

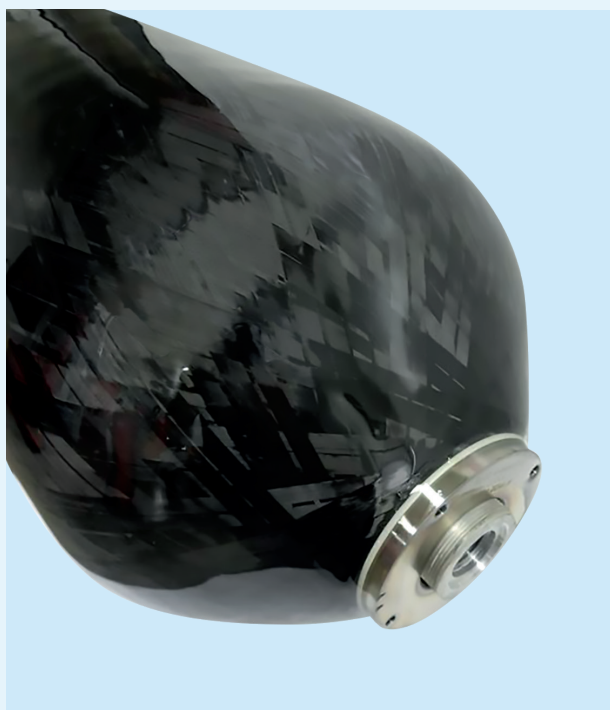
Enable new opportunities in filament winding

Proxxima™ polyolefin thermoset resin systems

Proxxima systems drive innovation with less carbon fiber

Proxxima resin systems deliver up to 20% higher burst pressures versus competing epoxy resins. This enables optimized carbon fiber utilization through tank redesign. Our late-stage development solution for wet winding offers lower cure temperatures and reduced post-cure times compared to standard epoxies—enhancing throughput and overall production efficiency.

Proxxima resin systems advantages, as demonstrated in CNG tank tests:



Less material use

Higher burst pressure:
allows for reduced carbon fiber use



Lightweight tanks

Outstanding burst performance:
less fiber results in overall weight reduction



Ease of manufacturing

Faster cure and lower exotherm:
decreases processing time

Higher burst pressure: reduces carbon fiber, lowers weight

Hydrogen pressure vessel testing

H₂ Pressure vessel testing (700 bar)

- **No fatigue after 1000 cycles**
 - Cycling from 2 to 87.5 MPa
 - Test based on R134/EC79
- **Burst at 1602 bar** = 2.3x standard safety factor
 - Burst after pressure cycling
 - Dome failure (not caused by resin system)

Cured resin properties*

- **T_g = 141°C** (by DSC, 2hr cure at 120°C)
- **Density = 1.06 g/cm³**

Typical composite properties

- **Fiber loading, target = 70%wt / 60% vol**
- **Interlaminar shear strength = 61.5 MPa**
(ISO 14130, comparable resin & carbon fiber)

CNG pressure vessel testing at CST Optimum (250 bar operating pressure)



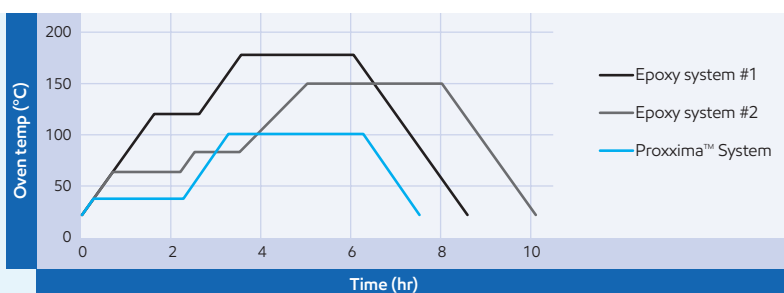
Resin	Burst pressure	Fiber translation	Coeff of variation	Safety factor
Proxima	1,110 bar	93.4%	1.6%	4.5
Epoxy	915 bar	77.0%	5.6%	3.7

Faster cure and lower exotherm: increases production efficiency

Proxima EXP-1893G C14 developmental system properties*:

Resin viscosity at 25°C = 500–600 cP | Potlife (time to double viscosity) at 30°C = 5 hrs

Faster cure potential with lower post-cure temperature



Could Proxima technology be a breakthrough solution for you?

*ExxonMobil test methods. Data is collected by or on behalf of ExxonMobil

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