

Problem: Clogged Equipment

Char is responsible for most clogging in hot melt systems. Char is a fact of life for many manufacturers, but it doesn't need to be. By reducing the common sources of charring, and keeping up with scheduled maintenance, you can substantially reduce clogging.

Signs & Symptoms

- Hot melt not dispensing completely
- Visible char in adhesive, nozzles, filters, or tanks
- Nozzles and filters needing frequent replacement

Potential Causes & Solutions

Potential Causes	Indications	Recommendations
Tank temperature too high	<ul style="list-style-type: none"> • Charring inside tank • Discoloration of adhesive 	<ul style="list-style-type: none"> • Reduce temperature • Turn off or use standby when not in use
Oxidation in tank	<ul style="list-style-type: none"> • Discoloration of adhesive • Charring inside tank • Tank often less than 2/3 full • Tank left open for long periods 	<ul style="list-style-type: none"> • Fill tank more often • Keep tank covered • Consider smaller tank size
Low hot melt turnover	<ul style="list-style-type: none"> • Charring inside tank • Discoloration of adhesive • Tank filled less than once per day 	<ul style="list-style-type: none"> • Consider different sized tank • Turn off or use standby when not in use
Contamination in tank	<ul style="list-style-type: none"> • Charring inside tank • Visible particulate in tank or pellets 	<ul style="list-style-type: none"> • Keep tank covered • Store pellets in clean, covered container • Consider an autofill system
Filter usage	<ul style="list-style-type: none"> • Nozzles clogged by char 	<ul style="list-style-type: none"> • Add or upgrade filters • Compare filter mesh size against nozzle • Replace filters more frequently
Char buildup in hoses	<ul style="list-style-type: none"> • Filters or nozzles still clogging after tank has been cleaned 	<ul style="list-style-type: none"> • Replace hoses

Other Recommendations

When dealing with char-related clogging, there are a couple of other solutions worth considering:

- **Self-cleaning nozzles** - These are nozzles with a mechanism that breaks down pieces of char as it's dispensed, avoiding clogs.
- **Cleaner hot melt** - There are newer hot melt formulations that run cleaner and lead to much less charring with the exact same equipment.

Dealing with hot melt char can be a huge headache. If you'd like help solving these issues, get in touch with us. We can help.

Problem: Hot Melt Coverage

Using the right amount of hot melt, in the right place, is critical to preventing pop-opens. Using too much or too little can be equally problematic.

Signs & Symptoms

- Pop-opens happening right after compression

Potential Causes & Solutions

Potential Causes	Indications	Recommendations
Not enough hot melt applied	<ul style="list-style-type: none">• Pop-opens after compression• Good fiber tear• Good penetration on both flaps	<ul style="list-style-type: none">• Increase adhesive volume• Change nozzles or dispensing pattern• Consider using more aggressive adhesive
Too much hot melt applied	<ul style="list-style-type: none">• Pop-opens after compression• Poor fiber tear, adhesive not setting	<ul style="list-style-type: none">• Decrease volume• Decrease temperature• Consider adhesive with shorter open time
Incorrect bead placement	<ul style="list-style-type: none">• Pop-opens after compression• Pop-opens in storage or transport• Full adhesive bead is not compressed• Partial bead fiber tear	<ul style="list-style-type: none">• Evaluate compression points on flaps

Other Recommendations

If you're trying to use less hot melt to save on costs, another option is hot melt dotting, which lets you use half the adhesive without sacrificing bond strength.

If you're interested in dotting, get in touch with us. We've helped many manufacturers upgrade to dotting systems with minimal downtime and usually no additional equipment costs.

Problem: Hot Melt Temperature

Running hot melt systems at the right temperature can be a balancing act. Too hot, and the adhesive may not set quickly enough. Too low, and the adhesive may set too quickly.

Signs & Symptoms

- Pop-opens happening right after compression
- Minimal fiber tear on one or both sides

Potential Causes & Solutions

Potential Causes	Indications	Recommendations
Temperature too high	<ul style="list-style-type: none">• Pop-opens after compression• Poor fiber tear, adhesive not setting	<ul style="list-style-type: none">• Lower dispensing temperature• Decrease bead size or volume• Consider adhesive with shorter open time
Temperature too low	<ul style="list-style-type: none">• Temperature too low• Pop-opens after compression• Adhesive not penetrating one or both sides• Poor fiber tear	<ul style="list-style-type: none">• Increase dispensing temperature• Increase bead size or volume• Consider adhesive with longer open time
Temperature fluctuating	<ul style="list-style-type: none">• Intermittent pop-opens after compression	<ul style="list-style-type: none">• Keep adhesive tank full and covered• Make sure hoses are off the floor• Reduce air movement around tank and applicators

Problem: Substrate Changes

Occasionally, packaging manufacturers will change coatings or fiber content of their materials. This can lead to pop-opens when the hot melt is no longer able to bond as well to the packaging material.

Signs & Symptoms

- Pop-opens happening right after compression
- Pop-opens during transport or storage
- Low fiber tear, adhesive peels off easily

Potential Causes & Solutions

Potential Causes	Indications	Recommendations
Changes to coating	<ul style="list-style-type: none">• Low fiber tear on both sides• Adhesive peels off easily	<ul style="list-style-type: none">• Adjust adhesive temperature• Test a different adhesive
Changes to fiber	<ul style="list-style-type: none">• Low fiber tear on one or both sides• Adhesive peels off easily	<ul style="list-style-type: none">• Adjust adhesive temperature• Test a different adhesive

Other Recommendations

Speak with your packaging manufacturer to find out what may have changed.

Problem: Shipping & Storage Temperature

Extreme high and low temperatures can cause failures even with properly-sealed packaging. The environment outside the plant is an important consideration in preventing hot melt pop-opens from happening in the field.

Signs & Symptoms

- Pop-opens happening in storage, during transport, or in the field

Potential Causes & Solutions

Potential Causes	Indications	Recommendations
Hot ambient temperature	<ul style="list-style-type: none">• Adhesive getting soft, re-melting	<ul style="list-style-type: none">• Consider a hot melt with a higher service temperature
Cold ambient temperature	<ul style="list-style-type: none">• Adhesive becoming brittle, fracturing	<ul style="list-style-type: none">• Consider a hot melt with lower service temperature

Need some expert help with your hot melt problems?

The application specialists at Hotmelt.com have seen it all. We've helped countless manufacturers solve these issues and would love to help you out. No hassle, no obligation.

Contact us when you're ready to solve your hot melt problems for good.

Call: (877) 933-3343