

How to Fix Uneven Hot Melt Adhesive Flow

Typically, uneven hot melt adhesive flow is caused by charring, which can result in problems with your final product, system uptime and overall maintenance costs. Since our team of experts at Keystone Industries have a great deal of experience with this problem and its root causes, we'd like to share our knowledge here and help you fix any issues you're having with uneven adhesive flow.

Char is adhesive that has degraded to the point where it's blackened or burned. It then disrupts heated adhesive flow inside hot melt hoses, and it also breaks loose to clog filters, guns and nozzles. Char forms when your heating system is idle — that's when your system is on and heating but has no adhesive flowing through it.

What Causes Char?

Naturally, every packaging operation is different. Each has its own challenges, schedules and equipment issues. At Keystone Industries, we've helped numerous companies troubleshoot their uneven hot melt adhesive flow issues. That's why we can say from experience that the following practices are some of the leading causes of charring:

- Heating hot melt adhesive at a too-high temperature
- Exposing hot melt adhesive to heat for too long
- Exposing hot melt to heat and oxygen
- Low-tier hot melt adhesives lead to char forming quicker
- Changing adhesives causes char to break off faster
- Bending hoses can lead to char breaking off more easily

How Char and Uneven Flows Affect Your Productivity and Bottom Line

Since char restricts heated adhesive flow, you gradually need more pressure to push the remaining adhesive through. In addition, the restricted flow increases the "heater-on" cycle of your heating unit, which produces more heat and forms even more char.

Ultimately, requiring more heat and increasing the amount of char in your system leads directly to more energy use and higher costs. As a result, you wind up paying more in energy bills while the uncorrected uneven flow eventually impacts the quality and end result of your work.

In equipment costs, replacement hoses will run you approximately \$100 per foot. For maintenance fees, the scraping of your tank can range anywhere from \$1,000 to \$5,000. So clearly, char is a real problem that's well worth preventing.

How to Prevent Char

The good news is that hot melt systems can be char-proof. In order to accomplish this, you need to follow the correct procedures for the system you're using and, most importantly, understand your adhesive.

This means using the proper temperature for your adhesive by knowing the temperature versus viscosity curve of your material. You should also keep the temperature as low as possible while still having the ability to apply adhesive.

Additionally, use an automated filling system and level control system to maintain a proper adhesive level. Remember that neglecting your adhesive level will lead to the heater grids becoming exposed when levels are too low, which will result in charring.

How to Remove Char Once It's Formed

Depending on how badly your equipment is charred you can try flushing your system with Red Baron tank cleaner. If the flushing will not correct your problem the only solution to removing that char at that point is by breaking down the system into its individual parts, followed by burning out the char in a burnout oven and rebuilding the melter.

The more cost-effective measure, of course, is to take preventive steps to prevent char from forming in the first place. This is best accomplished by following proper procedures, such as replacing hoses and parts whenever you spot damage and/or a leak.

For further information on preventing char and correcting uneven hot melt adhesive flow, fill out our contact form or call 800-235-8090. We're here to answer all your questions, share best practices and advise you on replacement parts.