DIAMOND POLYMERS, INC.

ASA

S-150, S-170, S310, S319, S510, S519, S610, S710, S910, S950

PROCESSING GUIDELINES CONTINUED

Injection Rate: A comparative high fill rate is advantageous, because it entails that the temperature does not drop much during the mold fill. Faster fill rates aid in surface finish, and weld line seams of good strength. Slow fill rates can cause moldings with flaws, poor surface appearance and poor weld line strength.

Back Pressure: Minimum pressure to keep a consistence shot, yet not create excessive shear heat. Recommended using 75 - 150 psi.

Mold Temperature: 40° - 80°C (100° - 180°F) Higher mold temperature can aid flow in processing, provides a better surface finish, and create less residual stress in the finished products.

Screw Decompression: Minimum amount -- or splay can be induced.

Regrind: Providing material degradation has not occurred, regrind can generally be used for up to 3 generations with minimal mechanical and physical property loss. It is recommended that regrind levels do not exceed 30%, and that the regrind be mixed thoroughly with the virgin material.

Purging: ASA Alloy's should not be left in the barrel for extended periods of time. Short down time, 30 minutes, the screw should be purged forward and left in the forward position and the barrel heats should be banked at 300°F. Extended down time, longer than 30 minutes, the hopper should be shut off and the machine should be purged dry with styrene.

*Optimum shot size is determined by screw design, melt temp. and residence time.
**Cylinder temp is determined by screw design, back pressure, residence time and part design.

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PROCESSING GUIDELINES

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Diamond Polymers' ASA materials are engineering materials that offer a wide range of properties suitable for finished parts for outdoor applications.

- Excellent weatherability - resistance to outdoor exposure, aging, and yellowing
- Excellent toughness and rigidity
- Superior resistance to chemicals
- High Gloss
- Good heat stability
- Excellent processibility

Process Recommendations:

Drying: Drying of the material is necessary to retain the mechanical properties, and eliminate splay. The material is hygroscopic and must be dried to a level of 0.1% or less moisture prior to processing. Drying can be accomplished in a vented barrel (26:1 L/D) or by using a desiccant dryer. Drying can generally be performed in 2 - 4 hours at 80° - 85°C (176° - 185°F).

Screw Design: ASA Alloy's will process well in GP screw designs with medium to low compression ratios. We recommend not using a screw designed with a mixing apparatus as excessive shear heat can be generated and can cause material degradation.

Non Return Valve: It is recommended that a free flow sliding check ring screw tip, or a free flow style self closing poppet / spool valve screw tip be used. Do not use a ball valve screw tip as excessive shear heat can be generated.

Barrel Capacity: *Optimum shot size to barrel capacity is 40 - 70% of rated barrel capacity. It is not recommended to use more than 85%, or less than 25% of the rated barrel capacity.

Melt Temperature: 220° - 272°C (430° - 520°F). Melt temperatures in excess of 272°C (530°F) are not recommended, and may result in color shifts and / or thermal instability.

Nozzle Temperature:	**220° - 272° C (430° - 520°F)
Front Cylinder Temperature:	**235° - 272° C (455° - 520°F)
Center Cylinder Temperature:	**232° - 265° C (450° - 510°F)
Rear Cylinder Temperature:	**230° - 260° C (445° - 500°F)

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