temperatures.  
All data shown on our normal technical literature is at standardised temperature of 20° C, and natural variations at lower temperatures must be allowed for.
- **Storage:** The products should be stored away from extremes of cold.  
Suitable storage such as: a heated container or warm site office with a temperature above 10° C should be used. If the products become chilled for any reason, be advised that it may take a considerable period of time to warm them, due to their naturally high specific heat capacity.
- **Mixing:** All equipment, plant, mixers and pans should be frost free and dry.  
Beware of standing time once removed from heated storage.  
All mixing should be as thorough as possible.  
All mixing should be carried out as near to the point of placing as possible to reduce any cooling period prior to placing.  
Ensure that each mix is fully discharged to avoid any build up of material that may adversely affect the subsequent batch.
- **Transport:** Ensure that any conveyancing of fresh mixed product is as short in time and distance as possible.

All equipment such as: mixers, tubs, tools etc. should be frost free.

The product should be kept “live” by continuous movement of the product and not left to chill before use.

- **Placing:** All preparation of substrates must be completed in advance of mixing. Substrates should be warmed and dried prior to application with frost free warm air blowers.

Correctly applied bond coats, if needed, must not be allowed to chill before placing material on top.

Be aware that substrates can be excessively cold and this may affect the product, particularly at the bond line.

**Where practical, the best results are gained in harsh conditions by the use of site protection such as: tenting with heaters.**

- **Curing:** In line with good site practice, which should be exercised at all times in low temperatures, all Parex epoxy based products should be warm cured. In most applications, we recommend the use of thermal blankets, or heated environments.

In line with normal winter construction practices and particularly in applications of thin section size, the products should be thermally cured using either expanded foam matting or thick plywood boards. Both of these should be secured in place to prevent wind tunnel effects.

Should the Epoxy product drop to a temperature below 5° C before it has fully cured and hardened, then the reaction will cease.

Care must then be taken before proceeding, such as: removal of shutters may disturb the element formed. However, once the temperature of the material rises above 5° C again, it will continue to react and harden until full curing is eventually achieved.

Epoxy products are not destroyed by freezing at 0° C, just stopped from reacting.

## **ADDITIONAL NOTES ON THE USE OF PAREX TECHNICAL MORTARS POLYESTER BASED PRODUCTS:**

Polyesters are generally more reactive than epoxy based products and therefore, have some fundamental differences.

Please use the above cold weather working general guidance notes for Parex Technical Mortars epoxy based products in addition to the following precautionary notes for Parex Technical Mortars polyester based products:-

- Do not use naked flames to 'warm' either the resin or filler.  
Preferably use warm water for the tin of resin and a warm dry environment for the filler.
- For thin laminar layer applications such as: resin anchor installations, warm the bar to a maximum of 25° C prior to installation into the resin.  
Make sure the pre-drilled holes are clear of: water, debris etc.
- The summer grade resin will NOT work at 8° C and below, regardless of how long it is left at these temps.
- The winter grade resin will NOT work below -10° C and even then not very quickly and therefore, sensible precautions (already mentioned) should be employed.
- Once the polyester resin is in place, direct non-flamed heat may be applied to help the reaction.  
The surface temperature of the product must NOT exceed 80° C.

Further information can be obtained from the Parex Technical Mortars and Performance Grouts Sales or Technical Departments.