NORTHFORGE
MATERIALS AND
COMPOSITES

MATERIALS ENGINEERING

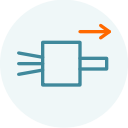
Composite Manufacturing Methods

NorthForge tailors nanoparticle dispersions to the way you make composite parts and the performance you need from them.



LRTM / RTM

Resin fills dry fibers in a closed mold. Light RTM uses vacuum assistance, while conventional RTM typically uses positive injection pressure. A low-viscosity nanofilled resin can add functionality and still fill the mold evenly.



Pultrusion

Fibers are pulled through resin and a heated die. Selected carbons can add lubricity, reducing die-wall resistance and pull force. This can enable faster production when the profile still cures fully at the higher line speed.



Resin Injection

Metering equipment injects mixed resin into a cavity or joint. Tailoring viscosity and particle loading lets manufacturers deliver a crack-resistant resin where it is needed while keeping the injection consistent.



Compression Molding

A matched mold presses a measured charge into shape. NorthForge can tune the nanofilled matrix to flow into ribs and corners and work with the reinforcement to increase part stiffness.



Prepreg

Pre-impregnated plies are laid up and cured under controlled heat and pressure. Dispersing nanoscale tougheners before fiber impregnation can improve resistance to crack growth through the laminate.



Wet Layup

Liquid resin is rolled into dry fibers. In hot, humid work areas, a moisture-tolerant resin with selected nanoparticles can help resist delamination. Verify interply adhesion on laminates made under actual shop conditions.



Vacuum Bagging

A sealed bag uses atmospheric pressure to compact a wet layup or prepreg. Matching resin flow to the bagging cycle can help control resin bleed and trapped air for a more uniform laminate with fewer voids.

Discuss your application with NorthForge.

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