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● Molding Guide

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Please refer to Material Safety Data Sheets (MSDS) for any instruction to KOCETAL products.

▶ Thermal decomposition caused by high temperature

Do not heat Kocetal resin over 250 °C or put it in a cylinder of over 230 °C for a long time (more than 30 minutes). It may cause formaldehyde gas or discolor the resin due to the thermal decomposition.

▶ How to prevent the thermal decomposition

- ▶ Maintain the temperature of melt resin below 230 °C.
- ▶ If not used for a long period of time, purge the melt resin in cylinder and stop the operation.
- ▶ If the operation is delayed, maintain the cylinder temperature around 165 °C.
- ▶ Make sure that resin are free from moisture absorption and contamination.

▶ Use of Regrind resin

You can mix regrind with virgin Kocetal resin.

- ▶ The mechanical properties will not change even if you use 100% of regrind resin up to five times repeatedly.
- ▶ Repeated use tends to lower the elongation, but doesn't change flow a lot.
- ▶ The limit dosage of regrind resin is decided by the color.
- ▶ In general, up to 30% of regrind resin is recommended for use.
- ▶ Large particle of regrind can cause melting and molding problem.

▶ Predrying

Because Kocetal, acetal copolymer, has low water absorption, it can be used after opening. The resin also can be used without predrying, and isn't decomposed by absorbed moisture. However, it may cause silver streak or any appearance defects. So predrying is recommended. In particular, you are recommended to predry and use in these cases.

- ▶ Parts whose appearance is important.
- ▶ Products that require accurate dimension
- ▶ Mold that has mold deposit (MD)
- ▶ Compounded special grade and colored grade

Drying condition>

General case : Heated-air drying at 80 X 3 hours or more

If period of mold cleaning is short : Heated-air drying at 100 X 3 hours or more

▶ Injection molding condition

To set the best condition for injection molding of Kocetal, Melt flow rate, shrinkage, dimensional stability, uniformity, and economic efficiency should be considered before manufacturing a mold.

- ▶ Set the injection temperature a bit higher than 165 , the melting temperature of Kocetal.
Stay below 220 to restrain formaldehyde gas generation caused by thermal decomposition.
- ▶ Generally, Increase injection velocity for thin, multi-cavity mold, or dimension of product is important but, decrease injection velocity for thick product to avoid void problem.
- ▶ Set the cooling time to the point that the product may not deform or have plate mark when extracting it with ejector pin.

$$\text{Cooling time} = \text{Measuring time} + \alpha$$

▶ The chart shows the general condition of injection molding for Kocetal resin.

Classification		Unit	Standard grade	Reinforced grade
Cylinder temperature			160 ~ 180	170 ~ 190
			180 ~ 190	190 ~ 210
			190 ~ 200	200 ~ 220
			190 ~ 200	200 ~ 220
Mold temperature			60 ~ 80	70~120
Injection pressure	First pressure	Kg/cm ²	500 ~ 800	700 ~ 1,200
	Second pressure	Kg/cm ²	300 ~ 500	1,000
Back pressure		Kg/cm ²	10 ~ 30	20 ~ 50

The chart is the standard molding condition for Kocetal resin, and can be differed depending on the injection machine and the shape of product.

▶ Suspension of work

▶ Change of material

Maintain the interior of cylinder clean by using PS resin or PE resin.

In the case of molding resin that has different molding temperature, make sure to clean the cylinder.

▶ Suspension of work

If you suspend the operation for a long time (one hour or more), purge the cylinder and set the cylinder temperature below the melting temperature (165).

It is recommended to purge the cylinder in case of stop.