WAK Plastics Machinery WWW.WAKSITE.COM

15029 161st Ave.
Grand Haven, MI 49417

INDUSTRY TRENDS & TECHNOLOGY

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INSIDE THIS ISSUE:

Special points of interest:

- Zero Defects
- Processing Tips, the Forth in our Series

THE COST OF QUALITY: WHERE ARE YOU INVESTING YOUR MONEY?

I was recently surprised to read of a company that makes its living inspecting other companies parts. Their value added is 100% inspection of a product someone else molds. I guess I shouldn't have been surprised, given the stringent quality requirements in today's market place, and the cost of shipping bad parts.

On one hand, I admired the ambition and vision of this business owner. He realized the demand for zero defects that end users put on a molder, and he also realized that there are often "things" that happen in the world of manufacturing that inhibit many molders from producing zero defects. Suspect parts become shippable parts through the work of his company. Problem solved, right?

Well, not really. The problem is still there, and left unattended to it only manages to put money in someone else's pocket, not the molders'.

There are other solutions that target the root cause of the problem and just as import, insure the profits from molding a product stay with the molder.

Most molders in today's market have heard of RJG. They are the company behind Decoupled Molding™ techniques and an inovator in the use of cavity pressure technology. In a recent survey, 27% of molders responding said they used Scientific (Decoupled) Molding techniques and 25% of them were using cavity pressure transducers. That's in interesting number all by itself, but it really takes on significance when you apply that same survey to the recent Top 10 list of injection molders. There you'll see that number jump to 7 out of the top 10 molders using this technology to maintain and improve their bottom line.

There is a lot of talk about what the future of manufacturing is going to be like for our industry. This much I know; it can't support making suspect product good by visual inspection. We must learn to make them right the first time and **automatically detect and contain** them if we don't make them right.

RJG is one solution to a segment of these problems. Contact them or your area representative below to learn more about their Training, Analysis, Abnormal Part Containment, and Process Control tools.

WHAT'S YOUR DEWPOINT?

By definition, dewpoint is the temperature at which water vapor begins to condense and is used as a measure of the moisture content of the air. Although technically a dewpoint below 32°F is a frost point, our industry uses the term dewpoint to indicate how well, or how not-so-well, your drying system is working.

It appears that –40°F was used as the standard for desiccant dryers because this was the lowest reading possible with lithium chloride sensors. Due to its simplicity, ruggedness, and low cost, it is the most common type of dewpoint sensor in use today.

In actual plant operation, dryers operate much lower than –40°F and therefore the moisture monitor often reads a constant –40. The primary function of the standard dewpoint monitor is to alert the operator that the dryer is not functioning properly for some reason, sort of like a warning light on a car.

Rarely will a dryer operate for a long period of time at a dewpoint reading between –40 and +25°F because there is very little moisture content differ-

West Michigan
616 844 0093

Central Michigan
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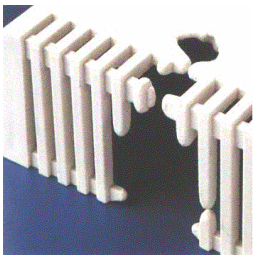
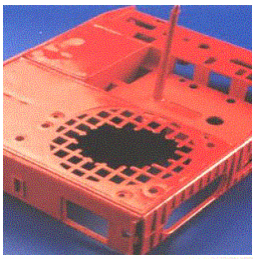
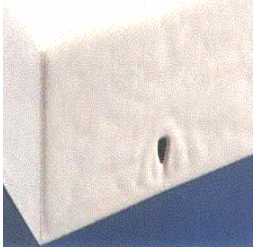
Detroit Area
586 677 9025

4. SHORT SHOT

A "short shot" is a term used to describe an incompletely filled part. Short shots typically appear far from the gate if there are long flow distances, or on thin walls like ribs or bosses.







Cause: There are many factors that can cause a short shot:

- Shot size too small
- Melt flow restricted by trapped gas
- Injection pressure too low
- Melt flow front freezing too quickly (mold temp. too low, inj. Speed too slow)

Corrective Action:

1. Injection unit (screw) bottoming out in barrel? — YES → 1. Increase Shot Size; 2. Inspect check ring (non return valve) on screw
NO
2. Is maximum injection pressure reached? — YES → 1. Increase maximum injection pressure; 2. Increase melt temperature (thus reducing viscosity)
NO →
1. Increase mold wall temperature *
2. Increase injection speed or rate
3. Increase melt temperature
4. Investigate changing gate geometry
5. Check mold vents, confirm depth of same
6. Perform In-Mold Rheology study
7. Create shear rate viscosity curve and confirm your processing in the right area of the curve.
8. Check nozzle bore and temperature

* Increasing mold temperature can reduce the defect but may lead to an increase in cycle time (2% per °C).

WHAT'S YOUR DEWPOINT? CONTINUED:

ence between those readings. Normally, if the dryer is not functioning properly, the dewpoint will rise rather quickly from the low reading to the high reading, where it may stay indefinitely. Either condition is a red flag to the operator that the dryer or set-up is not correct and the molded parts may be defective. How else would you know if the dryer is operating properly?

The warm, humid months of summer often put high demands on desiccant dryer operation. This often results in moisture-related problems such as splay, blisters, and streaks.

Dri-Air's high performance (HP) desiccant dryers have the extra capacity required to provide stable, below –40 °F dewpoint air to properly dry material in adverse conditions. In addition, their advanced microprocessor monitors and controls regeneration for complete, energy efficient regeneration.

The result is low dew points for optimal drying conditions to quickly dry resin in the most humid environments.

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