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Technical Literature G-05

Predrying of AURUM®

AURUM® needs predrying before molding. If predrying is insufficient, troubles of unsatisfactory appearance such as silver streaks and flashes on the surface of the molded article. Inadequate predrying will also cause operating troubles such as the run-off and stringing of the resin from the nozzle.

1. Drying Temperature

It is preferable that drying temperature be 180ºC, preferably 200ºC. Actual results suggest that at a temperature lower than 180ºC, many troubles are caused by insufficient drying even if longer drying time is taken. Furthermore, in a high-humidity season, it is necessary to set the temperature at a high level (180ºC or higher).

2. Drying Time

Fig. 1 shows changes in drying conditions of AURUM® pellets. Since required drying time varies essentially with the layer thickness of the resin, it is not necessarily appropriate to make a general statement. As a rule of thumb, however, it is appropriate that the resin should be dried for 10 hours or longer at 180ºC and 5 hours or longer at 200ºC. It should be noted that this time is a time counted from the time at which the resin has reached the set temperature.

3. Dryer

3-1 Tray Dryer

An internal air circulation type having a temperature control range of 200ºC is recommendable. In charging the resin, it is necessary to keep the air circulation conditions and temperature distribution in the dryer in mind. Moreover, after charging the resin into the hopper of the molding machine after drying, it is necessary to seal the hopper with the lid to prevent the entry of humidity as well as any foreign material.

(to be continued)

3-2 Hopper Dryer

Generally, a type in which air is blown in the hopper of the molding machine from the bottom of the hopper and the temperature of the air is controlled in the vicinity of the air blowing inlet is used in many cases. With this type, a difference between the set temperature and the temperature of the resin in the molding machine hopper poses a problem. For example, in some cases, the temperature of the resin becomes below 100ºC due to heat release from each part, whereas the set temperature is 180ºC. Under such conditions, it will turn out in some cases that the resin is being humidified

despite the intention of preventing the resin from being humidified, not to mention the failure for an adequate drying effect to be achieved.

For this reason, in the case of using the hopper dryer, it is important to confirm that the temperature of the resin or the temperature at the exhaust vent is at the specified level.

For the model of the hopper dryer, an internal air circulation type is recommendable in view of the drying effect and running cost.