

MATERIALS FOR INJECTION MOLDING:

Sulapac Premium

Sulapac Premium Flex 40

Sulapac Universal

Sulapac Universal Flex 35

Sulapac Premium, Premium Flex 40, Universal and Universal Flex 35 materials for Injection Molding can be tested with a wide range of common injection molds. In order to achieve optimal results, certain material properties should be considered when choosing the test mold / part, such as high material stiffness and low material shrinkage.

Please, see the Technical Data Sheets for each Sulapac grades for more mechanical properties and processing conditions.

RECOMMENDATIONS FOR CHOOSING THE TEST MOLD

Mold Material

For short term testing purposes, Sulapac Universal, Universal Flex 35, Premium and Premium Flex 40 materials may be processed with molds constructed of common tool steels. It is not recommended to choose a mold with coated components, as the compatibility of the coating with the material cannot be ascertained.

For longer test runs and routine production, high corrosion resistant mold steels with adequate hardening on high wear areas are recommended, since the wood-containing material incurs mechanical and corrosive stress.

Gate Size

Minimum gate size for Sulapac materials are:

- Sulapac Universal and Universal Flex 35 grade $\varnothing = 1.0$ mm
- Sulapac Premium and Premium Flex 40 grade $\varnothing = 2.5$ mm

Runner and Gate Type

Cold runner – Due to low shrinkage and high stiffness of the material, runner surfaces should be well polished and have adequate draft angles to ensure that the runner/sprue can be ejected without breakage. Suitable gate types are for example:

- Edge / Fan gate
- Pinpoint gate
- Direct / sprue gate
- Tunnel gate (when the gate is designed for similar high stiffness/low shrinkage material as Sulapac Universal).

Note: Curved tunnel/cashew gates are not recommended due to the risk of runner breakage caused by the low ductility of the material.

Hot runners – Both valve gate and hot tip solutions are suitable for testing. To avoid degradation of material properties, residence time inside the hot runner should be minimized.

Item Design

Recommended minimum wall thicknesses or sections for items made of Sulapac material:

- Sulapac Universal and Universal Flex 35: 0.6 mm
- Sulapac Premium and Premium Flex 40: 2.0 mm

Undercut shapes are not recommended, unless formed with lifters or sliders. Sharp corner should be avoided in the design.

RECOMMENDATIONS FOR NEW MOLDS

Mold Materials

It is recommended to choose high corrosion resistant stainless steel for mold components which get in contact with molten material. Typically, wood-containing materials incur mechanical and corrosive stress. High hardness level, between 54-60 HRC, is required especially with Sulapac Premium and Premium Flex 40 on high wear areas to ensure long service life of the mold.

For further information please contact Sulapac.

Gate Size

Minimum gate size for Sulapac materials are the following:

- Sulapac Universal and Universal Flex 35 grade $\varnothing = 1.0$ mm
- Sulapac Premium and Premium Flex 40 grade $\varnothing = 3.0$ mm

Hot Runner

Hot runner selection and dimensioning should be done by a runner supplier who has all the needed information of Sulapac material characteristics. A wrongly chosen hot runner size may cause deterioration of the material properties or prevent successful molding process.

The whole channel system in the hot runner should have as less flow restrictions as possible to avoid excessive shear.

It is recommendable to choose channel design with rounded corners to avoid any dead spots inside the flow channel.

For further information please contact Sulapac.

Cold Runner

Well-polished runner surfaces and adequate draft angles are required to ensure proper ejection of the runner/sprue.

Cooling and Venting

Efficiency of the mold cooling and venting are key factors for successful injection molding processes with Sulapac materials. To achieve good visual quality with the shortest possible cycle time, mold cooling and venting solutions shall be designed with extra attention. For example, external sliders should be equipped with cooling channels whenever possible.