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Plastic Tomorrow

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Online Rotogravure Printing Machine

MSC
ROTO I FLEXO I LAMINATION I SLIT

Application:

- LD HM Liners
- Carry Bags & Shopping Bags
- Garbage Bags
- Compostable Bags
- PP Liners or Bags

Features:

Oscillating Doctor Blade Movement Facility

Drying Blower Facility

360° Universal Movement Oscillating Doctor Blade

Main Shaft Power Transmission Facility

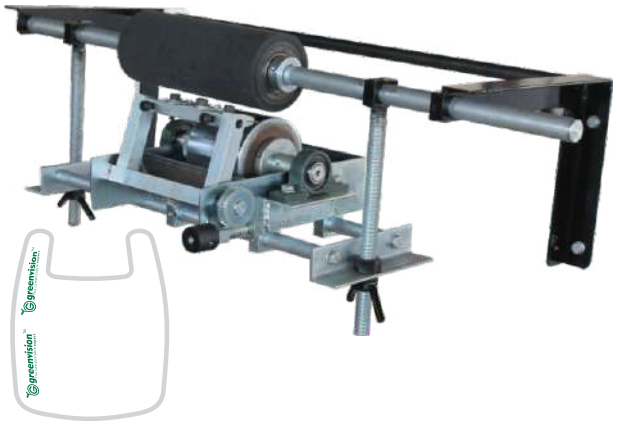
Air Pneumatic Pressure Rubber Roller

Frequency Drive And Control Panel With CE Std Components Fitted

Technical Specificaton:

Model Name	Min. Print	Max. Print	Min. Print Repeat	Max. Print Repeat
OLP 16	150 mm	400 mm	250 mm	660 mm
OLP 22	250 mm	550 mm	250 mm	660 mm
OLP 28	250 mm	700 mm	250 mm	660 mm
OLP 32	300 mm	800 mm	250 mm	660 mm
OLP 42	380 mm	1060 mm	380 mm	760 mm
OLP 52	380 mm	1320 mm	380 mm	760 mm
OLP 62	500 mm	1570 mm	500 mm	880 mm

Online Mini Rotogravure Printing Unit



Application:

- Warning Signs
- Company Information
- Film Specification
- Product's Material Property Details
- Legal Informations

Features:

- Rotogravure Cylinder Based Concept
- Sharp Printing Quality
- Printing Facility Available On Any Left Or Right Corner Of The Film

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Henkel expands gasketing portfolio with new technologies New performance gasketing for the automotive industry

Düsseldorf, Germany – Henkel has recently expanded its gasketing product portfolio by including new materials and technologies that have been specifically designed for the automotive industry. With higher oil resistance and proven lower gas permeability, Loctite AA 5884 is a new polyacrylate gasketing technology that enables customers to enhance the performance and reliability of their products, all while achieving productivity goals and reducing overall costs.

The automotive industry is continually evolving, with stricter regulations and standards, emerging end-user requirements, and new product designs. The use of lightweight materials such as plastics has been a common strategy among automotive designers to help achieve their fuel efficiency and sustainability goals.

Engine covers, transmission covers and electronic components are being integrated into a growing number of plastic parts such as covers or header tanks, which need to be sealed to the core component unit. The most commonly used plastic-to-metal substrate sealing method is the press-in-place (PIP) process. This involves the solid rubber gasket or o-ring being manually applied onto the parts. This process brings with it a risk of displacement of the gasket during compression, however, which may lead to rework or leakages.

A milestone in the automotive industry

With the introduction of a new polyacrylate gasketing technology, Henkel has made the direct dispensation of a liquid gasket onto the customers' part possible. These static gasket materials are positioned between two flanges which are held together by fasteners to prevent the leakage of fluids and/or gases, by closing the gaps between these surfaces. In order to keep the sealing function and a leak-free joint for a medium being sealed. At the same time, it has to be capable of withstanding the application temperature, pressure and micro-movement of the joint. These gaskets are formed by applying a bead of liquid elastomer by using automated high-precision equipment. The liquid gasket is cured by ultra-violet light within seconds and becomes a solid compressi on gasket with no knit line. This reduces the risk of re-work and leakages, while improving the productivity. It also lowers the overall cost by automating the gasketing process and eliminates the inventory and the complexity of the PIP solid gaskets.

| E-MOBILITY |
Battery module, battery pack, inverter, DC/DC converter, housings

| ELECTRONICS |
ECU, sensor, connector, housings

| POWERTRAIN |
E-drive module, engine covers, transmission covers, oil pans, oil pump, timing belt cover, intake manifold

The new polyacrylate gasket material has an excellent resistance against oil and ATF fluids and does not promote oil foaming.

The new Loctite AA 5884 product marks a milestone in chemical and process development within the automotive industry. It delivers true benefits for the fast and efficient manufacturing of compression gaskets with a sustainability edge

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Courtesy

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SANITIZED TecCenter receives IAC certification.R&D support for textile odor-management

Burgdorf/CH, 8 July 2020: To ensure responsible use of biocides and international comparability, test methods and test results for antimicrobial treated products must be transparent, useful and comparable. This is precisely why SANITIZED AG, the specialist for antimicrobial material protection and hygiene function in textiles and polymers, had its in-house Microbiology Laboratory in the SANITIZED TecCenter certified by IAC, the International Antimicrobial Council. This non-profit, U.S.-based institute aims to increase safety for antimicrobial treated products and for consumers.

Textile and polymer product manufacturers value the assistance that the in-house SANITIZED TecCenter provides them with developing and optimizing their products. It supervises technical application aspects, and conducts microbiological tests and analytics—all from a single source. SANITIZED provides specific assistance with the textile manufacturer's R&D work, particularly for the demanding challenge of developing the best possible odor-management for textiles. Now the TecCenter has been certified by the IAC and is a designated “International Antimicrobial Council Certified Laboratory.”

Thanks to the IAC Certification, SANITIZED AG now offers innovation expertise according to international standards that are also recognized and valued in the U.S. and Asia.

“In addition to assistance with product development and product optimization from our TecCenter, SANITIZED customers receive certification of the antimicrobial treatment of their products from an independent organization, the IAC,” explains Erich Rohrbach, Head of Microbiology at SANITIZED AG. “This is an important building block for production chain transparency in the textile industry, which is demanded by a growing number of manufacturers and brands that are driven by end customer

requirements,” adds Erich Rohrbach. Many SANITIZED customers particularly value the TecCenter for their development work in odor-management for textiles. SANITIZED offers an innovative product portfolio to meet this demand also including non-biocide additives.

Courtesy

EXHIBITION DETAIL

EXHIBITION	COUNTRY	DATE
COMPLAST	LAGOS - NIGERIA	1-3 DEC 2020
PLAST SHOW	AHMEDABAD	17-20 DEC 2020
PLAST ASIA 2020	BIEC - BANGALORE	29 JAN to 1 st FEB 2021
IPAMA	GREATER NOIDA	3-8 FEB 2021
PLAST INDIA-2021	PRAGATI MAIDAN-NEW DELHI	4-9 FEB 2021
PLAST FOCUS	GREATER NOIDA	5-9 MARCH 2022

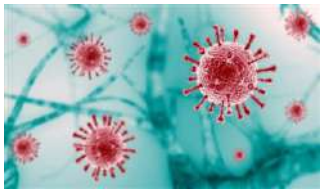
Comprehensive hygiene management is gaining in importance in the Corona crisis: Antiviral properties of selected Sanitized® products on hard, non-porous surfaces are confirmed

Swiss antimicrobial expertise since 1935

Burgdorf/CH, 01 July 2020: Tests conducted by independent laboratories have now confirmed that several Sanitized® products have an effectiveness against viruses on polymer surfaces.Swiss company SANITIZED AG is pleased to confirm validation from impartial labs that several Sanitized® products are also effective against viruses (in accordance with ISO 21702:2019). The viral efficacy was confirmed in various polymer carriers. Tests were performed using a feline coronavirus with structures and mechanisms similar to SARS-Cov2.Sanitized® additives are the perfect tool for an antiviral and antibacterial treatment of different polymer types which play a central role in healthcare applications, technical applications, mattress protectors, public transportation, food industry or everyday necessities.

Before any product's antiviral properties can be claimed, viral tests must be performed of the treated articles in specialized laboratories. Compliance with local legal regulations is essential here. SANITIZED AG explicitly points out that this is a standard procedure and has composed a preliminary SANITIZED Regulatory Guide: Placing antiviral and antimicrobial treated polymers on the market.

SANITIZED AG has been offering antimicrobial additives to enhance the functionality of polymers for plastics for over 80 years. Many of its customers from various industries value its broad product portfolio and high level of service. Especially in the hospital environment, in old people's homes, public spaces and transportation, Sanitized® material and hygiene protection becomes an important piece of equipment that contributes to comprehensive hygiene management. The SANITIZED team is available to producers to answer their specific questions.Customer Service Desk: csd@sanitized.com
www.sanitized.co



Courtesy

NEW PROJECT INJECTION MOULDING

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Plastic Project & Recycling Consultant
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INJECTION MOULDING MATERIALS

Continue From Last Edition

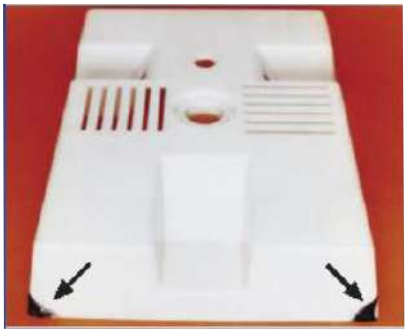
DELAMINATION

The term delamination in injection moulded plastic parts refers to the splitting open or peeling off of regions of the surface.
The cause of this inadequate bonding between the polymer layers is excessive shearing of the relatively cold melt in combination with intensive cooling of the mould (Cold mould).In the case of semicrystalline polymers this can give rise to the formation of layers having different crystal structures and in the case of amorphous thermoplastics to demixing of
the melt- additive-pigment mixture.

PROPOSALS FOR SOLUTION

- Clean the machine thoroughly when there is a change of plastic material.
- Check with reference to the data sheet from your masterbatch supplier to see whether the masterbatch is suitable for the thermoplastic being used.
- Check the setting daata against the last successful production run.
- Reduce the injection speed and increase the processing temperatures.

DIESEL EFFECT

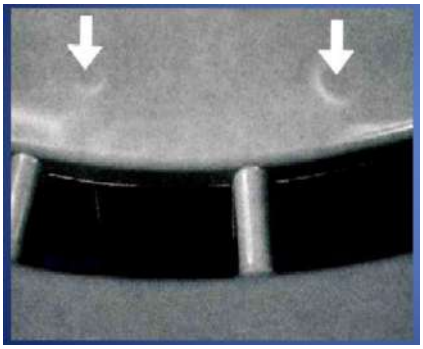


In regions of confluence (Weld lines) of the polymer melt, at the end of the flow path of the moulding or of separate regionns of the mouldong (e.g.a rib) locally bounded black discolourations appear.Occasionally the moulds is not completely filled at these points and there may even be changes on the s rface of the mould (plate-out or corrosion).The cause of this is that the injeted plastic melt pushes the air in the cavity in front of it and in doing so compresses it. If the air cannot escape via the parting lines, ejectors or special venting inserts it heats up so much that burn marks appear on the plastic.

Proposals for Solution

- Check the vents for contamination
- Reduce the clamping force on the injection moulding machine in case the charred areas occur close to the mould parting plane.
- Reduce the injection speed by decreasing the screw advance rate. it may already be enough just to pull the speed back at the end of the mould filling phasse (run a staged injection profile).
- Reduce the polymer melt temperature.
- Fit additional vents.
- Alter the filling of the mould so that the air is displaced towards existing parting lines.

EJECTOR MARKS



After demoulding of the plastic part the ejectorshave clearly left marks on the moulding in theform of depressions or eminences or differencesin gloss or whitish discolorations (stress-

whitening). Ridges and scratches in the demoulding direction may also be found. with regard to the mould, apart from mold-making reeors, such as the wrong length or excessive axial play, the cause may be design errors such as the wrong length or excessive axial play, the cause may be design errors such as inadequate rigidity, forced demoulding or the ejector surface area being too small. With regard to the moulding the draft may be too small. In addition, unsuitable processing conditions may result in the mould being overloaded resulting in jamming of the moulding.

PROPOSAL FOR SOLUTION

- Check whether the ejectors finish level with the surface of the mould and if necessary rework them.
- Optimize the point at which the changeover to hold-on pressure is made: Switch over to hold-on pressure shortly before filling is complete (about 98 % full).
- If sink marks are visible on the ejector marks increase the hold-on pressure.
- If differences in gloss are visible on the ejector marks or these project out or are set back reduce the hold-on pressure.
- Change the injection speed so that the injection pressure is as low as possible.
- Extend the cooling time and/or changeover time.
- Enlarge the area of contact between the ejectors and the mould by extending the guide length. It may also be possible to reduce the air gap required for fitting a little.
- Make the structure of the mould more rigid.
- Reduce the hold-on pressure.
- Reduce the temperature of the mould core.
- Provide the cavity with a nonstick or slip coating.
- Check the drafts and if necessary enlarge them.
- Improve the ventilation of the core by providing possibilities for air to flow through gaps, parting surfaces or special inserts into the region between the core and moulding.
- Reduce the processing temperatures of the plastic.
- Install additional ejectors and/or enlarge the existing ones

ENTRAPPED AIR


This fault can take different forms depending on the cause of the entrapped air. If the air is surrounded by the flow of polymer melt the damage pattern can extend from incomplete filling via fault marks on the surface through charring due to the Diesel effect. If the air comes into the mold cavity entrained in the plastic melt, bubbles form. The bubble structure ranges from fine to coarse and often reveals the direction of flow. In contrast with voids the bubbles can appear close to the wall.

PROPOSALS FOR SOLUTION

- Change the flow pattern by means of flow promoters and/or inhibitors.
- Move the position of the gate.
- Reduce decompression. The return stroke of the screw should be set smaller and slower.
- Improve the material feed. Observe the movement of the screw. If it moves jerkily rather than smoothly towards the rear the back pressure must be increased.
- Check that the transition of the injection nozzle to the sprue bush of the mould is leakproof.
- Reduce the metering stroke

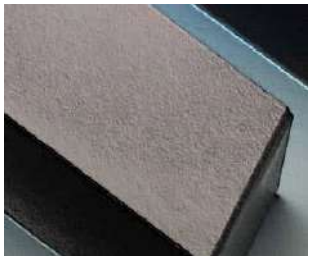
FLASH & OVERFLOW

Flash is relatively large projections on the plastic moulding and or fine projections which can be felt by a fingernail. Large projections which are reminiscent of webbed feet in birds are also called overflow. Flash and overflow occur when the polymer melt penetrates into gaps, joints and nips often formed in parting surfaces when, for example, the clamping force of the machine is inadequate.

PROPOSALS FOR SOLUTION

- Increase the clamping force.
- Reduce the injection speed.
- Reduce the maximum cavity pressure.
- Lower the temperature of the polymer melt and/or the mould.
- Increase the rigidity of the mould.
- When making the mould match the halves of the mould and individual parts better.
- Rework the mould.

GLASS FIBRE STREAKS



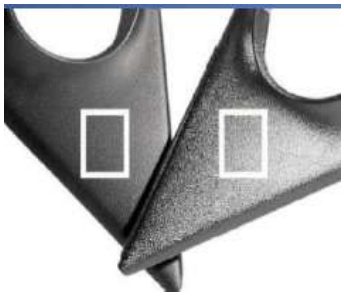
Glass fibre streaks can take the form of rough, mottled and irregular regions on the surface and also periodic disturbances of the surface whose form matches the shape of the flow front in this region of the plastic moulding. Depending on the angle of incidence of the light the

streaks have a dull matt to shiny metallic appearance. Glass fibre streaks tend to arise mainly behind openings and diversions and at flow lines. Apart from the processing parameters of injection speed, mould temperature and polymer melt temperature, three-dimensional flow processes
(thick-walled parts and ribs) have a decisive influence on their formation.

PROPOSALS FOR SOLUTION

- Increase the screw advance speed. If needed run a staged injection speed profile.
- Increase the temperature of the mould but not beyond the recommended maximum limit.
- Increase the temperature of the plastic melt and, if necessary, in the hot runner as well, but not beyond the recommended maximum.
- Improve the homogeneity of the polymer melt by increasing the back pressure and/or screw speed.
- Check whether it is possible to shift the gate

GLOSS DIFFERENCES



The surface of the plastic moulding exhibits different levels of gloss at various points although the cavity is uniformly textured, or the gloss overall is too high or not high enough. In general the depth of the gloss depends on how well the surface of the cavity is reproduced. In the case of textured mould surfaces good replication usually results in a part with lower gloss since the rays of light are reflected in diffuse manner, i.e. in all directions, by the many rough, angled planes. On the other hand, when the mould surfaces are polished a good impression usually brings about higher gloss. Key parameters are those adjusting variables which affect the formation of the solidified outer or peripheral plastic layer and its pressing against the wall of the mould (mould temperature, melt temperature, injection speed and hold-on pressure). In addition the polymer melt should be as uniform as possible.

PROPOSALS FOR SOLUTION

- Increase the temperature of the surface of the mould but not beyond the recommended maximum.
- Increase the temperature of the polymer melt but not beyond the recommended maximum.
- Increase the hold-on pressure.

example by weighing the part (stepwise increase in hold-on time until no further increase in weight occurs).

- Optimize the point at which the changeover to hold-on pressure is made: Switch over to hold-on pressure shortly before filling is complete (about 98 % full).
- Optimize the injection rate.
- Improve the homogeneity of the plastic melt by increasing the back pressure and/or screw speed.

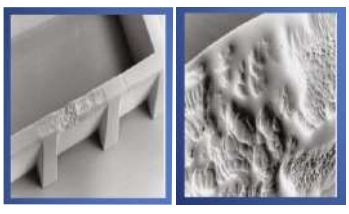
GRAMOPHONE RECORD EFFECT

The gramophone record effect refers to marks transverse to the direction of the polymer flow which take the form of concentric or parallel furrowed structures on the surface of the plastic moulding. The cause of this may be that the convex melt front cools too much due to a (possibly temporarily) reduced flow rate. When this happens the solidified peripheral layer can become so thick that it extends into regions of the melt front which are not yet in contact with the wall of the mould. As filling continues and hence as pressure rises, these regions no longer have their full surface area pressed against the wall of the mould. Instead, grooves and ridges remain which follow the course of the melt front. Apart from a too low filling rate, this effect can also be brought about by the plastic melt temporarily coming to a halt ahead of a bottleneck (e.g. a thin rib) or by the premature changeover to hold-on pressure.

PROPOSALS FOR SOLUTION

- Optimize the point at which the changeover to hold-on pressure is made: Switch over to hold-on pressure shortly before filling is complete (about 98 % full).
- Increase the injection speed.
- Increase the temperature of the mould, but not beyond the recommended maximum limit.
- Increase the temperature of the plastic melt and if need be in the hot runner as well, but not beyond the recommended maximum limit.
- Check whether it is possible to shift the gate or alter the wall thicknesses.

INCOMPLETE FILLING



The plastic moulding

regions, because the mould was not completely filled. Possible causes are that too little polymer was metered in, the nonreturn valve is leaky, the pressure was too low or the filling resistance was too great. Filling resistance is made up of contributions from viscosity, runner length and wall thickness.

PROPOSALS FOR SOLUTION

- Enlarge the metering stroke.
- Switch over later from injection pressure to hold-on pressure.
- Increase the injection speed.
- Increase the temperature of the plastic melt and/or mould. The polymer melt temperature should be raised first of all since it lowers the filling pressure more than does a comparable increase in the temperature of the mould and lengthens the cooling time less.
- Improve venting at the end of the flow path.
- Reduce the pressure loss in the gate.
- Reduce pressure losses in the cavity.
- Choose a more free-flowing thermoplastic material.
- Ensure venting in regions of air entrapment.
- Move the position of the gate.
- Change the flow pattern by means of flow promoters and/or inhibitors.
- Balance the filling process.

JETTING

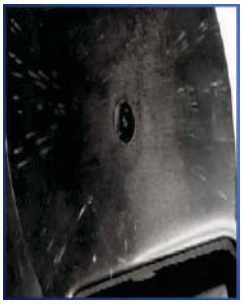
Starting at the sprue, the surface of the plastic moulding exhibits a snaking, often rough or matt strand of polymer melt. This occurs when due to a very high flow rate on passing into a region of large cross section there is not enough contact with the wall, as would be required for laminar flow. Instead the melt enters the cavity in the form of a jet with little chance to contact the mould wall (brief adhesion) resulting in a folded strand. Due to the cooling of the surface of the strand it no longer binds properly with the following melt. Quite apart from the adverse effect on appearance, this may also result in reduced strength.

PROPOSALS FOR SOLUTION

- Reduce the speed of injection.
- Ensure that the emerging polymer melt encounters an obstacle immediately after the gate.
- Enlarge the gate.
- Round out the passage between the gate and the moulding.
- Shift the gate to a region of the moulding having a behind changes in cross section. The causes are the high high shear stresses at these points and the limited adhesion of the plastic to the wall due to the changes in cross section.

PROPOSALS FOR SOLUTION

- Use a stepped injection profile. For the gate region a low screw advance speed should be selected.
- Increase the temperature of the polymer melt and/or mould. First of all choose the melt temperature as it is more effective for solving the problem and extends the cycle time less.
- Optimize the gate. The gate must be designed as far as possible to expand towards the cavity in well rounded manner and with an adequate cross section.
- Choose a more free-flowing thermoplastic material.
- Ensure smooth transitions between cross sections



MOISTURE STREAKS

Moisture streaks are distinct, usually elongated, parabolic streaks appearing on the surfaces of plastic mouldings. Their tips always point in the direction of flow. The cause is too much residual moisture in the granules or moisture liberated in or on the injection mould through leaks in the temperature control system. The reason for the surface fault is the occurrence of small bubbles of water vapour during the melting or injection phase. The bubbles burst on the surface of the mould and due to the flow rate profile of the polymer melt front give rise to the aforesaid elongated, parabolic appearance.

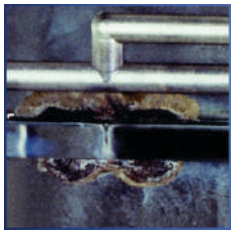
PROPOSALS FOR SOLUTION

- Check the temperature control system for leaks.
- Check the packaging of the plastic granules for external damage.
- Check the moisture content of the granules by analysis.
- Check the parameters set for predrying against the recommended predrying conditions.
- Reduce the quantity of granules held in readiness in the feed hopper.
- Check the storage conditions for raw materials.

MOULD DEPOSIT (PLATE-OUT)

Mould deposit (plate-out) in injection moulds

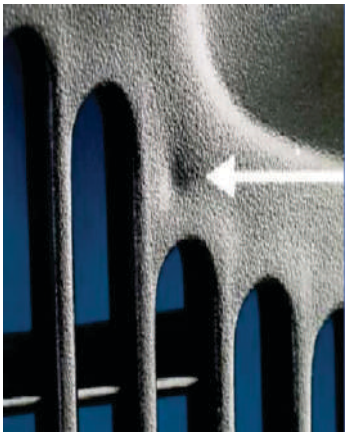
or decomposition products from flameproofing agents, for example. The cause is often to be found in poor venting or excessively high processingtemperatures.



PROPOSALS FOR SOLUTION

- Check, using a needle thermometer, whether the temperature of the polymer melt at the outlet from the injection nozzle and, if appropriate, at the exit from the hot runner is within the recommended processing range and if necessary reduce it.
- Vary the shearing and the residence time of the melt in the plasticating unit by varying the screw speed. Evaluate the effects on plate-out.
- Reduce the injection speed by decreasing the screw advance rate. It may already be enough just to pull the speed back at the end of the mould filling phase (run a staged injection profile).
- On the basis of the design guidelines for the size of the sprue and gate check whether the gating system for the mould has been correctly implemented. If necessary, make corrections to it.
- Check the gate geometry and, if necessary, correct it. Have your hot runner supplier carry out optimization and/or change the injection nozzle.
- Check the position and effectiveness of the venting channels. If necessary, fit additional venting channels or change the filling of the mould so that the air is displaced towards existing parting surfaces.

SINK MARKS



Sink marks are depressions on the surface of the plastic moulding which sometimes are identifiable only as a difference in gloss with respect to the surrounding area. They occur mostly in the region of accumulations of polymer melt, typically in the root region of opposing ribs. The accumulation of melt causes increased local volume shrinkage. This pulls the surface layer inwards. If the surface does not yield voids are formed instead of sink marks. Sometimes sink marks form only after demoulding when the hot interior reheats the already cooled outer layers and causes them to soften. The remedy is generally to increase the packing of the problem zone.

PROPOSALS FOR SOLUTION

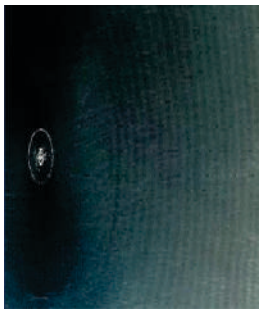
- Check whether the residual melt cushion is less than 5 mm. Neither during injection nor during the hold-on pressure phase may the screw stroke fall to zero. After switching over to hold-on pressure the screw springs back a little. After that only a barely perceptible forward movement may be found.
- Put the nonreturn valve back in order.
- Determine the gate open time by weight or pressure measurements and make the hold-on pressure time 1 - 2 s longer. Starting from a short hold-on pressure time this is gradually increased until no further change in weight or cavity internal pressure is discernible.
- Increase the hold-on pressure.
- Reduce the temperature of the mould.
- Reduce the temperature of the polymer melt.
- Reduce the injection speed.
- Extend the postcooling time.
- Enlarge the gate.
- Establish whether the moulding is gated in a thin-walled region. If yes, the gate should be repositioned.
- Make the ribs thinner.
- Increase the early hold-on pressure immediately after volumetric filling.
- After demoulding allow further cooling of the plastic parts.

STRESS CRACKING, MICROCRACKS

External or internal cracks in a plastic part caused by stresses which are smaller than the fracture stress are called stress cracks. In plastics the actual occurrence of cracking is preceded by craze formation (regions opening out like a crack which are held together by highly stretched molecular strands, the fibrils). Local internal stresses, among others, are responsible for crazing. The splitting open of crazes or cracking is initiated by external tensile stresses often accompanied by the action of corrosive media or media which cause cracking (spreading or swelling forces, increased notch effect). The level of the internal stresses introduced into the injection-moulded part is affected by processing. Production-induced internal stresses can often be demonstrated with the aid of media which initiate cracking.

• Increase the temperature of the mould, but not beyond the recommended maximum limit. Match the temperatures of the cooling circuits as closely as possible so that there is uniform cooling on both sides of the walls of the moulding.
• Reduce accumulations of polymer melt. In the case of ribs this can be done by reducing the thickness of the ribs and/or making the radius of the ribs smaller, for instance.
• Reduce the hold-on pressure.
• Make the structure of the mould more rigid.

TIGER LINES



Tiger lines are periodic shadows on the surface of the plastic moulding transverse to the direction of flow which are reminiscent of the pattern on a tiger's fur. They are caused by pulsating polymer melt flow which occurs in particular in multiphase thermoplastic systems (blends).

PROPOSALS FOR SOLUTION

• Increase the temperature of the polymer melt and/or mould. First of all choose the melt temperature as it is more effective for solving the problem and extends the cycle time less.
• Enlarge the gate cross section and the wall thickness of the moulding.
• Choose a more free-flowing thermoplastic material

UNUSUAL ODOUR PROPOSALS FOR SOLUTION

• Before any prolonged pause reduce the temperature of the cylinder heater and if necessary that of the hot runner. If necessary the material in the cylinder should be purged out into the open before shutting the machine down.
• Reduce the polymer melt temperature.

• Check the shot weight. The full shot weight (moulding + gating system) should not be less than 10-20 % of the maximum shot weight of the machine.

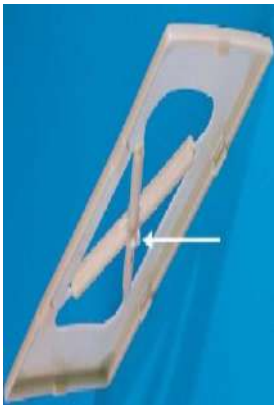
VOIDS

During cooling, microcellular to vesicular voids (vacuoles) form in the interior of the plastic moulding. In contrast the part immersed in coloured water it can be established whether water goes in (void) or not (gas bubbles). Just as in the case of sink marks, voids also form in regions of high volume shrinkage due to insufficient packing of the melt. Voids form instead of sink marks when the outer layers have solidified so much that they no longer yield to the forces of contraction when the melt cools. The melt splits open in the interior and contracts in the direction of the outer layers.

PROPOSALS FOR SOLUTION

• Enlarge the metering stroke.
• Put the nonreturn valve back in order.
• Determine the gate open time by weight or pressure measurements and make the hold-on pressure time 1 - 2 s longer. Starting from a short hold-on pressure time this is gradually increased until no further change in weight or cavity internal pressure is discernible.
• Increase the hold-on pressure.
• Reduce the temperature of the plastic melt.
• Reduce the injection speed.
• Enlarge the gate.
• Establish whether the moulding is gated in a thin-walled region. If yes, the gate should be repositioned.
• Make the ribs thinner.
• Increase the early hold-on pressure immediately after volumetric filling.

WARPAGE



The plastic moulding departs from the desired shape and exhibits twists and turns, corrugated surfaces and deviations in the angles. The cause is differences in the tendency to shrink (shrinkage potential) in different parts of the moulding. The differences in shrinkage arise from differences in the packing in these parts of the moulding and from differences in polymer orientation.

PROPOSALS FOR SOLUTION

• Ensure balanced filling of the mould.
• Pack the polymer melt in the mould as densely as possible. Use high injection and hold-on pressures.
• Pack the melt uniformly along the flow path.

• Increase the injection speed.
• Ensure uniform and symmetrical cooling of the moulding.
• Choose a more free-flowing plastic material.
• Choose a thermoplastic having a lower degree of shrinkage. Amorphous polymers and filled plastics shrink less than semicrystalline and unfilled plastics.
• Make use of the warpage in the mould. The mould is made in such a way that the moulding in the warped form achieves the desired shape.
• Reduce differences in wall thickness and accumulations of melt.
• Provide zones in the moulding, such as peripheral beading or cambered areas, where deformation does not disturb.
• Stiffen up zones which tend to warp. For example, introduce ribs or thicken edges.
• Avoid sharp corners.
• Change the direction of orientation of the reinforcing fibres.

WELD LINES

At points at which two polymer melt streams meet during filling of the mould a scratch-like or notched line and/or a local difference in colour or gloss is visible. This effect is particularly marked in dark or transparent plastic parts possessing a glossy surface or parts containing glass fibres or special-effect pigments. The weld line is formed by the convex flow fronts of two melt streams meeting head-on. If the temperatures and pressures in this region are too low the slightly colder and stiffer melt skin in the peripheral layers no longer fits cleanly against the mould wall and a visible notch is left in the surface. Together with poor fusion when the melt fronts are too cold this can result in a reduction of mechanical strength. Furthermore, the flow processes at the point of confluence can give rise to nonuniform orientation of the colorants or reinforcing materials. The weld line is usually all the more distinct the smaller the angle between the flow fronts is.

PROPOSALS FOR SOLUTION

• Optimize the point at which the changeover to hold-on pressure is made: Switch over to hold-on pressure shortly before filling is complete (about 98 % full).
• Increase the injection speed.
• Increase the hold-on pressure.
• Check the venting. Carry out a filling study with the part in order to see when and how the individual regions of the moulding are filled. In all dead ends in which air may be trapped vents must be provided. This can be done, for example, by means of additional ejectors, by separating the mould insert into several parts or by fitting special inserts (porous steel, lamellar packs, etc.).
• Increase the temperature of the mould but not beyond the recommended maximum limit.
• By repositioning the gate and possibly changing the wall thickness ratios the route of the melt in the cavity and hence the position of the weld lines can be altered. Since this is associated with changes in the mould the effectiveness of this measure should be confirmed by a preceding filling simulation.
• Use smaller or more spherical pigments or fillers/reinforcing agents.

OVERVIEW OF THE AVOIDANCE OF INJECTION MOLDING FAULTS BY CHANGING THE PROCESSING PARAMETERS

Increasing the processing parameter yields a reduction in the injection molding faults

Reducing the processing parameter yields a Reduction in the injection molding faults

In order to reduce the injection molding fault the processing parameter must be increased or reduced from case to case.

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TIME TO REDESIGN AND RETHINK THE RECYCLING IN THE NEW NORMAL.....

EARTH 2020

Recycling plays a crucial role in the quest to end plastics waste and move to a circular economy. Industry leaders say that traditional, mechanical, and chemical recycling methods are needed.

While chemical recycling shows promise experts also seek to improve the ability of thermoplastics to be recycled via the traditional processes of sorting collected material, reducing it to flakes, and compounding it for reuse ie mechanical process.

Although there are technical and economic hurdles to overcome in improving the mechanical recycling of post-consumer plastics, there is a need for post-consumer recyclate (PCR) to meet the ambitious goals set by brand owners for PCR content in their packaging and products. Improving the system will require a multifaceted approach, including designing single-use consumer products for recycling, getting consumers to put plastics in recycling bins, having adequate recycling facilities, and creating markets for recycled material so it is economically feasible to collect and reuse.

End-users of plastics goods and packaging want information about recycling and designing for sustainability. “They want to make the right decisions. We in the plastics industry need to educate end-users so they can specify the right material in the right design for the benefits that they're looking for,” said Tom Salmon, chief executive officer and board chairman of packaging giant Berry Global Group, in March 2020. End-users need information about how recyclate will affect the price and properties of their products, and the industry needs solutions that are acceptable to end-users and that the market will pay for, he explained.

“We need solutions for brand owners that everyone in the value chain can benefit from,” spoke JimFitterling, CEO of Dow

Design for Recyclability

One of the keys is designing products to be recyclable. “True systems thinking is required at the outset to ensure that marketers and product designers are using Design for Environment principles. Incorporating end-of-life concerns at the design phase is critical to recyclability,”

The Association of Plastic Recyclers’ APR Design Guide for Plastics Recyclability aims to help the industry and packaging designers create products that are easier to recycle. The online guide was originally published in 1995 but is continually updated and available on APR's website. In March 2020, APR and the Foodservice Packaging Institute (FPI) released a segment-specific guide for foodservice plastics.

APR's Design Guide for Plastics Recyclability advises on creating packaging products like these HDPE containers that are easy to recycle in existing recycling and sorting systems.

Progress is being made in labeling too. ,While shrink-sleeve labels were once a problem, many labels are available that are designed properly so they don't cause problems in recycling systems.

Plastics Recyclers Europe's RecyClass online tool analyzes design for recyclability in Europe and offers certification. PRE continues to update the tool with new data. Results released in March, for example, found that an ethylene-vinyl alcohol barrier layer with a polyethylene-grafted maleic anhydride tie layer was compatible in high-density PET recycling streams.

Design engineers at Colgate-Palmolive Co. understand the process of designing for recyclability. They spent five years developing a recyclable toothpaste tube, and Colgate is making the switch, beginning with the company's Tom's of Maine brand this year in Europe and North America. The company plans to modify its tube-making equipment around the world to move completely to the new tube construction by 2025. Colgate worked closely with APR to ensure that the flexible tube design would be compatible with the systems in use at MRFs so that the tubes can be recycled along with the HDPE stream. The tube now also has RecyClass certification as recyclable in Europe.

Colgate-Palmolive is sharing the design with other companies. “If we can standardize recyclable tubes among all companies, we all win. “ the company said

Toothpaste tubes are typically made from a combination of different plastics and a layer of aluminum. Colgate engineers went through an iterative design process to replace the different materials primarily with multiple layers of HDPE that would meet the requirements of protecting the product, performance in high-speed production equipment and being squeezable. An ethylene-vinyl acetate barrier layer prevents flavor changes but does not negatively affect recycling. When the design was perfected, Colgate conducted tests using APR methods to demonstrate that the tubes would be correctly sorted in recycling equipment. The company was rewarded with official APR recognition.

EsselPropack, in India, received APR recognition for the recyclability. Dow has been working on material development to optimize PE for this use. At K2019, Dow displayed prototypes of Pe-based, medium-to-high-barrier pouches made with machine-direction oriented (MDO) films that are designed for recyclability.

The supply and demand must also grow for the recycling industry to be healthy. As more material gets collected, one needs to be sure there are diverse and robust markets for recycled plastic.

Recent commitments from brand owners to use PCR indicate that demand will be high. But APR is also helping with a broad effort that aims to raise recycling rates by creating demand. The APR Recycling Demand Champion Campaign publicizes companies that use or make products containing PCR. The group reports that in 2019, Recycling Demand Champions increased their use of PCR by 1,17,48,043 kg

APR and the Northeast Recycling Council (NERC) recently partnered to launch the Government Recycling Demand Champions program that is tailored to state, regional, and local governments around the United States. “

Other recent efforts have looked at certification and standards to assure buyers and give credence to claims about PCR. APR's PCR Certification Program, launched in March 2020, endorses companies that provide third-party certification of PCR and promotes APR members that receive certification. APR defines PCR in line with the ISO 14201:2016 standard, which defines PCR as material generated by end-users that has been or can no longer be used for its intended

purpose. In APR's definition, material from a manufacturing process is considered post-industrial recycle. APR will also accept PCR as certified if it has been certified under the requirements of USA State California's Senate Bill .

Colgate-Palmolive's new toothpaste tube for Colgate and Tom's of Maine toothpaste is certified recyclable in HDPE recycling streams in North America and Europe.

NSF International is working on a recycled material standard (RMS) that it is developing with the non-profit GreenBlue (the parent program of The Sustainable Packaging Coalition, How2Recycle, and other initiatives) to help advance the use of recyclate in packaging materials. The group will first address plastic packaging in North America and then plans to expand to other materials, such as paper and glass. RMS committee members include representatives from Eastman Chemical, Printpack, Sealed Air, and others. The project was launched in October 2019, and NSF is planning field tests before a public comment period in the year 2020, with the publication of the standard planned for 2021.

"The RMS will provide verification and traceability for both post-consumer and post-industrial materials. It relies on definitions for recycled materials that are consistent with ISO definitions, and we hope to harmonize with other recycled material standards that meet similar criteria," says, a consultant at GreenBlue.

This is an important point in time to change our current make-to-waste approach to amore circular economy—one that focuses on everything from smart rethink, design, chemistry production, all the way to reuse and recycling in the era of the new normal!

SAMEERJOSHI

ગામદોડ, ત્યાંનાદોડો. જુદીદિશાપકડો.

આખું ગામ અત્યારેફક્તપીવીસીફ્રોમ્ડબોર્ડબનાવવા માટે,છાશવારે ચાઇનાદોડી જાય છે.પ્લાયવૂડની કેટલી માંગ છે એ કોઇને ખબર છે? એની સામે આપીવીસીબોર્ડવેચવાના છે.

નોન-વોવનબનાવવા માટે મશીનલઇઆવનારાનીશીદશા થઇ એ ગામ આખુંભૂલીગયું છે.

મોટાંકીભાંડો લોકોભૂલી જાય છે,એટલે આ વાત બહુસામાન્ય છે.

પણ હરેકયુગમાંદરેકવાતનુંપુનરાવર્તન થયાંકરે છે.એટલે હવે, નોન-વોવન પછી પીવીસીફ્રોમ્ડબોર્ડ નો વારો છે.

લોભીયા હોય ત્યાં ધૂતારા ભૂખેનામરે. એટલે છાશવારે, બેગ ભરીનેચાઇના ઉપડીજતી પ્રજાને લાલબત્તીબતાવવાનો આ પ્રયત્નસમજવો.ચાઇના, આપણાજેવાસસ્તંખરીદનારાલોભીયાંની રાહ જોઇને, જાળ પાથરીને રાહ જુએ છે. આપણીલગભગ અભણ અનેકહેવાતી ભોળી પ્રજા ને એરપોર્ટથી લાવે, લઇ જાય, મસાજકરાવી દે, હોટલેથી લાવવા-લઇ જવાનીસગવડઆપે એટલે આપણી પ્રજા ભરાય.

ત્યાં જઇને, આપણને, પરોપજીવીવેલોનીજેમ,મફતમાં ખાવા-પીવાથી લઇને, ફરવા-ફરવાં સુધીનું મળી જાય એટલે આપણા બાપ જન્મારેયકોઇ જાણકારીનહિહોવાં છતાંયે, જે મળે એ ઉચકીલાવવુંએવીઆપણીબાલીશહરકતોનો, ચીનાઓ લાભ ઉઠાવે છે, અને એ આપણને ભાન પડેત્યાં સુધી ઘણું મોડું થઇ ચૂક્યું હોય છે.

સુધરી જાવ, આપનાપિતાજી એ બહુમેહનતકરીનેરુપિયાભેગાંકર્યાંહશે. આલેખ, ગુજરાતીમાંહોવાનુંકારણ ચોક્કસ છે.

જયહિંદ.

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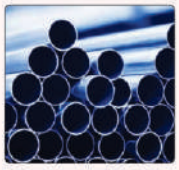
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