Applichem Inc
Your Adhesive & Tape Ally

Bulk Up for Winter

Time to bulk up! Winter is coming on quickly!

Around this time of year, as it starts to get cooler across the US, adhesives users are known to ponder, does winter have any effects on these adhesives…?

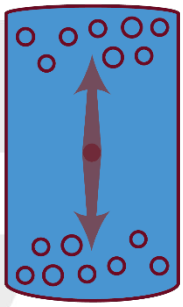
The answer is yes, winter does have an effect on some types of adhesives. Most adhesives perform optimally at room temperature (around 70°F), so keep your adhesives and equipment indoors for optimal results. This way you can ensure consistency – consistent set times, cure times and overall performance. Also, your vendor can store product in a climate-controlled warehouse, and ship product to customers on climate-controlled trucks, if need be.

Some adhesives may react slower, while others may react quicker. Adhesives may thicken with the cold, resulting in longer cure times. Others may crack, or de-bond/delaminate from a substrate. Some adhesives may become more brittle, or more susceptible to low failure stresses. Resins won't cure so well under 70°F, and most water-based adhesives, once frozen, cannot be used.

Some adhesives are hardly affected by colder temperatures, such as rubber-based adhesives or reactive polyurethanes. Acrylic adhesives will work at low temperatures as well, if they aren't cross-linked or cured. Silicone adhesives remain highly flexible at low temperatures, and epoxies will still be serviceable.

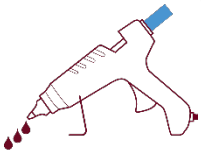
Solvent-Based Adhesives

With solvent-based adhesives, low temperatures will result in longer drying times. Failure to allow the adhesive to properly flash off will result in solvent blistering of the substrate.



Adhesives stored at cold temperatures and then restored to room temperature may experience separation of solvents. Store solvent-based adhesives in a controlled environment, off cold concrete floors and away from outside walls.

Hot-Melt Adhesives



Cold temperatures will affect hot-melts, by increasing the viscosity. This can result in stringing and could increase the set speed.

Also, the cold may result in a cracking of the adhesive along the bond line. Storing these adhesives at room temperature, will prevent these issues. Also, PSA hot melts will perform better at lower temperatures than typical EVA hot melts.

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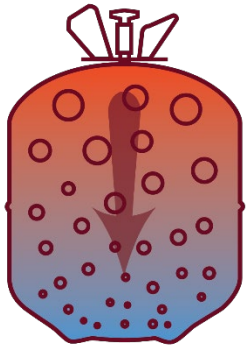
Canister Adhesives



Canister adhesives generally perform pretty well in the cold, but adhesive performance still may suffer from the affects of cold weather. The propellants may shrink, decreasing the pressure in the canister, and causing things such as abnormal or uncontrollable spray properties, or longer dry times. If the canister spits, the spray is sputtering, or its delivering an inconsistent spray pattern, then the adhesive may have gotten too cold.

If canisters arrive cold, or have been exposed to cold temperatures, move to a room temperature area (around 70°F). For 22L canisters or smaller, immerse in warm water for about 15 minutes. Remove and gently agitate to bring the glue back to solution. For 108L canisters or larger, remove canisters from unheated concrete floors into an area that is around room temperature. Once the adhesive has warmed up, lay canister on its side and roll back and forth gently. Once warmed up and shaken, canister adhesives should perform as normal!

Prevent canister adhesives from getting too cold, by using a heated canister blanket, and by storing them off concrete floors on pallet racking or a cart, and by keeping them at room temperature.

Water-Based Adhesives

Water freezes at 32°F, so water-based adhesives have the highest risk of freezing. At colder temperatures, adhesives may become thicker, causing stringing and poor machining. They also could set more slowly, as water will release slower in the adhesive.

Sometimes, water-based adhesives may freeze during transport. Try to order the adhesive as early as possible in the week, to reduce the likelihood of it sitting in a truck for prolonged periods of time. Once received, feel the outside of the container. If it feels unreasonable cold, its probably best to inspect the adhesive. Look for signs that its frozen, such as crystallization or lumps. If its totally solid, that means the adhesive is completely frozen.

If the adhesive has frozen at all, unfortunately it will be unusable, and the adhesive must be replaced. Store water-based adhesives at room temperature (around 70°F), and they should perform as normal.

Hopefully these tips help to keep you out of any sticky situations this winter, and as always, if you have any questions or concerns, please contact us! We'd love to hear from you!