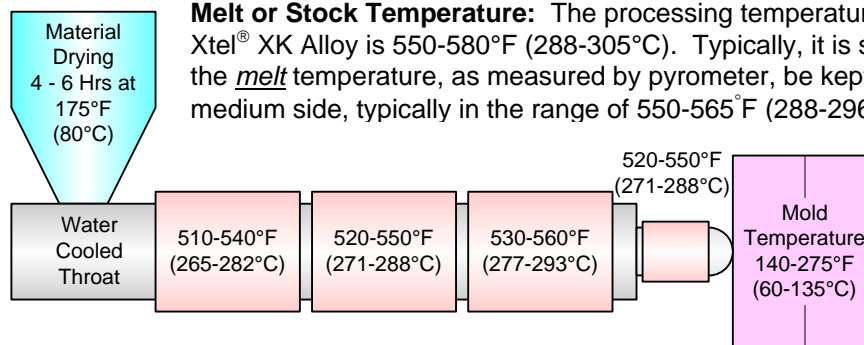


Xtel[®] XK Series compounds are easily processed on conventional reciprocating screw injection molding machines using standard molding practices for filled engineering plastics. Abrasion resistant materials are recommended to reduce wear incurred by the glass and mineral fillers. Maximum possible injection pressure is recommended to achieve optimum part packing. Water heated molds may be used, but higher mold temperatures (above 200°F, 93°C) may improve flow in thin walls and/or enhance the surface appearance of the part. In some cases, higher mold temperatures may be required to achieve sufficient crystallinity to ensure optimum high-temperature dimensional stability of the part. Listed below are general suggestions for injection molding Xtel[®] XK Series compounds. Please contact our technical service staff if you have additional questions.



Melt or Stock Temperature: The processing temperature range for Xtel[®] XK Alloy is 550-580°F (288-305°C). Typically, it is suggested that the *melt* temperature, as measured by pyrometer, be kept on the low to medium side, typically in the range of 550-565°F (288-296°C).

Mold Temperature: For a crystalline part, a mold temperature above 200°F (93°C) may be needed, and is best controlled by using circulated hot oil.

Equipment Requirements

- Abrasion Resistant Barrel (Xaloy 801)
- 16:1 to 20:1 L/D Screw with 2.5:1 Compression Ratio; Hardened Flights (Stellite or Colmonoy 6)
- Abrasion Resistant Ring type Check Valve
- Reverse Taper (Nylon Tip) or Automatic Positive Shut-Off Nozzle
- Mold Steel Rc 60 or Higher (A2 or D2)
- Shot Size 25-75%
- Clamp Tonnage 2.5-4.0 tons/in²

Material Drying

- Dry at 175°F (80°C) for 4 to 6 hours prior to processing.
- Hopper driers and/or desiccant driers are not required; 0°F (-18°C) Dew Point recommended, if used.
- Moisture Content < 0.2%

Machine Settings

- See Barrel Temperature Profile Above
- Mold Temperature 140-275°F (60-135°C); higher mold temperatures recommended for optimum part crystallinity and surface appearance.
- Back Pressure 50-100 psi (3.5-7.0 bar)
- Screw Speed 100 rpm
- Cushion 0.10-0.25 in (2.5-6.5 mm)

Before using this product, the user is advised and cautioned to make its own determination and assessment of the safety and suitability of the product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the product is suited and the information is applicable to the user's specific application. Chevron Phillips Chemical Company LP does not make, and expressly disclaims, all warranties, including warranties of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, or allegedly arising from any usage of any trade or from any course of dealing in connection with the use of the information contained herein or the product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with the use of the information contained herein or the product itself. Further, information contained herein is given without reference to any intellectual property issues, as well as federal, state or local laws which may be encountered in the use thereof. Such questions should be investigated by the user.

For more information and technical assistance contact:

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The Woodlands, Texas

Injection Speed: A medium to fast fill speed should work well, depending on wall thickness. Typical fill time is in the range of 0.5 to 2.0 seconds for small to medium sized parts with larger parts possibly requiring longer fill times. If burning or flash occurs, check vents or reduce injection speed. Injection Pressure should be high enough to maintain the set injection speed.

Injection Boost Pressure: Set as high as required to achieve the injection speed set. Velocity control during injection part fill should be utilized with a transfer to pressure control for part pack and hold. This requires the Boost pressure to be set higher than the peak pressure required to fill, usually by several hundred psi. This should prevent pressure limiting the process.

Injection Pack/Hold Pressure: Should be set high enough to achieve maximum cavity pressure in the part. Typically set at 60 to 75% of peak injection pressure.

First Stage Timer: Switching on position or cavity pressure is suggested; typically at 95 to 99% of cavity fill. The timer should be set slightly longer than the fill time.

Second Stage Timer: Usually shorter Pack and Hold times can be used when processing Xtel[®] XK Series compounds. Typically 2 to 8 seconds is required on small to medium sized parts, and 10 to 15 seconds on larger or thicker walled parts. However, this is dependent on gate size, so inspect parts for sinks or porosity and check part weight at various hold times to get the proper setting.

Cooling Time: Typically shorter cooling times can also be used for Xtel[®] XK Series compounds, especially with cooler mold temperatures. Usually 5 to 15 seconds is adequate for small to medium sized parts, with 20 to 45 seconds required for larger or thicker walled parts. Evaluate part sticking, wall distortion, flatness or dimensions for proper cooling time setting. Evaluate additional cooling time or wall draft for part sticking problems.

Barrel Purge: A Fractional Melt HDPE (Marlex[®] HHM 50100) or commercial high temperature purge compound is acceptable.

OFF-GAS PRODUCTS PRODUCED DURING PROCESSING CAN BE IRRITANTS TO THE MUCOUS MEMBRANES, THEREFORE ADEQUATE VENTILATION IS RECOMMENDED.

March 2007

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