

Usage guideline

Refer to the following values for the amount of purge agent used.

Clamping Force (ton)	80	150	550	1000
Quantity of Celpurge	0.2~0.6kg	0.3~0.8kg	2~6kg	4~10kg

- The required amount varies depending on the weighing position of the preceding material, the degree of contamination of the cylinder and screw, and the type of the preceding material (difficulty of replacement).
- Cleaning the hot runner requires 1.2 to 1.5 times the above quantity.

General usage

Cleaning of Celpurge

- 01** Retract the injection unit and separate the nozzle from the mold.
- 02** Repeat the weighing / injection or increase the back pressure to completely discharge the preceding material in the cylinder, then clean the hopper with suction or compressed air.
- 03** Load Celpurge to the hopper, set the condition settings to the recommended values in the table below, repeat weighing and injection, and replace the preceding material with Celpurge.

Conditions for purging recommended settings

Weighing	Back pressure	Screw speed	Cylinder temperature (operating temperature)	Injection speed
10~30mm	0~5MPa (*1)	50~100rpm	No change (*3)	30mm/sec more

- *1 Depending on the temperature range used, the Celpurge may drop from the tip of the nozzle during measurement and the measurement may stop. In that case, reduce back pressure until weighing is possible. Also, depending on the molding machine, if the back pressure is set to zero completely, air will enter from the nozzle tip, making it impossible to measure the purge agent.
- *2 If the back pressure is adjusted with (*1) and the weighing does not work, increase the number of rotations until the back pressure is low and weighing becomes possible.
- *3 If the processing temperature during molding is within the recommended operating temperature range for the Celpurge to be used, it is not necessary to change the temperature setting.

◆Notes for usage

- Read SDS through before usage.
- Do not blend with other materials.
- Purged materials can cause smoke or fire, do not leave around combustible materials.
- For your safety, use protective equipments (gloves, goggles, etc.).
- Use Celpurge within operational temp. range.
- Use under well-ventilated conditions.

■ Operations after replacement

[When stopping the machine]

01 After replacing with Celpurge, weigh in manual mode and stop the machine.

◆Notes for usage

When the inside of the cylinder is empty, air enters from the nozzle tip, and carbonized foreign matter is likely to form due to the thermal oxidation deterioration of the resin.

[At startup]

02 Turn on the heater power.

03 After raising the temperature and confirming that the temperature is stable, discharge the purge agent remaining in the cylinder.

04 After cleaning the inside of the hopper with compressed air etc., replace with the subsequent material and repeat the measurement and injection, or raise the back pressure and rotate the screw to replace the Celpurge with the subsequent material and start molding.

[When molding the following materials

(no change in set temperature, no mold change)]

01 After replacing with Celpurge, repeat weighing and injection, or increase the back pressure to discharge the Celpurge remaining inside as much as possible.

02 After discharging the Celpurge, suction the inside of the hopper or clean it with compressed air and add the next material.

[When molding the following materials

(change of set temperature, change of mold)]

01 After the replacement by Celpurge is completed, turn off the heater in the manual mode after weighing one shot. (Use Celpurge as a sealant)

◆Notes

- If the cylinder is empty, air will enter from the tip of the nozzle and thermal oxidation deterioration of the resin will easily cause carbonized foreign matter.
- When keeping the measured state with the heater ON (sticker), perform it within the operating temperature range of Celpurge. Celpurge For the operating temperature range of each grade, refer to the values listed in our Celpurge HP and catalogs.
- If it is unavoidable to stay above the upper limit of the operating temperature, be sure to stop it for a short time, lower the nozzle temperature (180 to 200°C as a guide) so that air does not enter the cylinder.

02 Perform mold replacement work.

- 03 Turn on the heater and set the processing temperature of the material to be molded.**
- 04 After discharging the Celpurge remaining in the molding machine and cleaning the inside of the hopper with compressed air, etc., add the subsequent materials into the hopper. Then, repeat weighing and injection, or apply back pressure to rotate the screw to completely discharge the Celpurge remaining in the molding machine.**

◆Note

- Make sure that the processing temperature of the post-molding material is higher than the lower limit temperature of Celpurge. If the screw is rotated below the lower limit temperature of Celpurge, load will be applied to the machine and it may cause malfunction.

Measures against Carbonized Material and Manual for Elimination

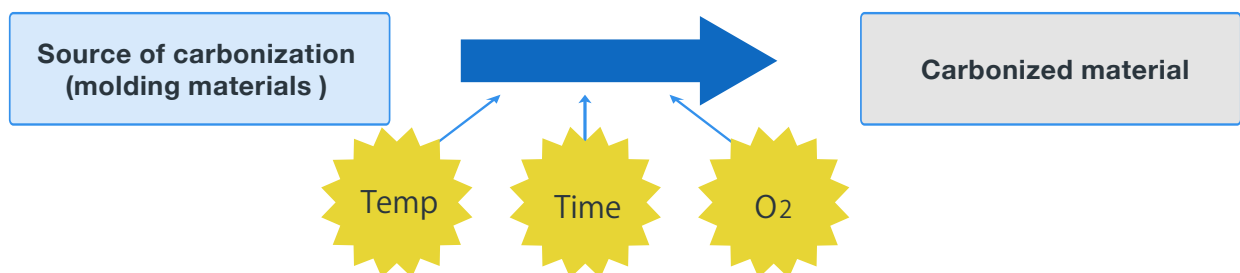
Measures against Carbonized Material : Key Points

There are various factors that cause carbonized material in plastics processing machines, however, measures to prevent it can be summarized into the following 3 points.

- 01 Do not allow molding materials to remain in the cylinder or nozzle.**
- 02 Clean the cylinder and screw regularly.**
- 03 Prevent degradation of molding materials through oxidation.**

Causes of Carbonization and Countermeasures

Here is a list of the factors and how they affect the yield of carbonized material.



[Source of carbonization (= molding materials)]

Bromine, chlorine and other halides are often used as flame-retardants, and halides allowed to remain in the cylinder can cause carbonization because they are very easily thermally degraded. Flame-retardants are normally indicated on the SDS (material safety data sheet) as ingredients, and this should be checked in advance.

However, all molding materials are carbon compounds and can be carbonized if left in the cylinder for a long period. Thus, the most important measure against carbonized material is not to leave molten materials in the cylinder.

[Temperature]

Temperature is a very important factor to avoid carbonization. The higher the temperature, the faster the degradation, thus avoid leaving materials in the cylinder at high temperatures. However, if it is unavoidable, replace the materials in the cylinder with a material that does not easily degrade.

* Celpurge, if used within operational temperature range, does not easily cause carbonized material, works as a sealant and blocks off oxygen.

[Time]

Molding materials (polymer itself or ingredients) get carbonized stepwise: the first stage is browning, followed by gradual blackening, and finally adhering as completely carbonized buildup onto the surfaces of the screw, the cylinder, and the nozzle. Even if the same molding material is continuously being molded, a layer of carbonization will gradually form at stagnant areas, and, for example, in case of molding flame retardant PP, completely carbonized material peels off of metal surfaces in two weeks and makes moldings defective.

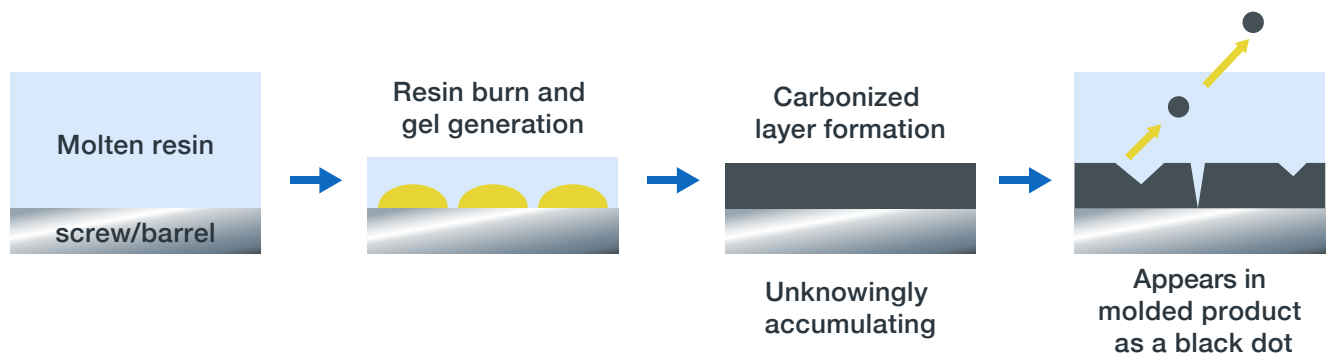
Once completely carbonized materials reach the 'peeling away' stage, they become impossible to completely eliminate with any purging compounds.

As a countermeasure to prevent buildup and adhering of carbonized materials, it is important to clean regularly with purging compounds (Celpurge).

[Oxygen]

Deterioration, decomposition, and carbonization of resins can occur even without oxygen, however, oxygen is a significant factor to accelerate carbonization. When changing molds, shutting down for the weekend, or when the temperature rises at the beginning of the week, if the screw is left empty, air can enter the cylinder through the nozzle and develop carbonization. If you use Celpurge as a sealant, Celpurge will seal the nozzle and block oxygen off, preventing carbonized material.

* Celpurge can effectively block the nozzle if the nozzle temperature is lowered to 180-200°C.



■ Procedure for Elimination of Carbonized Material (in case of weekend shutdown and restarting at the beginning of the week)

- 01 Retract the injection unit.
- 02 Completely discharge any residual materials from inside the cylinder, clean the hopper with suction or compressed air,
- 03 Add NX-VG2 and perform a cleaning.
* This is basically the same cleaning procedure written in [1]
- 04 Add NX-VN2 and perform a cleaning procedure written in [1].
A good weight ratio of AG4 to MA2 is between 1/1 and 1/2.
- 05 After visually confirming the removal of Carbon Contamination, carry out the operation after purging agent replacement according to the purpose as described on page 2.

◆Note

- Do not blend NX-VG2 and NX-VN2 prior to cleaning.
- When molding a polyolefin material, we recommend using NX-VC2 or P2S instead of VN2.
Operating temperature at below 250°C cannot use NX-VG3.
- The usage ratio with VG2 is the same as 04.

■ About sealants

If the remaining resin is discharged after molding is completed, air will be mixed in from the nozzle tip. If the temperature is kept high in this condition, carbides will form due to thermal oxidative deterioration.

Generally, it is possible to physically scrape out the carbides by using a purge agent containing inorganic substances such as glass. Therefore, it is recommended to use a sealant after the molding work to minimize the generation of carbides.

Celpurge can also be used as a sealant, so after cleaning with Celpurge, switch to manual and weigh one shot (weighing the same value as when purging) and stop the machine.