Processing Guide UMG ALLOY® TC-6F for injection molding

Many important factors must be dealt with for proper processing of UMG ALLOY® TC-6F. Temperature control is the key in both drying and molding.

1. Drying

1) Drying Temperature and Time

Proper drying of UMG ALLOY® TC-6F ABS/PC resins should be done before molding. ABS/PC resin absorbs moisture in direct proportion to the surrounding relative humidity and can result in splay, splash marks or silver streaking on molded parts. In particular PC resin can cause hydrolysis by the improper drying. Proper drying conditions are shown in the below table.

Drying temperature(deg.C)	Drying time(hours)
110	3 - 5

2) Caution

Proper temperature control and air flow shall be adopted. Higher drying temperatures may cause caking. Lower drying temperatures will slow down drying efficiency.
Over drying time may cause color change of molded parts. Under drying time may cause silver streaking and the like in appearance.

3) Drying Equipment :

Tray drying is not recommended because pellet heat-up is slow and non-uniform. Also, the dew point in a hot air tray dryer might not be low enough for the moisture removal required for critical applications. If tray dryers must be used, the pellet depth in the tray should not exceed 6 cm to avoid under dehumidifying.
Desiccant-type dehumidifying hopper dryers are recommended. Pay much attention the shortage of airflow mass and plugging trouble of air filter.

2. Molding Conditions

Recommended molding conditions are shown below.

Cylinder Temperature	:	
Nozzle	:	220 - 250 deg. C
Front	:	230 - 270
Middle	:	230 - 250
Back	:	210 - 230
Resin Stock Temperature	:	230 - 280 deg.C
Injection Pressure	:	70 - 140 MPa
Fill Speed	:	Moderate
Screw rpm	:	50 - 100 rpm
Back Pressure	:	5 -15 MPa
Mold Temperature	:	60 - 80 deg.C

3. Other Cautions

1) Inadequate venting design of the mold may cause nonadjustable gas burning or short shots. Adequate venting is important to insure complete evacuation of melt gases and entrapped cavity air. Venting should be open to atmosphere.
2) Remaining in the molding machine for long time may cause accidental thermal degradation. If prolonged shut-down is required, remove the material from the machine, purge with natural ABS or SAN and reduce barrel temperature below 100 deg. C. Before re-starting molding, make sure of no burning resin deposit pulled-out through complete purging after confirming the appropriate temperature rise.
3) Remove the materials in the molding machine and purge with natural ABS or SAN at the end of molding, and then shut-down the machine. Used mold should be cleaned up with a

neutralizer and dehydrator, and conducted anti-corrosion processing and stored under the low-humidity conditions.

4) When handling and molding pellets, wear such protective tools as gloves, safety glasses and so on.

Be sure to read in advance Material Safety Data Sheet (MSDS) to safely handle our products.
You can obtain and use the MSDS from our SALES DEPARTMENT.

Information described on these sheets was obtained based on specific conditions and thus UMG ABS, Ltd. will not guarantee that you can always obtain the same results as described here from the use of our product.
Also, UMG ABS,Ltd. is unable to guarantee the quality and safety of your products manufactured by using our products or any information proposed by our company.
Your company by itself has to judge the suitability of the materials to your products.
Also pay full attention to legal restrictions and industrial properties.