

Guide to the use of high quality coffee grounds plastics

Coffee residue plastic is one of the "bio-environmental protection resin materials" products of Jiangsu Jinhe Hi-tech Co., Ltd., which is composed of coffee processing waste (shell, slag) and high performance resin by special method. It is a kind of thermoplastic resin from renewable resources, specially designed for injection molding.

I. Mechanical properties (typical values) of coffee grounds plastics are shown in the following table:

Indicators	Performance
Color	Dark brown
Density	1.1 g/cm ³
Tensile strength	22Mpa
elongation at break	5%
flexural modulus	1600MPa
Bending strength	45MPa
Melt index	g/10Min 11
Coffee waste	38%
Water	≤0.5%
Mold shrinkage	1.5%
Microcard	102℃

Applications:

Coffee residue plastics are used to process various products, and the application field is expanding. The products suitable for processing include the production of daily necessities, including dining utensils, disposable hotel supplies, horticultural supplies, paper towel boxes, garbage cans and other containers, pen cartridges and many other stationery and daily necessities, in addition, it can be used in some electrical shells, plastic parts of furniture and so on.

II. Injection molding process:

Coffee residue plastics can be processed on traditional injection machines. The material is stable in melting state under the following process parameters. injection molding process is directly related to melt temperature. it is recommended to control by adjusting the balance screw speed, back pressure and machining temperature. The recommended processing temperature is set as follows (the process needs to be optimized):

Processing Parameters of Coffee Slag Plastic

Zone I	170℃	Zone 2	170-190 ℃
Region III	170-190 ℃	Shot nozzle	175-190 ℃

III. Mould requirements:

Because the injection speed of thin-walled products is relatively fast, the injection speed of thick-walled products is relatively slow, and the faster injection speed is easy to cause the material to burn glue and cause color difference, so the thickness of the product should not be less than 1.8 mm..1

The requirements of different products are different, especially the gate position. Because of the existence of plant particles in the material, the glue injection port should not be too small, so the choice of gate should be preferred to the direct gate (big water port), and the hot runner should be avoided as far as possible.

For container products with large injection depth mm; the dimension accuracy of parting surface should be less than 0.02. The general requirement of demoulding slope is that the outer surface is not less than 1.5 degrees and the inner surface is not less than 3.0 degrees.

4. mold should have good exhaust.

Drying of materials:

Coffee residue plastic has been dried in the factory, the moisture content is less than 0.5, plus plastic film bag protection, can be directly opened bag use without baking material. It is necessary to keep the packing intact before use, seal the unused material quickly after use, otherwise, there will be moisture absorption phenomenon, and the surface of the product processed by the resin after moisture absorption may appear bubble, white grain, brittle and so on.

If the material is exposed to high air humidity in the air, or exposed for more than 24 hours, it needs to be re-dried to use.

The drying conditions are referred to the following table

Drying parameters	Typical settings
Stay time (hours)	2—3
Air temperature (°C)	80(Dry hopper set temperature)
m air flow rate ³ / hr-kg resin)	>1.85

V. Cleaning machines

Use LLDPE or PP to clean injection molding machine after 1. shutdown.

2. the injection molding process, if the material stays in the injection molding machine screw for more than 10 minutes, it is necessary to empty the residual material in the screw and then refeed, otherwise it may produce color difference.

During 3. injection molding process, when the short time (usually less than half an hour) is stopped, the baffle at the bottom of the hopper is sealed, and the remaining material in the barrel is emptied to prevent the feed throat from clogging. Confirm to restart production before opening the baffle to add material.

4. if there is material discoloration and degradation in the process of processing, measures should be taken immediately to empty the cylinder to store the material, observe the state of the material, and see if it returns to normal. If normal can continue production; if abnormal, to make corresponding adjustments.

VI. Recycling

Coffee residue plastics can be recycled, and the recycled materials can be treated in the following two ways. After re-drying, they can be mixed with the new materials, but in any case, the proportion of recycled materials should not exceed 15.

Mode 1: in the production process, directly comminuted, mixed with new materials. (Recommended Use)

Mode 2: cumulative storage (storage time should not exceed 1 month), then unified crushing, drying through the dryer, mixed with new materials.

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