

Plasticizing Conditions

- Reduce shear and heat
- Run low back pressure
- Run low injection speed
- Shoot at least 25% of barrel capacity
- Compression ratio between 2.0:1 and 2.5:1
- Reverse barrel profiles may be required when running long glass-filled resins

Drying Conditions

- Drying to moisture content below 0.02% (200ppm)
- Typically 6-8 hours from sealed bags 12 hour minimum otherwise
- Do not inventory out of dryer more than 15 minutes
- Do not remold splayed resin (e.g., resin molded wet)

Recommended Injection Molding Temperatures

| Resins | Rear Zone °F (°C) | Middle Zone °F (°C) | Front Zone °F (°C) | Nozzle °F (°C) | Melt °F (°C) | Mold Temps °F (°C) | Drying Temps °F (°C) |
|--|----------------------|------------------------|-----------------------|-------------------|-------------------|-----------------------|-------------------------|
| Impact-Modified | | | | | | | |
| 2510 | 400 (204) | 430 (221) | 430 (221) | 450 (232) | 430-470 (221-243) | 150-180 (66-82) | 185-195 (85-91) |
| Clear | | | | | | | |
| 2530 | 400 (204) | 430 (221) | 430 (221) | 450 (232) | 450-480 (232-249) | 150-180 (66-82) | 185-195 (85-91) |
| 2531 | 410 (210) | 450 (232) | 450 (232) | 460 (238) | 450-480 (232-249) | 150-200 (66-93) | 200-230 (93-110) |
| Long Glass Fiber ⁽¹⁾ | | | | | | | |
| 2540 | 420 (210) | 460 (238) | 480 (249) | 480 (249) | 460-500 (238-260) | 150-190 (66-88) | 185-195 (85-91) |

¹Isoplast 2540 resin contains glass fibers as a reinforcing agent.

Annealing Temperatures*

| Isoplast® ETP | T _g (°C) | Annealing Temp (°C) |
|---------------|---------------------|---------------------|
| 2510 | 90 (200°F) | 81-89 (178-192°F) |
| 2530 | 90 (200°F) | 81-89 (178-192°F) |
| 2531 | 110 (230°F) | 101-109 (214-225°F) |
| 2540 | 90 (200°F) | 81-89 (178-192°F) |

*If necessary anneal for 2 – 4 hours in hot air oven.

Safety Data Sheets (SDS) for Isoplast® engineering thermoplastic polyurethane (ETPU) resins are available from Lubrizol LifeSciences, a business group of The Lubrizol Corporation and its subsidiaries. MSDS sheets are provided to help customers satisfy their own handling, safety and disposal needs, and those that may be required by locally applicable health and safety regulations, such as OSHA (U.S.A.), MAK (Germany), or WHMIS (Canada). SDS sheets are updated regularly, therefore, please request and review the most current SDS sheet before handling or using any product.

The following comments are general and apply only to Isoplast ETPU resins as supplied.

Various additives and processing aids used in fabrication and other materials used in finishing steps have their own safe use profile and must be investigated separately.

Hazards and Handling Precautions

Isoplast ETPU resins have a very low degree of toxicity and under normal conditions of use should pose no unusual problems from ingestion, eye, or skin contact. However, caution is advised when handling, storing, using, or disposing of these resins and good housekeeping and controlling of dusts are necessary for safe handling of product. Workers should be protected from the possibility of contact with molten resin during fabrication.

Handling and fabrication of plastic resins can result in the generation of vapors and dusts including small particles of glass fibers. Dusts resulting from sawing, filing, and sanding of plastic parts in post-molding operations may cause irritation to eyes and the upper respiratory tract. In dusty atmospheres, use an approved dust respirator.

Pellets or beads may present a slipping hazard. Slight itching and irritation may result from skin contact. Repeated exposure to particles generated by grinding glass fiber-reinforced materials may result in implantation of particles in the skin.

Good general ventilation of the polymer processing area is recommended.

Processing may release fumes, which may include polymer fragments and other decomposition products. Fumes can be irritating. At temperatures exceeding melt temperature, polymer fragments can occur. Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles. If vapor exposure causes eye discomfort, use a full-face respirator. No other precautions other than clean body-covering clothing should be needed for handling Isoplast ETPU resins. Use gloves with insulation for thermal protection, when needed.

HANDLING CONSIDERATIONS

Combustibility

Isoplast ETPU resins will burn and, once ignited, may burn rapidly under the right conditions of heat and oxygen supply. Do not permit dust to accumulate. Dust layers can be ignited by spontaneous combustion or other ignition sources. When suspended in air, dust can pose an explosion hazard. Dense black smoke is produced when product burns. Toxic fumes are released in fire situations.

Fire fighters should wear positive-pressure, self contained breathing apparatus and full protective equipment. Water or water fog are the preferred extinguishing media. Foam, alcohol resistant foam, carbon dioxide, or dry chemicals may also be used. Soak thoroughly with water to cool and prevent re-ignition.

Disposal

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. For unused or uncontaminated material, the preferred options include sending to a licensed recycler, reclaimer, incinerator, or other thermal destruction device. For used or contaminated material, the disposal options remain the same although additional evaluation is required (see, for example, in the U.S.A., 40 CFR, Part 261, "Identification and Listing of Hazardous Waste"). All disposal methods must be in compliance with Federal, State/Provincial, and local laws and regulations.

As a service to its customers, Lubrizol can provide lists of companies which recycle, reprocess, or manage chemicals or plastics, and companies that manage used drums. Contact the nearest Lubrizol Customer Service Center for further details.

Environment

Generally speaking, in the environment lost pellets are not a problem except under unusual circumstances — when they enter the marine environment. They are inert and benign in terms of their physical environmental impact, but if ingested by waterfowl or aquatic life, they may mechanically cause adverse effects. Spills should be minimized and they should be cleaned up when they happen. Plastics should not be discarded into the ocean or any other body of water.

Product Stewardship

The Lubrizol Corporation has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis of our Product Stewardship philosophy, by which we assess the health and environmental information on our products and then take appropriate steps to protect employee and public health and the environment. Our Product Stewardship program rests with every individual involved with Lubrizol products from initial concept and research to the manufacture, sale, distribution, and disposal of each product.

Customer Notice

Lubrizol encourages its customers and potential users of Lubrizol products to review their applications for such products from the standpoint of human health and environmental quality. To help ensure that Lubrizol products are not used in ways for which they were not intended or tested, Lubrizol personnel will assist customers in dealing with ecological and product safety considerations. Your Lubrizol sales representative can arrange the proper contacts. Lubrizol literature, including Material Safety Data Sheets, should be consulted prior to the use of Lubrizol products. These are available from the nearest Lubrizol Customer Service Center.

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