trimer

Revolutionary Thermosetting Resins

Trimer Technologies provides resin systems which enable high volume manufacturing of composites with unprecedented properties. Our low viscosity resins enable faster infusion, minimal voids, and high fiber volume fraction. The cure rate and gel time can be tailored to provide long working life followed by a rapid cure with low exotherm enabling cycle times under 60 seconds. Once cured the polymer exhibits inherent non-flammability, extreme thermal stability, and superior mechanical properties.

Trimer Technologies is literally decades ahead of the competition having achieved manufacturing cycle times exceeding the US Department of Energy's 2050 goal.

Rapid Cure
Fully Cured in Seconds
Not Minutes

Non-Flammable
Zero Toxic Additives

Thermal Stability
High Glass Transition
Temperature

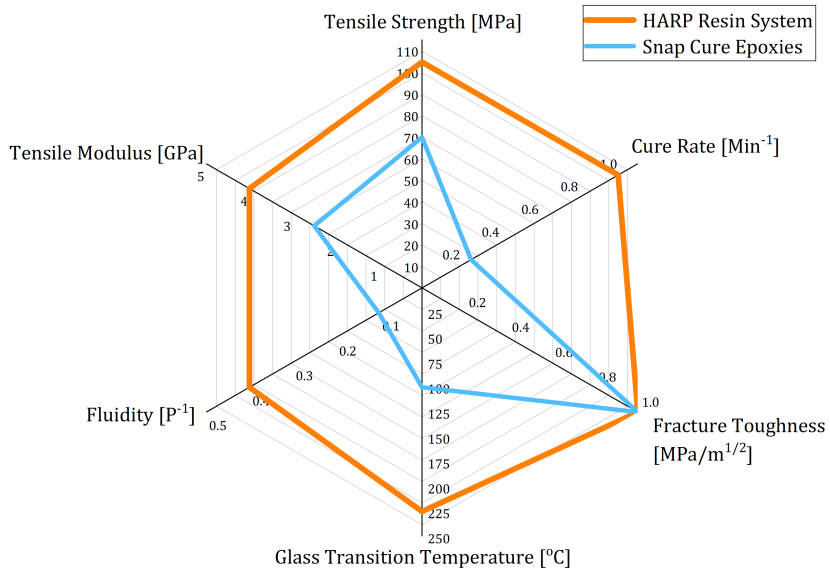
Superior Strength
High Strength, Stiffness
and Toughness

Low Viscosity
Rapid Infusion with
Minimal Voids

Electrically Insulating
High Dielectric Breakdown
Strength

Material Properties Comparison

Trimer's resin systems provide a revolutionary set of materials properties that are unmatched by state-of-the-art resins offering a unique value proposition, enabling reduced manufacturing cost while increasing material performance.



Material Property	Trimer Rapid Resin	Huntsman Araldite LY 3585 / Aradur 3475	Reichhold DION IMPACT 9102-75	Hexcel 8552	Hexcel 3501-6	Cytec 5250
Polymer Type/Chemistry	-	Epoxy	Vinyl Ester	Epoxy	Epoxy	BMI
Glass Transition, Tg Dry ºC	>400*	110	99	200	210	271
Tensile Strength (MPa)	105	77.5	79.2	120	45.5	103
Tensile Modulus (GPa)	4.0	2.8	2.9	4.6	4.2	4.6
Tensile Strain to Failure, %	4.0	9	4.5	1.7	1.15	4.8
Fracture Toughness, K_{1C} (MPa/m$^{1/2}$)	1.03	0.85	-	1.34	0.67	0.85
Flexural Strength (MPa)	140	-	144	-	-	163

* With Post cure

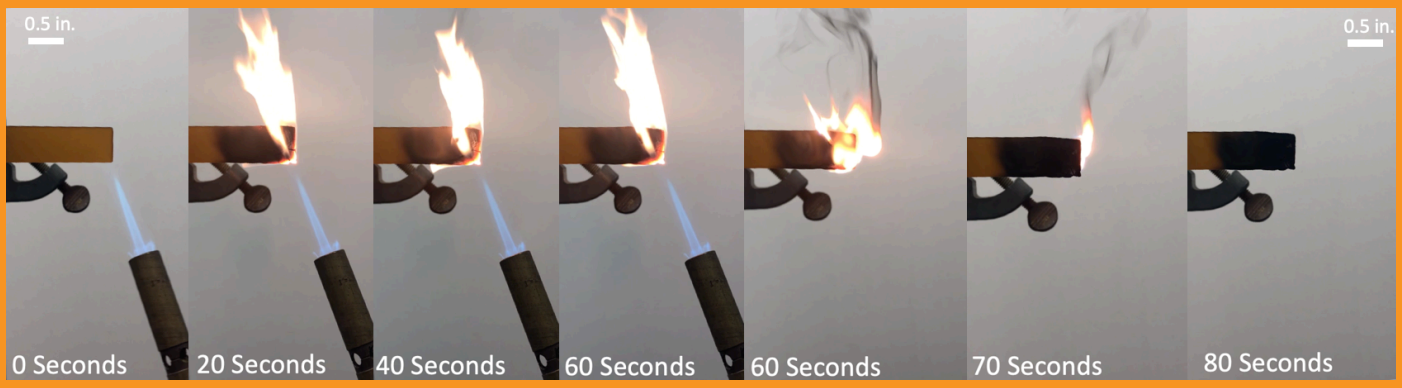
Snap Cure Resin System with Long Gel Time

- Trimer's thermosetting resins provide aerospace thermal and mechanical properties at lower cycle time than current state of the art automotive resins
- Trimer demonstrated high strength and stiffness composites manufactured with less than 45 sec. cycle times, significantly exceeding the DOE's 2050 goal for automotive composites
- Trimer's rapid cure can reduce manufacturing time and cost providing increased value
- Roughly an order of magnitude lower viscosity than current HP-RTM resins
- Trimer can tailor the cure rate and gel time proving working life exceeding 12 hours therefore enabling the manufacture of large structures or bath pultrusion processes
- Trimer resin system can attain a Tg more than twice the value of current state of the art materials out of the tool and can be post cured to exceed the highest performance BMIs
- Resin provides excellent fire resistance, exceeding requirements for FAR 25.853 and Navy Surface Ships

Fire Resistant Polymers

Trimer can provide resin systems with inherent resistance to fire without the need for toxic halogenated compounds or rheology modifying inorganics. Trimer's resin's offer both low viscosity and non-flammability which enable RTM manufacturing of composites suitable even for applications requiring extreme FST performance.

Neat Resin



Fire Resistance
14 CFR 25, Appendix F
IM7 Satin Weave Carbon Fiber Panel with 2mm Thickness and 46% Fiber Volume Fraction

OSU Heat Release			Smoke Density		Vertical Flame Spread		
Total Heat Release	Peak Heat Release	Time to PHR	Average Smoke Density	Average Time	Flame Time (sec)	Drip Flame Time (sec)	Burn Length (inch)
16.2 KW Min./m^2	28.4 KW/m^2	118 sec	4.9 D_s	237 sec	0.0	0.0	0.6

ASTM E662 Smoke Density

Flaming Mode		Non-Flaming Mode	
60 Sec Max Optical Smoke Density	4 min Max Optical Smoke Density	60 Sec Max Optical Smoke Density	4 min Max Optical Smoke Density
0	5	0	0

SMP 800 Smoke Toxicity: Pass

ASTM E162 - Flame Spread index: 1.1

ASTM E84: Class A – FSI: 15 SDI: 250

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Contact us to learn how we can improve your manufacturing efficiency, increase material performance, and provide value.

Contact Information

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