

AroPly[®] RFI 350 Resin Film Infusion System Zyvex Nano-Engineered Composite

Application Notes

April 2016

Description

AroPly[®] RFI 350 Resin Infusion System is a low cost alternative to traditional prepreg. Resin Film Infusion (RFI) is a variant of VARTM (Vacuum Assisted Resin Transfer Molding) or RTM (Resin Transfer Molding). AroPly[®] RFI flexible resin films enable quality composite components to be manufactured using a very cost effective process. Normal curing takes place at 177°C (350°F). AroPly[®] RFI 350 flexible resin film contains an optimum level of carbon nanotubes for additional toughness and enhanced mechanical properties. The carbon nanotubes use molecular dispersion technology to ensure enhancements are evenly distributed throughout the resin.

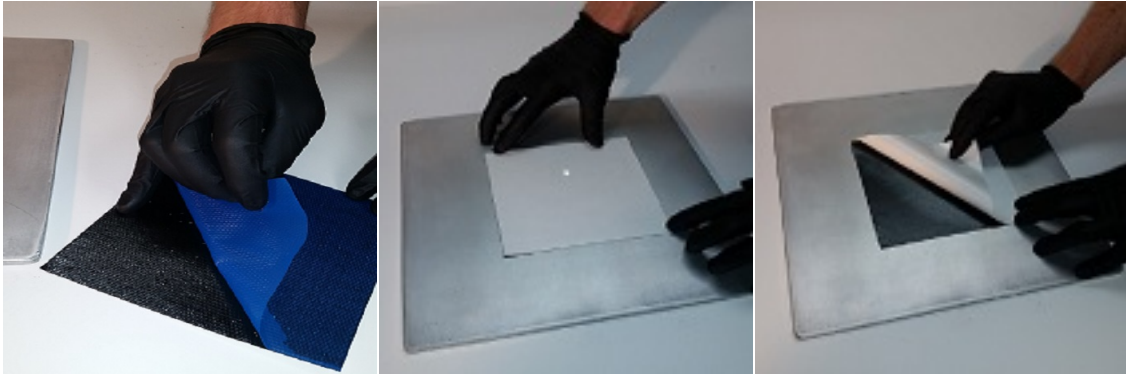
AroPly[®] RFI 350 Resin Film Infusion Processing

- Determine the lay-up sequence. For most applications simply take the total fiber areal weight of the stack and divide by the resin areal weight of the film and then multiply by 0.9. In this example we are making a 12 ply 3K plain weave carbon fabric panel at 195 g/m² FAW and the resin film is 300 g/m². So we will use 7 resin films: $((12 \times 195)/(300)) \times 0.9 = 7.02$
- The sequence in this example will be as follows:
RFI/3K/3K/RFI/3K/3K/RFI/3K/3K/RFI/3K/3K/RFI/3K/3K/RFI/3K/3K/RFI
- Apply a suitable mold release onto the tool. In this example we are using Frekote 55 NC.

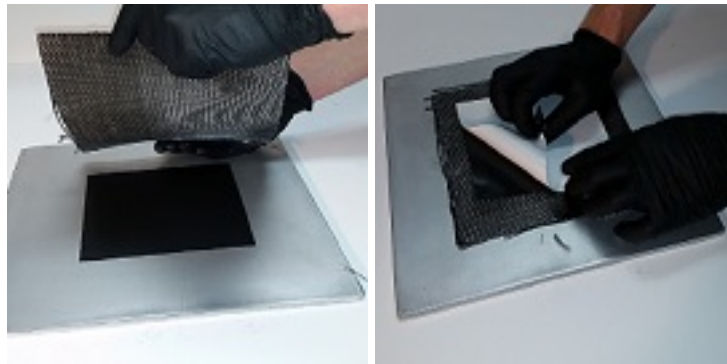


- Remove the poly film from the RFI and place onto the tool and then remove the paper release backing.

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- Apply the first fabric ply. The fabric plies will be slightly oversized in order to have good contact with the breather. Fabric plies must have good contact with the breather in order to obtain the resin flow required for the process. Then apply the next ply in the sequence and repeat until the sequence is complete. The last ply should be an RFI film.

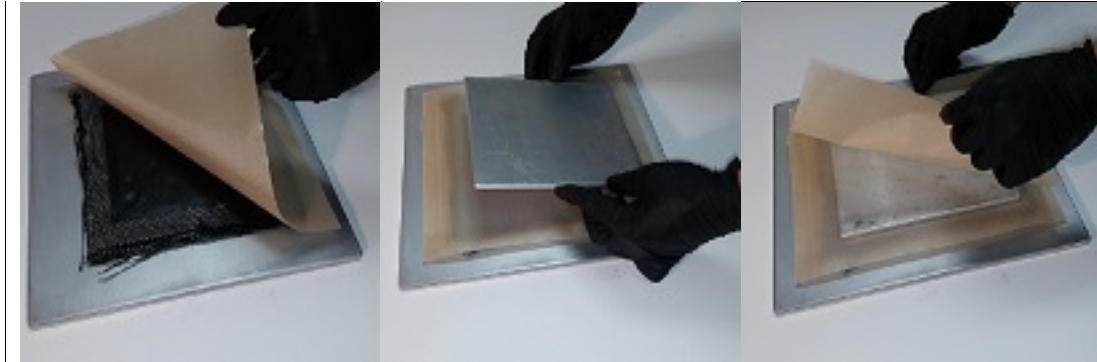


- If the resin film is not large enough for the area of the fabric ply, multiple films may be used with about an 1/8" overlap.

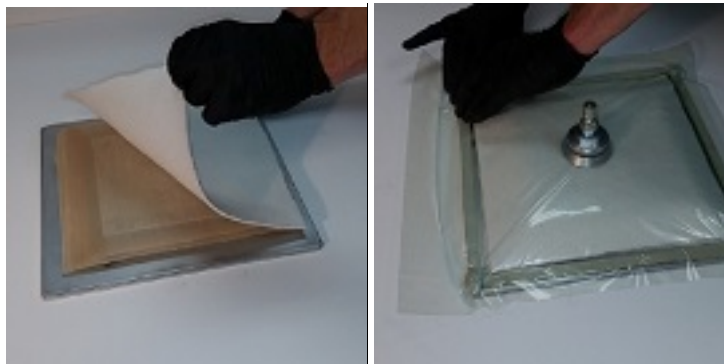


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- Once the full sequence of plies is completed, the assembly is ready for bagging. First, a peel ply is applied over the lay-up followed by release coated tool plate (optional) and then another peel ply. If a tool plate is not used, a PTFE coated layer of fiberglass is used.



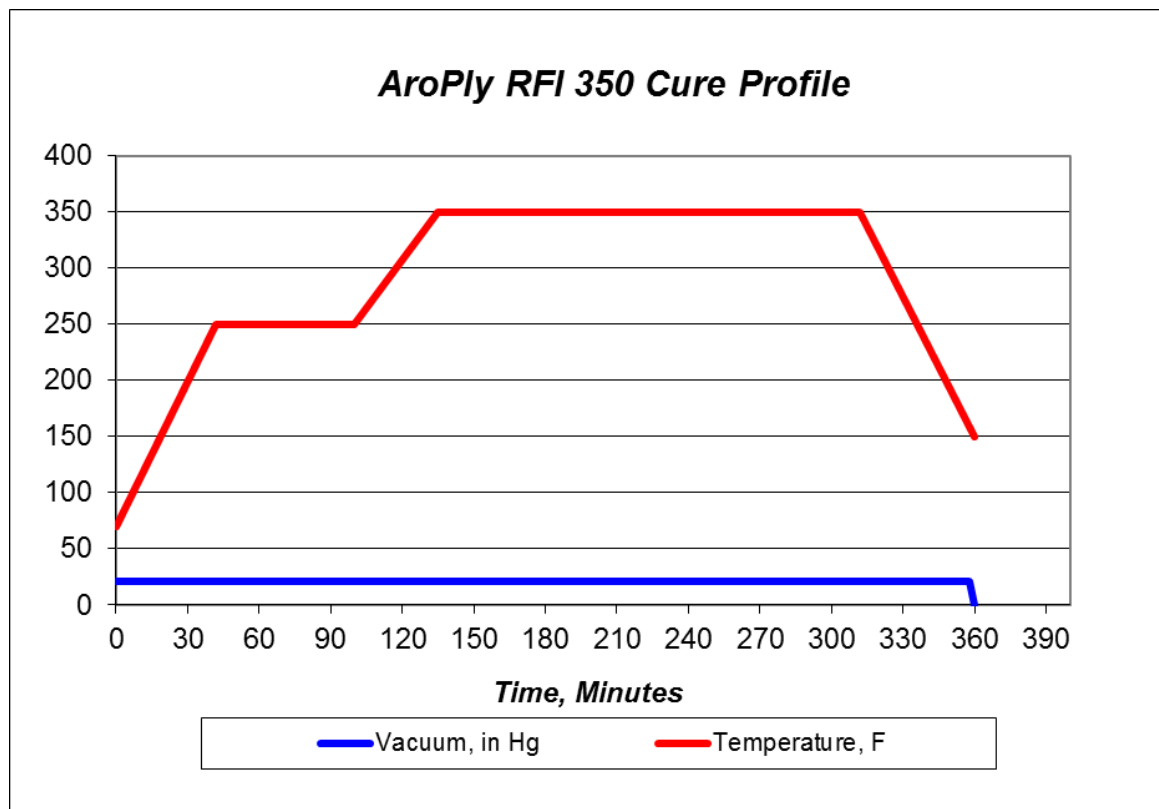
- The breather ply (or plies) is now applied followed by the vacuum port, tacky tape, and vacuum bag.



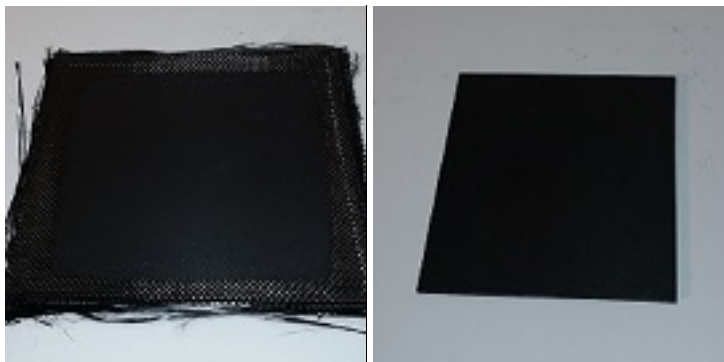
- Check the assembly for vacuum integrity and place in oven or autoclave for curing.



- Recommended Cure Profile for AroPly® RFI 350



- After curing, remove bag and trim part.



Safety Handling

Zyvex Technologies provides its customers with a product specific Material Safety Data Sheet (MSDS) to cover potential health effects, safe handling and use information.

Zyvex encourages its customers to review all relevant MSDS prior to use.

Disclaimer

Zyvex Technologies believes that the technical data provided is accurate as of the published date. Performance values are considered representative but are not intended as a specification.

Contact Zyvex

For United States quotes, orders and product information call toll free 877.Go.Zyvex (877.469.9839).

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