

If the link does not work, the guide is possible to download through www.textreme.com. Navigate from there through the headlines by clicking "News room" which has a subdivision "Technical Literature" where the news post "A recommended guide for how to work with TeXtreme® Spread Tow Fabrics" posted 2011-09-19 can be found. By clicking the link a page opens where it is possible to access the PDF document.

2.3. Avoiding dry spots / Air bubbles

2.3.1. Prepreg resin choice

When using prepregs, some resin systems are easier to evacuate air from than others. Choose a resin suitable for the application based on mechanical and thermal properties when cured, curing temperatures, fiber compatibility and (for sandwich constructions) core compatibility. What also should be kept in mind is that different resins have different viscosity profiles and behaves differently during the cure cycle.

If using one sided prepreg, make sure the dry side is positioned towards the mold to allow proper air evacuation.

2.3.2. Layup

Debulk the first ply and every sixth ply afterwards to reduce the amount of air entrapments. Debulking the first layer is crucial in reaching superior surface quality.

Combining dry fabric layers with prepregs can be done to create a path for air evacuation in e.g. AM when vacuum is applied. Having the second ply from the mold dry and every third ply afterwards dry can allow air to be evacuated from the stack and can also increase the fiber volume fraction. Make sure to have the dry layers slightly wider than the prepreg layers to ensure vacuum connection. If only using two layers and having problems with air entrapments it is possible to use one ply dry and one ply prepreg. With this layup, make sure to have the prepreg on the mold side. Calculate the fiber-resin ratio to make sure that the amount of resin is reasonable to be able to wet out both plies.

2.3.3. Process equipment and parameters

Use a cure cycle which allows the resin to wet out the fabric and volatiles to escape before it starts to gel. Adding a dwell time at a lower temperature can help as this allows the resin to flow at a lower viscosity for a longer time for trapped volatiles to escape. Most prepreg manufacturers will supply customers with the temperature/viscosity/gel-time profile of their resin system to be able to determine a good dwell time and temperature. Increasing the temperature ramp to reduce the cycle time is not recommended since this can make the resin gel too quickly.

If using AM, the choice of perforated/non-perforated release film can affect the surface quality of the composite part. Which to prefer can depend on e.g. the layup and the fiber to resin ratio in the prepreg. A recommendation both to obtain lower void fractions and increased fiber volume fraction would be to use a perforated release film to allow air to escape and excess resin out.

Away to allow additional air evacuation can be to grit the tool, for example by using an 800 or 1000 sandpaper. This will allow more air to escape via the surface of the tool to provide superior surface quality of the composite part. The composite surface will be a little rugged compared to one made from a completely smooth tool.