

DuPont™ 6611

purge compound

Description

DPE® 6611 is a fractional melt index low density polyethylene resin that contains various additives to assist in purging and cleaning the extruder. This polymer is formulated with agents to help it wet and scour metal surfaces within the extrusion system. It also contains a blowing agent which helps to disrupt normal flow patterns and enhance scouring action. The resin normally will foam, snap, and crackle as it leaves the die. A somewhat fishy, ammonia smell is detectable from the extrudate and feed hopper. When extruded, the resin has a grayish brown color and a very high viscosity at the die exit.

Applications

DPE® 6611 is not required for normal transitions into and out of Surlyn® ionomer resins, Nucrel® acid copolymer resins, and other common polyolefins. The Disco Purge Procedure* is recommended for use during these normal transitions, and special purging compounds such as DPE® 6611 are not part of this procedure. There are instances, however, when it is practical to use a special purging compound like DPE® 6611.

Examples include:

- Cleaning particularly dirty extruders.
- Removing die lines caused by oxidized polymer deposits.
- Purging extruders that have chronic purging problems (gels) following runs of Surlyn® resins, Nucrel® resins, Elvax® ethylene vinyl acetate resins, or other specialty resins. Consulting your technical representative is also highly recommended for these cases.
- Purging prior to extrusion jobs that are particularly sensitive to gels.
- Facilitating purging for shutdowns when normal Disco Purging has not proven effective. A shutdown is any period of time when the extruder will be completely turned off, such as a weekend or maintenance outage. It is very important that specialty copolymers such as Surlyn® and Nucrel® be completely purged before such a shutdown, as the cool-down, heat-up, and soak periods allow plenty of time to cause significant gel problems.
- Facilitating rapid removal of pigments from the extruder.

DPE® 6611 has also been used to facilitate pulling and cleaning large diameter extrusion screws. However, acrylic purge material is normally used for this purpose. The high viscosity of DPE® 6611 lends itself to easy cleaning of hardware during disassembly, because it peels rather than smearing along the metal surfaces.

Although most frequently used on flat die extrusion equipment, DPE® 6611 can also be used for round die converting equipment as well. It can be difficult to purge DPE® 6611 out of standard spiral-fed blown film dies, unless a very low melt index polyethylene is available for this purpose (0.5 MI LDPE or 1.0 MI LLDPE). To activate the blowing agent, the resin must be extruded above about 221°C (430°F). Purging efficiency may be somewhat reduced if the resin does not foam.

(*See DuPont Surlyn® / Nucrel® Technical Information Bulletin, "[The Disco Purge Procedure for Extrusion Coaters.](#)")

Precautions

Adequate ventilation is required for use. Fumes from extrusion can be irritating to the eyes, nose, and throat. Fumes from high temperature extrusion of polyolefin resins contain various products of decomposition that may be toxic.

Exploding bubbles can spit hot polymer as the melt exits the die. Proper protective apparel, including eye protection, should be worn.

DPE® 6611 should not be extruded or exposed to temperatures above 315°C (600°F).

DPE® 6611 does not comply with FDA regulations, so complete purging from the extrusion system is required.

DPE® 6611 contains silicon dioxide to assist in scouring hard deposits from metal surfaces. Excessive use of this purge compound can cause premature equipment wear, particularly in some extrusion systems that are soft nickel plated.

For more detailed information on the safe handling, please consult DuPont's Material Safety Data Sheets, which can be obtained from DuPont regional offices. MSDS contact information is available on the Web at <http://www.dupont.com/corp/products/msds.html>.

Typical Purge Procedure — (Extrusion Coating)

1. Transition from any specialty resin to LDPE.
2. Remove the deckles and open back-pressure valve completely.

3. Use several short (1--2 minute) cycles of high and low screw speed to remove most of the specialty polymer, or use the Disco Purge Procedure. (Watch that amps and pressure limits are not exceeded.)

4. Set temperature controls as follows:

B1	B2	B3	B4	B5	Connect	Die
450	550	580	590	590	590	590°F
230	290	305	310	310	310	310°C

Note: These temperature settings may be too high for some resins being purged. Do not exceed the resin suppliers' recommended temperature limits until the purging process is complete. In coextrusion equipment, make certain that temperatures are not set so as to expose resins from other extruders to temperatures higher than their respective limits.

For removing nylon resins, the following temperature settings are suggested:

B1	B2	B3	B4	B5	Connect	Die
500	550	550	550	550	550	550°F
260	290	290	290	290	290	290°C

5. Upon reaching the new temperature settings, drain feed hopper and add DPE® 6611 as follows:

Extruder Diameter (in)	2.5	3.5	4.5	6.0	8.0
No. of 55-lb Bags of DPE® 6611	$\frac{1}{3}$	$\frac{1}{2}$	1	2	3

Adjust the amount used according to experience and severity of the problem.

6. Run the extruder at maximum allowable screw speed (watch amps and pressure). Cycling the screw speed will also be helpful during extrusion of the DPE® 6611 purge compound.

7. Follow DPE® 6611 with an intermediate melt index polyethylene (1-2 MI) until the DPE® 6611 is no longer seen in the extrudate. If not available, go directly to coating grade LDPE.

8. Cycle screw speed or use Disco Purge Procedure as before.

9. Follow with standard coating grade LDPE. Repeat screw speed cycles or Disco Purge Procedure as needed

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