AJ ADHESIVES Inc.

Creating *Insanely Happy Customers*™

Packaging Adhesive Best Practices

Understand safety guidelines and best practices for handling and working with hot melt adhesives. Line operators who are new to their job are strongly encouraged to read this document before handling hot melt.

SAFETY

Be sure to always use proper personal protection equipment when performing work on or around the packaging line's adhesive application and when handling heated equipment.

Always use a scoop to add adhesive to the hot melt tank manually. Add to the molten material in the tank slowly, as to avoid splashing, we recommend line operators wear the following PPE:

- **SAFETY GLASSES:** Ensure your glasses have side shields for proper eye protection
- **ARM SLEEVES:** Especially important when performing work that involves reaching into or past hot equipment
- **GLOVES:** Heat resistance material that is necessary for effective hand protection.

If You Receive a Burn or Come into Contact with Molten Hot Melt

- Immerse the contacted area in cold, clean water immediately. If water is not available, touch the contacted area to a cold surface
- Do not attempt to remove the set hot melt from the skin
- Cover the contacted area with a clean, wet cloth and see a doctor

ADHESIVE STORAGE

Proper storage of solid hot melt adhesive is critical to maintaining a clean, and effective packaging line.

Ensure all opened boxes of hot melt are kept closed and wrapped in plastic wrap when not in use. Store adhesive away from heat and moisture. Store the hot melt in closed accessible bins near the production line, if feasible. If hot melt isn't properly stored, dust and debris can get mixed into the product, and transfer dust into the hot melt tank—causing contaminants that will oxidize to char, which can cause clogs in the system.

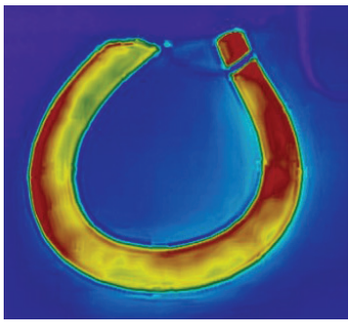
HOT MELT TANK BEST PRACTICES

Follow these guidelines when working with hot melt dispensing equipment:

- Keep the tank lid closed to keep out dust and debris, and retain the molten adhesives heat
- Maintain hot melt at (or slightly below) the recommended application temperature - Typically, either 350°F (177°C) or 275°F (135°C).
- Utilize the tank's standby mode to reduce its temperature when idle to mitigate char formation as well as save energy
- Keep the hot melt tank at least half-full with molten material at all times. Auto-fed adhesive dispensing units will automatically ensure the tanks stay half full. If you are manually feeding the hot melt tank, add small amounts of adhesive often to the tank to avoid unwanted temperature fluctuations.

HOT MELT HOSES

It is important to always keep your hot melt adhesive hoses away from:



This thermal image shows the heat sink created by the hose resting on the ground.

- Heat sinks, such as cold ground (thermal image pictured)
- Vibrating parts that can wear through the hose exterior
- Sitting water or damp areas
- Keep the curve radii of your hoses to a minimum of 3 feet to ensure proper flow.

HOT MELT APPLICATORS

Ensure applicators have the same set point temperature as the hose their connected to, to avoid relying on the applicator's heating components to increase the glue temperature.

If you are seeing large amounts of stringing or angel hair buildup, look at the equipment setup, first:

- Ensure the applicator is not too far from the substrate, ideally 1/4"
- When using pneumatic guns, shorter, hard plumbed air lines from the gun to the solenoid are best

If the stringing / angel hair buildup persists, increase the hose's and applicator's temperature by 5°F.

Most packaging applications require a 3/8" compressed bead, but this can depend on the substrate, open time, compression time and quality and any post-application requirements (i.e. storage in a blast freezer).

Avoid Cold Shock

Adding fresh, solid hot melt adhesive to the tank will cause the molten material already in the reservoir to drop in temperature. When the adhesive level in the tank runs too low before refilling, there is less molten material than solid, and the magnitude of this temperature drop is significant, known as cold shock. This can lead to adhesive being applied below the recommended temperature, and potentially yield poor, shallow bonds.