

Fighting contamination with purging compounds

Rapid colour change

Injection moulding machines' cleaning regime should always include the use of purging compounds to ensure the highest standards of performance. Cleaning screws, barrels and gates is fairly straightforward but the buildup of resin in hot-runners can be more problematic.



Contamination in the form of resin buildup in machine's tooling or hot runner system is often responsible for spoiling new caps or closures, when it lingers for prolonged periods into new colour production runs. Even the tiniest streaking, hang ups and black specks in a new production schedule can render thousands of caps or closures unfit for sale. Carbon buildup and contamination can lead to downtime, excess scrapage and, in the end, decreased profitability.

Efficient purging at shutdown or prior to difficult colour changes is key to increasing productivity.

Some specialised purging compounds have been specifically developed for high MFI applications and are compatible with polyolefins in injection moulding machine processing.

Ensuring a smooth-running hot runner system

Not all purging compounds are suitable for cleaning the entire equipment in one go. While some can be processed through hot runners into the open mould, this might cause contaminations in the mould; however, specialised compounds have been developed that are suitable for use in these situations.

Ultra Purge 1001 is designed for thin-walled packaging applications like

multi-cavity or stack mould processing systems. Neither flushing nor short shots, which would put demoulding at risk, will occur.

Incorporating a suitable purging compound into an injection moulding machine shutdown processes and colour changes will be faster and more efficient; also hang up spots and streaking that show up in newly moulded parts will be prevented. As a suitable and effective cleaning regime helps maintain machine cleanliness, downtime for unplanned stoppages will be greatly reduced or even eliminated altogether.

Some of Chem-Trend's purging compounds have been designed specifically for use through hot runners. They have been shown to actually pull chunks of carbon from the machine, and to extract residues from previous production runs even weeks after a colour change.

Extended machinery life cycle

Some specialised purging compounds, including several within Chem-Trend's portfolio, are comprised of highly-efficient cleaning additives that trigger a chemical reaction, softening accumulated residues.

Mechanical purging compounds – when they can be run through moulds at all – are known to be hard on the



barrel, screw and mould and can damage mould cavity surfaces, leaving imperfect finishes on new parts. In the worst of these cases, the moulds needed to be replaced, adding cost and increasing production downtime.

Chem-Trend's speciality additives do not contain damaging abrasives at all, says the company.

Seamless colour changes

Processing natural resin through an injection moulding machine will, eventually, flush out loose material. However, a purging compound can dislodge and flush out material that has built up in a machine's void or "dead spots", resulting in a clean, contamination-free system many times faster than can be achieved with natural resin.

Undertaking a colour change without using a purging compound will simply layer new material residue on top of the buildup that was already there. A recent trial of a grade of Chem-Trend's purging compounds at a bucket manufacturing plant showed the product went beyond extracting deposits left by the immediately prior production run; it extracted the colour used in the previous run as well.

Switching a moulder directly from one colour to another without using a purge compound will see colour resins from the previous run caught up in the machine's dead spots. The new production resins will, without warning, push the old colour into new caps and closures. Contaminated products will end up in the scrap bin.

Food contact application safe

Some of Chem-Trend's purging compounds have been classified to be compliant with U.S. and European food legislation, meaning there is no risk to your finished moulded parts. Every element of those purging com-

pound grades are either GRAS (Generally Recognised As Safe) or compliant with direct or indirect food contact according to the U.S. Food and Drug Administration's 21 CFR regulations. They are also European Plastics Regulation-compliant (No 10/2011).

Purging compounds improve efficiency

Purging compounds can be an integral element in optimising output of injection moulded caps and closures. Use of the right compound is not simply about cleaning; it becomes a key part of the preventive maintenance regime too. With proper regular use, purging compounds reduce carbon buildup from thermo-sensitive resins, working to preserve equipment and prevent wear caused by steel oxidation. This saves valuable time and cuts the incidence of 'black specks' during start up.

Maintenance

Chem-Trend offers injection moulders a range of products that

ensure their caps and closures' capacity remains optimum. Mould maintenance products like lubricants, anti-corrosion agents and cleaning materials all come with NSF registration; they are completely safe for use in food and beverage packaging.

Its range of cleaning agents easily remove resin, pigment deposits and contaminants from mould surfaces.

High-performance lubricants resist the extreme pressures and loads intrinsic to the moulding process, remaining temperature- and viscosity-stable under typical thermo-plastic moulding parameters. They are designed to stay in place where they were applied, thus preventing through-vent migration.

Even moulds in storage can be effectively protected against rust. Using anti-corrosion agents with NSF registration ensures that injection moulding machines create blemish- and defect-free parts from every shot.

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By using a suitable purging compound neither flushing (picture on the top) nor short shots (picture below) will occur.



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