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Global Sealants Division
Integrated Technical Solutions

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COLD TEMPERATURE OEM SEALANT CAULKING RECOMMENDATIONS

The following outlines procedures and recommendations for using Tremco sealants at temperatures lower than 40°F (4°C). At temperatures below 32°F (0°C), 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 primer / sealant for 24 hrs prior to use. Warming to room temperature will help to ensure adequate flow of the primer / sealant during 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. When required, primers should be treated in a similar fashion to the sealants listed above. At temperatures lower than 32°F 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 TREMprime Silicone Metal Primer and TREMprime Silicone Porous primer for silicone sealants. Tremco polyurethane sealant primers include Primers 1, 171, 191 QD and TREMprime Multi-Surface Urethane primers.

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

1. Water based sealants: Water based sealants such as TremPro 655 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 (4°C) and to follow the general cold temperature recommendations listed above.
2. Solvent based Sealants: Solvent based sealants such as TremPro 659, TremPro 651 and TremPro 691 should also be stored and applied in accordance with the application procedures listed above. These 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. Tremco polyurethane sealants include but are not limited to TremPro 626, TremPro 627, TremPro 638SL, TremPro 640 and 642 and hybrid urethane TremPro 635. Tremco silicone sealants include TremPro 644 HT, TremPro 644 RTV, and TremPro 645.

4. Due to cold temperatures, length of cure time will be increased - installed material should be protected to prevent the displacement of the uncured sealant.

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 (i.e. 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 (i.e. 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.

Please contact Tremco Technical Service at 866-209-2404 with any questions regarding this bulletin.