

## SMARTTIPS

We can apply alcohol to SMARTFIL Glace to get different results, this way we can get several effects like make completely transparent workpieces or polish the outside to eliminate rough surfaces and achieve a pearlescent effect. In addition, due to the adherence in between layers the piece increases its structural strength forming a substantial block and getting strong water tightness.

### HOW TO MAKE FULLY TRANSPARENT PIECES

Please, take into account that to print pieces with great transparency, they must be pieces with one layer only, this way the alcohol can penetrate homogeneously in the material. If you want to get good mechanical resistance we recommend to use noozles of 0,8mm or bigger. This way, you will get a wall with the sufficient thickness to keep the desired mechanical resistance.

To get a bigger transparency effect using SMARTFIL® Glace, we recommend printing using the option "Spiral vase".

**1.** Apply treatment with alcohol (ethyl or isopropyl) with a concentration higher than 70°. The higher the alcohol level, the faster the process, although it is also more difficult to control. The different methods of application are as follow:

- Direct application by immersion:

Submerge the workpiece directly into alcohol, so that it comes in contact with the entire surface. Remove the workpiece and then let it drain so that the alcohol can evaporate freely. Please, take into account that this method is very aggressive as if the alcohol penetrates deep in the piece, this can be soften varying the geometry.

- Application by evaporation:

In a closed container, introduce a paper impregnated with alcohol placed around the piece. Then we introduce the piece taking great care that they do not come into contact. Close the container and allow the evaporation to affect the piece achieving the desired effect.

**2.** Leave the piece to rest inside the container. Once the piece has been impregnated in alcohol leave it to air dry, depending on the amount of alcohol absorbed by the piece it can soften a bit, when the alcohol has evaporated completely the piece will return to its normal state.



Following the previous steps, what we achieve is to dissolve the surface layer getting a perfect union in between layers and making a continuous solid that allows the material to get transparency.

### HOW TO POLISH A PIECE

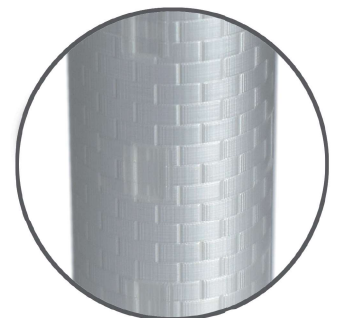
To smooth the workpiece surface, you can apply the previous process to workpieces with any kind of geometry. In this case it is important to be careful when making an immersion in alcohol because it can get into the filling of the piece affecting the material too much and compromising its integrity.

**1.** Print a workpiece using SMARTFIL Glace.

**2.** Apply alcohol treatment (ethyl or isopropyl) following the next steps:

- Direct application by immersion.
- Direct application by tools (Pulverized, applied with a brush, etc...)
- Application by evaporation.

**3.** Leave the workpiece to rest so the alcohol evaporates, excess of alcohol can soften the workpiece too much.



### PRECAUTIONS

- SMARTFIL Glace is a material that degrades with excess temperature, we recommend not to keep it in the extruder for too long to avoid sealing.
- Both ethyl and isopropyl alcohol affect the material in the same way, we recommend using ethyl alcohol for better safety during handling
- Due to the evaporation of alcohol, it is advisable to perform the treatments in a ventilated space using protection measures, mask, glasses, etc.
- Alcohol is flammable and should be kept away from heat sources.