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Cycletime Tips – Automotive

Volume 22: Surface Splay

One of the most common defects that can appear on the surface of parts is splay. The summer months most often contribute to this problem due to the high moisture content in the air. Some molders are aware of this and prepare for this season by making sure their dryers are maintained properly. This includes filter cleaning, regeneration heater function, changing of desiccant media, insuring proper airflow, and checking for tight seals the hopper and delivery/return lines. If the drying system is clearly maintained the molding operation can remain trouble free during these humid months.

There can still be splay issues that appear even if these systems are properly maintained. I have recently been called upon to troubleshoot splay issues involving not only hygroscopic engineering grade materials but also filled and un-filled polyethylene, TPO's and polypropylene materials.

This problem can be related to a cold melt temperature. If we decide to run products below the manufactures melt temperature range we are opening up the possibility of trapping air in the melt stream. The colder melt temperature can produce un-melted pellets. The molten material may shear as it travels around the un-melted material. This may also cause voids that trap air. Sometimes just the difference in viscosity may cause what appears to be splay.

This problem is more common than we would like to believe. Molders are always trying to optimize the cycle times. One of the easiest changes we can make is to cool the melt temperatures down, along with tool temperatures. These changes will indeed produce shorter cycles but at what cost.

I would suggest keeping this tip in mind when troubleshooting splay issues on both hydrophobic and hygroscopic materials.

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