

## Processing references

### for the injection molding of NPC Nature Plastic Compounds®

#### Material description

The NPC Nature Plastic Compounds® are polyolefins, filled with raw materials, whereas the fillers are usually corn or rye. They have a density of approx. 1.0 g/cm<sup>3</sup>.

NPC Nature Plastic Compounds® are supplied as ready for use granulates, they can be processed on conventional plastic processing machines and they are dyeable.

#### Process equipment

For processing of NPC Nature Plastic Compounds® by injection molding, standard screws can be used. In the case of inappropriate processing aggressive materials can evolve, therefore we recommend a hard-facing / coating of the screw.

The machine nozzle in form of an open nozzle or shut-off nozzle is sufficient for most applications. Due to the fillers a nozzle diameter is > 1,5 mm necessarily.

Long retention times of the material in the barrel should be avoided. The ideal size of retention times are 5 ± 2 cycles.

The NPC Nature Plastic Compounds® need a mold-construction like it is used for polyolefin-materials. In most cases they can be processed also with molds, which are dimensioned for other materials. Attention - long flow ways favour the decomposition of the material.

The NPC Nature Plastic Compounds® can be processed with all conventional gating systems (preferably polished). Also the processing with hot runner systems is possible.

The mold surface should be conserved before the processing of the NPC Nature Plastic Compounds® and be cleaned during the processing in regular intervals. In the case of inappropriate processing aggressive materials can evolve, therefore we recommend a coating of the mold surface.

#### Processing references

The processing properties of the NPC Nature Plastic Compounds® are determined by the polyolefins. With the settings of the injection molding parameters it must be noted, that the material would be thermally damaged as little as possible.

The following parameters should be kept:

Drying process:	Approx. 3 hours with approx. 75 °C with dry-air dryer The NPCs must be dried before the processing, in order to prevent the appearance of aggressive materials and to obtain an even surface texture at the molded parts.
Barrel temperatures:	Rear zones approx. 160 °C; front zones to approx. 190 °C; Nozzle max. 200 °C Do not process the material over 200 °C! Interruption of the processing longer than 15 min should be avoid, empty the barrel in the case of doubt.
Injection process:	Similar to Polypropylen / Polyethylen Do not inject too fast, in order to minimize shearing the melt.
Dosing process:	Rotation speed 40 - 80 U/min, low back pressure
Mold temperature:	20 till 70 °C Higher temperatures are recommendable with long and thin flow ways and for a good surface quality.
Change of material or shutdown:	Empty the barrel and clean with unfilled PP.
Recycling.	Scrap parts can be grind and processed again. No considerable changes of the physical properties arise, but there is a change of color of the molded parts.

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*The available remarks correspond to our best knowledge due to research work and experiences. They are to serve only as noncommittal references.*

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