

## Guide for Applying Sealant in Cold Weather

The following outlines procedures and recommendations for using Tremco sealants at temperatures lower than 40°F. At temperatures below 32°F the cure rate of our sealants is diminished and the presence of ice and frost on bonding surfaces becomes more likely. Both of these conditions can affect the overall cure adhesion and ultimate performance of the sealants in application.

The following guidelines should be followed in order to optimize the performance of our sealants in cold weather.

1. Warm the sealant for 24 hrs prior to use. Warming to room temperature will help to ensure adequate flow of the sealant and its adhesion after application.
2. Clean any dew, frost or ice from the substrates with an approved solvent such as MEK (methyl ethyl ketone), Toluene or Xylene. These solvents are more effective in lower temperatures than IPA (isopropyl alcohol).
3. Warm the bonding surfaces prior to surface preparation listed in (2). A hair blower or space heater can be used for this purpose. Raising the temperature of the substrate improves its surface energy and receptiveness to the sealant compound.
4. When required primers should be treated in a similar fashion to the sealants listed above. At temperatures lower than 32°F (0°C) the primers in question will take longer to dry than at warmer temperatures. Care should be taken to ensure adequate primer dry time prior to sealant application. Tremco primers include Primer # 10 and Tremprime Silicone Porous primer for silicone sealants. Tremco polyurethane sealant primers include Primers 1, 171 and Tremprime Multipurpose primers.

The following are specific guidelines for applying Tremco sealants based on their composition.

1. Water based sealants: Water based sealants such as Tremflex 834 may freeze when stored at temperatures lower than 32°F (0°C). Care should be taken to store this sealant at temperatures warmer than 40°F and to follow the general cold temperature recommendations listed above.
2. Solvent based Sealants: Solvent based sealants such as Tremco 830, Butyl Sealant and Mono 555 should also be stored and applied in accordance with the application procedures listed above. Where appropriate the sealants will cure at a slower rate at lower temperatures due to a reduced evaporation rate of their carrier solvents. Although these sealants will

thicken in response to the lower temperatures they will not freeze. Warming the sealant prior to use will improve the sealant's flow properties.

3. Moisture cure sealants: Generally these one part sealants which cure by reaction with moisture vapor are also temperature dependant. Therefore they will cure at a slower rate as the temperature drops. Tremco polyurethane and silicone sealants are included in this category. These polyurethane sealants include but are not limited to Vulkem 116,921,45,45 SSL, Dymonic and Dymonic FC. Tremco silicone sealants include Proglaze, Proglaze SSG, Spectrem 1,2,3,4, Tremsil200,600, Spectrem 800,900.

4. Tremco also provides a number of two part silicone and polyurethane sealants that cure chemically although they are also somewhat affected by colder temperatures in a similar manner to the one part sealants discussed above. Cold temperature application procedures listed above should also be observed when applying these sealants. These products include Dymeric 240, Dymeric 240FC and Proglaze II.

Minimum Temperature: Optimally sealants should be applied between 40°F (4°C) and 80°F (27°C). At temperatures between 0°F (-18°C) and 40°F (4°C) the sealant should be applied as described above. High performance moisture curing silicone and polyurethane sealants have been applied successfully at temperatures as low as -20°F (-29°C) using these techniques.

In addition to temperature the following environmental conditions can affect the cure rate of the sealants in general.

1. Substrates: Moisture curing substrates (ie mortar, EIFS, concrete) require additional cure time in colder climates. Adequate time should be allowed for these substrates to cure prior to application of cleaners and primers prior to sealant application.
2. Dew Point: The dew point is the temperature at which condensation can develop. If the temperature is below the dew point, the affected substrates should be cleaned with solvent using the two rag wipe method to remove the condensation prior to primer and sealant application.
3. Wind Chill: The major effect of wind chill is the accelerated cooling affect on the substrates and sealants. This will directly affect the time available for surface preparation and sealant application. The application characteristics of cooler sealants (ie reduced flow rate) result in less efficient tooling or wet out of the sealant to the substrate.

In general any project should be evaluated on an individual basis since environmental conditions can vary significantly from day to day. These climatic variations are very pronounced during the cold weather months. When cold weather sealant application procedures are required please consult your local Tremco sales representative or Technical Services in Beachwood, Ohio for assistance.

