

TROUBLESHOOTING GUIDE FOR BLOWN EXTRUSION



Bad casting quality:

- Verify the proper operation of the heating resistors.
- Increase the temperature profiles, especially in the last areas.
- Verify the material, search for foreign particles, grains with different shapes or tonality (contamination by another resin).
- Increase the reverse pressure by throttling the polymer flow towards the head, if your equipment has such option.
- Verify the wear of the screw or is it is not appropriate for the applied resin.

Pores or bubbles in the parison and/or the article:

- Bad casting quality (see this problem).
- Verify the presence of humidity in the resin and dry, should there be any.
- Verify that no condensation is produced in the mold walls, increase the water cooling temperature or decrease the flow of said water.
- Verify that no condensation is produced in the extruder duct, increase the cooling water temperature or decrease the flow of said water.

Parison waves or pumping, low productivity:

- Verify the suitable water flow and temperature of the extruder duct.
- Decrease the temperature of the feeding area of the extruder.
- Verify the correct movement transmission from the motor to the geared motor.
- Increase the counter-pressure of the head.
- Verify the quality and granulometry of the reground particles, decrease the proportion.
- Verify the wear of the mold. Repair it if it is excessive.

Scaly segments or fractures on the parison surface.

- Increase the nozzle temperature or on the complete head.
- Verify the centering of the nozzle – chuck set.
- Use a nozzle – chuck set with a greater opening.

Bent parison:

- Verify the centering of the chuck with respect to the nozzle.

- Verify the cleanliness of the chuck and nozzle; remove any remains of the adhered material.
- Verify the proper operation of all the heating areas on the head.
- Increase the nozzle temperature.

Excessively long parison:

- Decrease the casting temperature.
- Decrease the speed of the screw.
- Use a material with lesser flow.

Bad vertical distribution of thickness in the article:

- Adjust the parison controller according to the geometry of the article.
- Increase the output speed of the parison.
- Reduce the material temperature.
- Use a material with a lower index flow.

Bad radial distribution of thickness in the article:

- Bent parison (see this section).
- Verify the parison centering when trapped in the mold.
- Verify the proper centering of the blow pin with the mold.
- Verify the proper alignment of the mold.
- Verify that the nozzle and chuck set correspond to the mold.

The partition line is excessively marked in the article:

- Verify that the blow does not start until the mold is completely closed, adjust if necessary.
- Make sure that the mold is properly closed.
- Reduce the blow pressure.

Weak partition line in the article:

- Make sure that the mold is properly closing.
- Verify the alignment of the mold sides.
- Check the hubs looking for wear symptoms.
- Increase blow pressure.
- Increase the wall thickness of the article.
- Adjust the closing speed of the mold (it may require an increase or decrease).

Black spots in the article:

- Verify the materials (resin and colored concentrates); look for foreign particles/contamination.

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- Decrease the temperature speed.
- Cleanse the head thoroughly, make sure there are no dead flow centers within it; such as unsuitable part couplings.
- Change the concentrate or resin lot.
- Contact the concentrate and/or resin supplier.

Article with insufficient brightness:

- Increase resin temperature. Start with the nozzle area.
- Clean the nozzle.
- Increase the blow pressure.
- Verify obstructions in the ventilation ducts of the mold.
- The mold has lost its finish quality, re-polish.

Scratches on the article:

- Verify that the heating bands are operational.
- Increase the nozzle and head temperature.
- Verify that the head is not beat-up and marked. Repair same if this is the case.
- Clean the nozzle and chuck. If the problem persists, clean the complete head.

Weak shoulders in the article:

- Decrease casting temperature.
- Adjust the nozzle geometry together with the article, in the event of articles of complicated geometry
- Use a lower flow resin.

Excessive contraction of the part (lower dimension than expected):

- Decrease the water cooling temperature of the mold, increase the cooling liquid flow.
- Perform necessary maintenance of the cooling ducts of the mold.
- Reduce the casting temperature.
- Increase the blow time and pressure.

Excessively heavy parts:

- Decrease the nozzle opening.
- Adjust the Parison controller profile.
- Increase the casting temperature.
- Use a nozzle with a smaller opening.
- Use a greater flow resin.
- Decrease the extrusion speed.

Malformation of the article neck (inner material dragging):

- Verify the proper centering of the blow pin.
- Decrease the pre-blow pressure.
- Decrease the nozzle temperature.

Difficulty in separating the irregularities or rough edges of the neck and base:

- Verify the buffing edge.
- Increase the cooling of the piece.
- Increase the mold closing pressure.
- Verify the parallelism of the sides of the mold.

The article tends to stay in the mold (improper unmolding):

- Verify that the parts of the mold are not marked or beat-up.
- Increase the cooling of the part.
- Decrease the blow pressure.

Bad definition of detail in the article:

- Increase the blow pressure.
- Increase the blow time.
- Verify the ventilation ducts of the mold.
- Increase the nozzle temperature

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References:

- "Blow molding" Course – Coramer – Indesca.
- Nova Chemicals Blow Molding Troubleshooting Guide.
- Dow - Blow Troubleshooting Guide.
- Blow Molding Troubleshooting.
- <http://www.plymerupdate.com/techassist/blowtroubleshooting.htm>
- http://www.ril.com/eportal/VirtualPageView.jsp?page_id=650

This bulletin has been made by the Marketing Department of Polinter with the support of the specialists of Investigación y Desarrollo, C.A. (INDESCA) and by the Technical Services Department of CORAMER. This is intended for all clients and users of the Venelene® resins and we trust that the information contained herein is helpful and useful.

Please contact us at the following email address, info@polinter.com.ve or through our agent: Corporacion Americana de Resinas (CORAMER), with branch offices in Venezuela, Colombia, Peru, Ecuador and Chile (<http://www.coramer.com>), should you have any suggestions or comments regarding this issue.

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In order to obtain more detailed information of the security aspects regarding the use and disposal of our products we invite you to consult the security pages (MSDS) of the Venelene® polyethylene.