

TECHNICAL BULLETIN

Blooming

Definition

Have you ever encountered a white haze that is easily wiped off a powder coated part after its cured? Formation of this undesirable film on the coating surface is the result of a process called blooming. It primarily occurs in regular, durable TGIC polyester-type coatings.

What's Happening and Why?

The white haze comes from nonreactive, residual material in the polyester resin. When the cure process proceeds at the designated rate, the material is trapped in the cured film before reaching the surface. If the cure rate is reduced, these materials will have sufficient time to fully bloom and collect on the surface.

The following can contribute to blooming and should be avoided when possible.

- Insufficient oven temperature
- Slow heating, common problem with heavy gage parts
- Uneven heating caused by varying part thickness
- Extended time at low temperature (150° to 320°F)

Can It Be Removed or Prevented?

Removal

The hazy film can usually be wiped off with a cloth, restoring the desired appearance. However, since blooming occurs at low temperatures, it could indicate parts are under cured. If blooming is observed, parts should be checked for cure. This can be done with an MEK rub test.

Prevention

It is also recommended that the oven be checked. A temperature profile should be run on parts to ensure oven functioning properly as well as to check the temperature profile of parts measured. Increasing the oven temperature and accelerating cooling of heavy gauge parts after curing can also reduce or eliminate blooming.

There are special blooming resistant or non-blooming powder formulations available. Please consult your Vogel Sales Representative to discuss blooming resistant technologies or to schedule an oven audit.

