

Z CLEAN® E1001

Excellent Grade for Extrusion & Safe for Hot Runner Systems

Technical Bulletin

NISSHO Corporation, Inc.

1. Introduction

Various types of purging agents are currently being used to clean molding machines during the resin change-over and color change-over process. The use of purge compounds has been very effective in reducing the down time associated with equipment clean up as well as reducing losses in productivity caused by this cleaning process. Since 1988, Chisso Corporation has pioneered and refined the use of purging compounds, so they can be used effectively on a wide variety of equipment types in conjunction with many different types of resin.

Using flame retardant resins pose one of the most difficult applications for a purge compound. **Flame retardant** resins cause a buildup of **scorched residue** in an extruder due to its lack of stability at high temperatures. Conventional purge compounds don't have the cleaning power to remove this residue. Therefore; many molders use a **Glass Fiber Reinforced Polypropylene (GFPP) to remove the residue, but this practice causes abrasions on the screw leading to increased wear.** To address this problem, Chisso Corporation has developed our **Z CLEAN "E1001"** grade.

This special grade is a more versatile, "**Non-foaming, Non-filler**" type of purge which allows the processor to purge equipment during injection molding, as well as having the flexibility to wind on the rollers for film or sheet extrusion. In addition, this grade has no "fillers" which can linger in the die, cavity or runner system after purging, causing removal problems.

2. Features

- Non-Foaming and Non-Filler type purge
- High Cleaning power and easy post purge replacement
- Effective for **FLAME RETARDANT, ABS, POLYPROPYLENE and POLYETHYLENE**
- Odorless, Smokeless and creates no harmful gases
- Ready to Use and in Pellet Form for easy measuring and loading into the hopper

3. Applications

- **INJECTION:**

RESINS: PP, HPDE, LDPE, LLDPE, ABS, AES, ASA, Flame Retardant Resins (ABS, PS, PP)

Temperature Range: 356° - 572° F (180° - 300° C)

- **EXTRUSION:**

RESINS: PP, HDPE, LDPE, LLDPE

Temperature Range: 392° - 482° F (200° - 250° C)

4. Precautions for Use

- When purging an **extruder** for the first time with **Z CLEAN E1001**, slowly increase the rotation of the screw gradually while watching the motor amperage and resin pressure. This will avoid any severe shear increase that could damage the motor or screw.
- When purging **Flame Retardant** materials or **badly carbonized barrel residue**, use a larger measure of **Z CLEAN E1001**.
- When purging **PVC** and **PU** for **Injection Molding**, mix **Z CLEAN E1001** with **LLDPE** and set temperature below **392° F**.
- The melt flow rate of the base resin used in the **E1001** is **0.6**. High flow rate materials used in **Injection Molding** may have difficulty pushing **E1001** from the barrel at high speeds. In this case, please use a lower melt flow rate material before using your succeeding resin.
- If used in an **Inflation Film Extrusion** application with **colored POLYETHYLENE** as the succeeding resin and switching to a **Natural PE**; a **20% - 50%** blend of **Z CLEAN E1001** with **Natural PE** resin is desirable for quicker purge compound removal after cleaning and running changes.
- **E1001** will absorb moisture if containers are left open for long periods of time. **We recommend sealing the bag after each use and storing it in a clean, dry place.**
- **Z CLEAN E1001** is not FDA approved.

5. General Operating Procedure

A. INJECTION

1) END OF PRECEDING RESIN / START OF PURGING

There is no need to change the cylinder temperature setting during use. If you are using a vacuum vent, please disconnect the vacuum and cap the vent opening during purging.

2) Clean Hopper

Make sure preceding resin is fully cleaned from the hopper and the feed throat area.

3) Add E1001 into the Hopper

10 – 15 shots should be sufficient; this will vary depending on the machine size.

4) Purge with Screw Rotation

Remove nozzle from cavity, advance screw and rotate with maximum backpressure.

5) **Measuring and Purging**

High Speed Purging 8 -12 shots.

6) **Add Succeeding Resin**

7) **Measuring and Purging**

Purge at High Speed until the color has changed to succeeding Resin.

8) **Pumping**

Purging is performed with 20 – 30 mm strokes with the backpressure off.

9) **Confirmation**

----- **END OF PURGING** -----

B. EXTRUSION

1) **END OF PRECEDING RESIN / START OF PURGING**

There is no need to change the cylinder temperature setting during use.
If vacuum vent is used, please disconnect until after purging and cap the vent opening during purging.

2) **Clean Hopper**

Make sure preceding resin is fully cleaned from the hopper and the feed throat area.

3) **Add [E1001](#) into the Hopper**

In normal conditions, 10 – 15 minutes of extrusion material should equal the amount of [Z CLEAN](#) used. Interval purging in 3 stages is more effective than a one time feed.

4) **Extrude [E1001](#) for 10 – 15 Minutes**

Decrease screw rotation 2/3 while watching the motor amperage.
Shear may increase and damage the motor, so gradually increase the screw rotations.

5) **Extrude Succeeding Resin for 10 – 15 Minutes in normal conditions
(Discharge the [Z CLEAN](#))**

Continue extruding the succeeding resin until the preceding resin is no longer traceable.

6) **Replace Screen Pack**

----- **END OF PURGING** -----

C. INFLATION EXTRUDER

1) END OF PRECEDING RESIN / START OF PURGING

There is no need to change the cylinder temperature setting during use.
If vacuum vent is used, please disconnect until after purging and cap the vent opening during purging.

2) Clean Hopper

Make sure preceding resin is fully cleaned from the hopper and the feed throat area.

3) Mix [E1001](#) with Succeeding Resin

Proper mixture ratio is 20% - 50% to the succeeding resin under normal conditions.

4) Add Mixture from Hopper

The mixture should be extruded for 10 – 15 minutes under normal conditions.
[3 – 4 KG for a 40 mm extruder barrel](#)

5) Extrude the Mixture for 5 – 15 Minutes at Preceding Temperatures

Screw rotation can be at normal speed.

6) Confirm Visual Appearance of Film

Make sure that **Z CLEAN** is fully discharged, by inspecting film.

----- END OF PURGING -----

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