

Issue Date: October 31st, 2018
Issued By: FiberTite Technical Services
Re: Fibertite adhesives, primers, & roll products -
cold weather application

Cold Weather Application of FiberTite® Products

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With the onset of Fall comes colder weather, which presents special concerns specific to thermoplastic roofing applications. The installation of single-ply roof systems in *cold weather*¹ require additional care and consideration compared to installs during optimal weather conditions. Cold temperatures impact the physical properties of *adhesives, primers, and roll products* which can cause installation of the roof system to be more difficult. Therefore it is *imperative* to acknowledge the following precautions to ensure the successful installation of the finished roof system.

¹ *Cold Weather = temperatures at or below 50°F (10°C)*

Special Concerns for Cold Weather Applications:

- Maintaining Proper Material & Storage Temperatures
- Remove from Storage ONLY Enough Adhesive for Daily Production
- Extra Time for the Membrane to Visually Relax Prior to Installation
- Curing Rate of Solvent-Based & Water-Borne Adhesives is Reduced
- Maintain Proper *EVT*² of Hot Asphalt at Point of Install
- Adhesion Of Self-Adhesive Materials is Reduced
- All Adhesives Limited to Install Temperatures of 40°F and Rising
- Recommend use of Solvent-Based Adhesives or Hot Asphalt
- Take Special Consideration that Water-borne Adhesives do not Freeze
- Membranes Become Less Flexible at Low Temperatures
- Adhesive Coverage will Vary According to Ambient & Surface Temperature
- Do Not Apply Adhesives To Damp, Wet, Frosted or Frozen Substrates
- Take Special Consideration of Seam Welding - Conduct Test Welds Periodically During Install

² *EVT = equiviscous temperature is the temperature at which asphalt reaches the proper viscosity to be applied.*

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Cold Weather Procedure Recommendations:

There are many variables to consider when using adhesives and primers during cold temperatures. By following proper cold weather procedures and exercising the recommended precautions, application can progress more efficiently, and a higher quality roof system will be installed.

Additional preparation and care for adhesives and primers in cold weather conditions include:

- All adhesives should be stored and maintained between 60-80°F for *at least 24 hours* prior to application.
- Do not remove adhesives or primers from the warm environment until just prior to usage in order to minimize exposure to cooler temperatures. This will permit adhesives to maintain proper consistency and coverage rates.
- Water-based adhesives cannot be exposed to temperatures below freezing at any time before or during installation. Any water based adhesive that have been frozen should be discarded.
- Limit the use of adhesives to conditions that will foster temperatures above freezing for at least 72-hrs after application.

Application Recommendations

Acceptable weather conditions are not solely based on the ambient temperature, but also include the total combination of the elements (e.g., wind chill factor, humidity, etc.). Careful planning of work during cold weather can greatly improve the quality of the installation.

Use the Right Materials

Whenever possible, the use of solvent based adhesives, Polyset® CR-20®, or hot asphalt is recommended for cold weather applications³. Special consideration should be given when using water-borne adhesives in cold weather applications to safeguard successful use and installation of the roof system.

Water-based adhesives should **NOT** be applied:

- At temperatures below 40°F (or 5°C) and rising.
- At very high relative humidity or when rain/snow is expected.
- When the *dew point*⁴ and the ambient temperature does not have a separation of more than 5° and is not expected to be more during application time.
- When temperatures can be expected to fall below freezing during application and/or up to 8 hours post application.

³ *Low rise polyurethane insulation adhesives (FTR 601 & CR-20®) also require heated storage between 60-80°F prior to use, and they are also restricted to temperatures of 40° F and rising.*

⁴ *Dew Point = a measure of atmospheric moisture and is the temperature at which dew forms.*

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Test Welds

In cold weather, test welds are even more essential than in optimum weather conditions. Standard practice dictates that the correct speed and temperature settings for automatic welders are determined by regular test welds at various settings. Many factors will affect the welding equipment settings, including overcast skies and lower temperatures. This will generally require a slower speed that will provide the additional heat energy to compensate for heat-draining conditions. It is highly recommended that test welds should be conducted:

- Every morning
- After any extended break
- After significant change in weather, etc.

Complete Each Roof Section Daily

Application should be scheduled so that there are no partially completed portions of the roof left exposed. As the work progresses on a day-to-day basis, it is *essential* that each section of the roof be completed as specified. Additionally, water cutoffs should be provided at exposed edges at the close of each day. Water cutoffs shall be removed prior to resuming construction of the roof assembly.

Torch Applied Products

During membrane application, the substrate should also be heated with the torch⁵. By warming the substrate before the molten bitumen is rolled into place, the adhesion of the membrane to the substrate is enhanced. This is especially important for the lap area, which should be given special attention.

Hot Asphalt Applied Products

At the point of application of the fleeceback membrane or modified bitumen base sheet, the mopping asphalt should be applied at its equiviscous temperature (*EVT*), or a minimum of 400°F, whichever is higher. High asphalt temperatures are essential for adequate adhesion of base sheets and membranes. It is important for the applicator to be aware of the extremely fast cooling rate of the liquid asphalt that has been applied to a roofing substrate. Components of the roofing system must be installed rapidly and close to the mop. Be sure that these components are well embedded. Mop strokes should not exceed the manufacturer's recommended instructions. Failure to follow proper application techniques will result in poor membrane adhesion.

⁵ *All modified roll materials shall be stored on end to prevent their becoming deformed or damaged. Moisture, dirt, snow, and ice must be removed from roofing asphalts before they are heated.*

If you have any questions regarding **Fibertite** cold weather application, or for more information, please feel free to contact **FiberTite Technical Services** at: 1-800-927-8578.

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