

Hisun PLA polymer REVODE105

REVODE105 is one kind of modified PLA made by Hisun biomaterials Co.,Ltd, which is specifically designed for transparent straws.

Properties of REVODE105

	PLA resin REVODE105	Testing methods
Physical properties		
Density (g/cm ³)	1.25 ± 0.05	GB/T1033-1986
Melt flow rate (g/10min, 190°C/2.16Kg)	3-8	GB/T3682-2000
Heat distortion temperature (°C)	60	
Molding shrinkage rate (parallel melt flow direction)	0.005	ISO294-4:2001
Molding shrinkage (vertical melt flow direction)	0.003	ISO294-4:2001
Mechanical properties		
Tensile strength (Mpa)	45-60	GB/T1040-2006
Elongation at break (%) ≥	10	GB/T1040-2006
Impact strength (KJ/m ² , Izod)	3	GB/T1043-2008

Applications:

The PLA resin REVODE105 is suitable for processing of non heat-resistant and transparent straight straws, not suitable for curved straws.

Processing Information

The REVODE105 resin can be processed on traditional polypropylene (PP)

straw extrusion molding machine. When processing, please note:

I: The processing temperature (the specific temperature needs to be optimized):

Heat first section (near feed throat):130-150℃, other sections: 160-180℃

PLA resin REVODE105 starts melting at temperature above 60℃, in case of too high temperature in the feeding throat leads to resin agglomeration and unsmooth feeding, it is recommended to pour cooling water into jacket in feeding throat section.

Because REVODE105 is more brittle than traditional PP resin, both ends may break when cutting the pipe. It is recommended to control water temperature in water tank between 35 and 40 ℃, ensure the pipe has high temperature when cutting, thus avoid easy cracking.

II: Color blending

If the product needs to be colored, make sure to use special color toner or PLA-based color master batch. Improper toner or color master batch may lead to brittle product, unsmooth product surface and even unable to extrude.

If color blending materials can not be used up within 2 hours, it is recommended not use 25 kg / bag resin all at once, instead, use half of it and seal the other half with a hot sealing device at once. The purpose is to expose the material to the air as short as possible.

III: Drying

REVODE105 has been processed by drying crystallization, and the moisture content is less than 400 ppm. The resin that stored in Aluminum foil bag, protected by box or bag outside can be used directly. Keep the package sealed until ready to use and promptly reseal any unused material, or the resin will absorb the moisture. After than, the resin may present an increased mobility during the process, and the products may have brittle property, surface shrinkage. If the resin exposed in the atmosphere for more than one hour, it should be re-dried before using, otherwise, the resin can be used directly. The possibility of absorbing the moisture cannot be excluded, if the resin exposed in the atmosphere with high moisture.

When re-drying the resin, the un-dehumidified hot air is forbidden, for without dehumidifier, not only the drying effect cannot be obtained, but also the speed of water absorbance of PLA resin can be accelerated. The dehumidified air can guarantee the drying effect of PLA resin in desiccator. When using general oven, the dehumidification equipment should be used to dehumidify the air in the oven.

SD-H series of honeycomb-wheels-type dehumidifiers supplied by Shini Plastics Technologies Inc. are strongly recommended for PLA drying, other equipments with the same dehumidified effect can also be selected.

Typical drying conditions are shown in the table below:

Drying Parameter	Typical Settings
Residence Time (hours)	2—3
Air Temperature (°C)	80 (Temperature of normal oven)
Air Dew Point (°C)	-40(Temperature of dehumidifier)
Air Flow Rate (m ³ /hr-kg resin)	>1.85

Notice:

Close the baffle at the bottom of the hopper and purge the barrel when shutting down the machine for short time (within 30 min), avoiding blocking of the feed throat. Open the baffle and feed resin after confirming to re-start injection.

If color changing and decomposing happened during molding process, purge the barrel immediately to observe the state of the material. Keep on running if the material is normal, or adjust the parameters.

Recovery treatment of renewable materials:

The unqualified products produced in the revode105 production process can be processed and processed with the new materials. The proportion of addition should not be too large, otherwise the product will be too brittle, and the recycled materials can be treated in the following two ways:

Mode 1: in the process of production, it is directly comminuted and conveyed to the hopper by means of automatic feeding. The new material is mixed use, but need to ensure that the bucket temperature is not higher than 60 °C, otherwise there may be sticky material (recommended mode of use)

Mode 2: accumulative storage (not more than half a year), then unified crushing and drying, and then mixed with new materials.