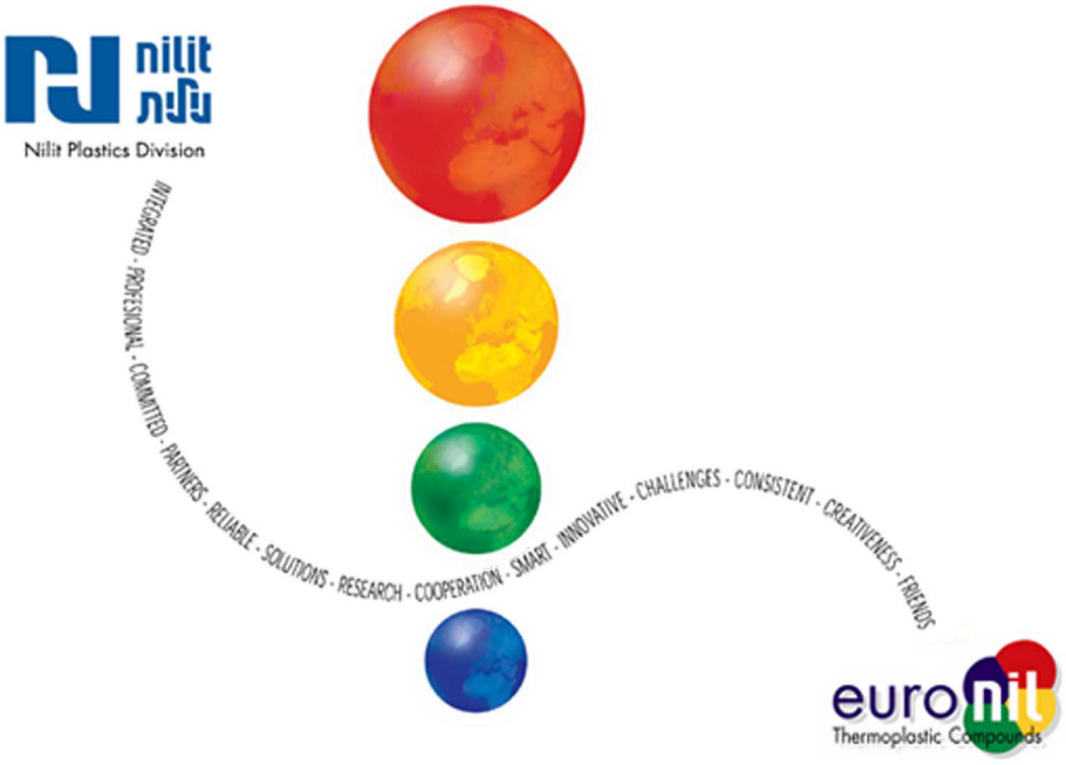
Nilamid A G5 FR PH1
Processing guide



PROCESSING GUIDE
NILAMID A G5 FR PH1

Nilamid A G5 FR PH1 is a 25% glass fibre reinforced PA66 modified with a red phosphorous-based flame retardant system. This product combines excellent mechanical and electrical properties with a UL 94 V0 flame retardancy listing. It has a red-brown natural colour.

Before processing this material, please read the safety data sheet and this processing guide carefully.

Nilamid A G5 FR PH1 is an easy to mould material, which can be processed on most standard injection moulding equipment.

Pre-drying
Nilamid A G5 FR PH1 is hygroscopic and moisture sensitive, so pre-drying is recommended as a matter of rule. Material that is not pre-dried to a moisture level below 0.1% will degrade, causing formation of potentially toxic fumes, surface defects, parts that are out of dimension and brittle parts. It is recommended to dry material for 4 hours at 80 °C to 85 °C in a desiccant dryer with more than one desiccant element.

A few tips to ensure proper operation of the dryer:

- Ensure the thermocouple that regulates the temperature is placed immediately before the entry of the air into the dryer. There can be a significant temperature drop in the air-conveyance system!
- The temperature of the air going out of the dryer silo should not be more than 30 °C lower than the air entering the system. If this is the case, you have insufficient air capacity.
- From time to time, monitor the dew point of the dry air to ensure the desiccant elements are functioning properly.

Often, less air runs through the very bottom part of a dryer silo. Therefore, it is recommended that you take the material out of the bottom of the dryer and feed it back into the top when you start up your process.

Moulding temperatures
For Nilamid A G5 FR PH1, the melt temperature must be kept below 290 °C. Any higher temperature will cause rapid degradation, which can be recognized by foaming of the material, smell or splash marks on the surface of the part.

The following barrel settings are recommended:

Material	Zone 1 (hopper)	Zone 2	Zone 3	Zone 4 (Nozzle)
Nilamid A G5 FR PH1	260-280 °C	260-280 °C	270-280 °C	275-285 °C

The recommended melt temperature ranges from 275 to 290 °C.

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Tool temperature
Mould temperature is always a compromise. On the one hand, tool temperature should be as a high as possible to give optimum crystallization and dimensional, optimal surface finish and optimal mechanical performance. On the other hand, lower tool temperature can significantly cut cycle time. For Nilamid A G5 FR PH1, 80 °C should be maintained as a minimum, for reinforced grades values of 90 to 110 °C are preferred.

Pressure and speed
Injection pressure should generally be around 70 to 100 MPa; this results in a minimum clamping force of the moulding machine in tonnes of 0.7 times the projected surface area in cm².

Holding pressure is generally in the area of 90 MPa.

For Nilamid A G5 FR PH1, the screw speed should be kept low, a rough indication is as follows:

Screw Diameter (mm)	Maximum rpm
20	150
30	100
40	70
50	60
60	50
70	40
80	35
>80	30

Back pressure should be kept to a practical minimum

Use of regrind
Parts have been moulded successfully with regrind levels of up to 15%. When regrind is used, observe these simple rules:

- Use a constant ratio of regrind and virgin material. When a material has been processed once, its viscosity and fibre length have been decreased. Using varying rations of regrind can lead to variations in dimensions, mechanical performance and processing characteristics.
- Either feed the regrind straight back into the machine, or pre-dry the regrind before usage.
- Store regrind in a dry, clean place to avoid contamination and excess moisture.
- Ensure sharp cutting blades to keep dust generation to a minimum; cut glass fibre reinforced material when it is still hot.

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Special instructions

- Always pre-dry the material and any regrind that is not fed back immediately into the machine to below 0.1% moisture
- Keep the melt temperature below 290 °C, particularly in areas where long residence times may occur, like hot runners
- When the machine is stopped, purge with PE or a suitable purging compounds. Do not leave the material standing for longer than 10 minutes without purging

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