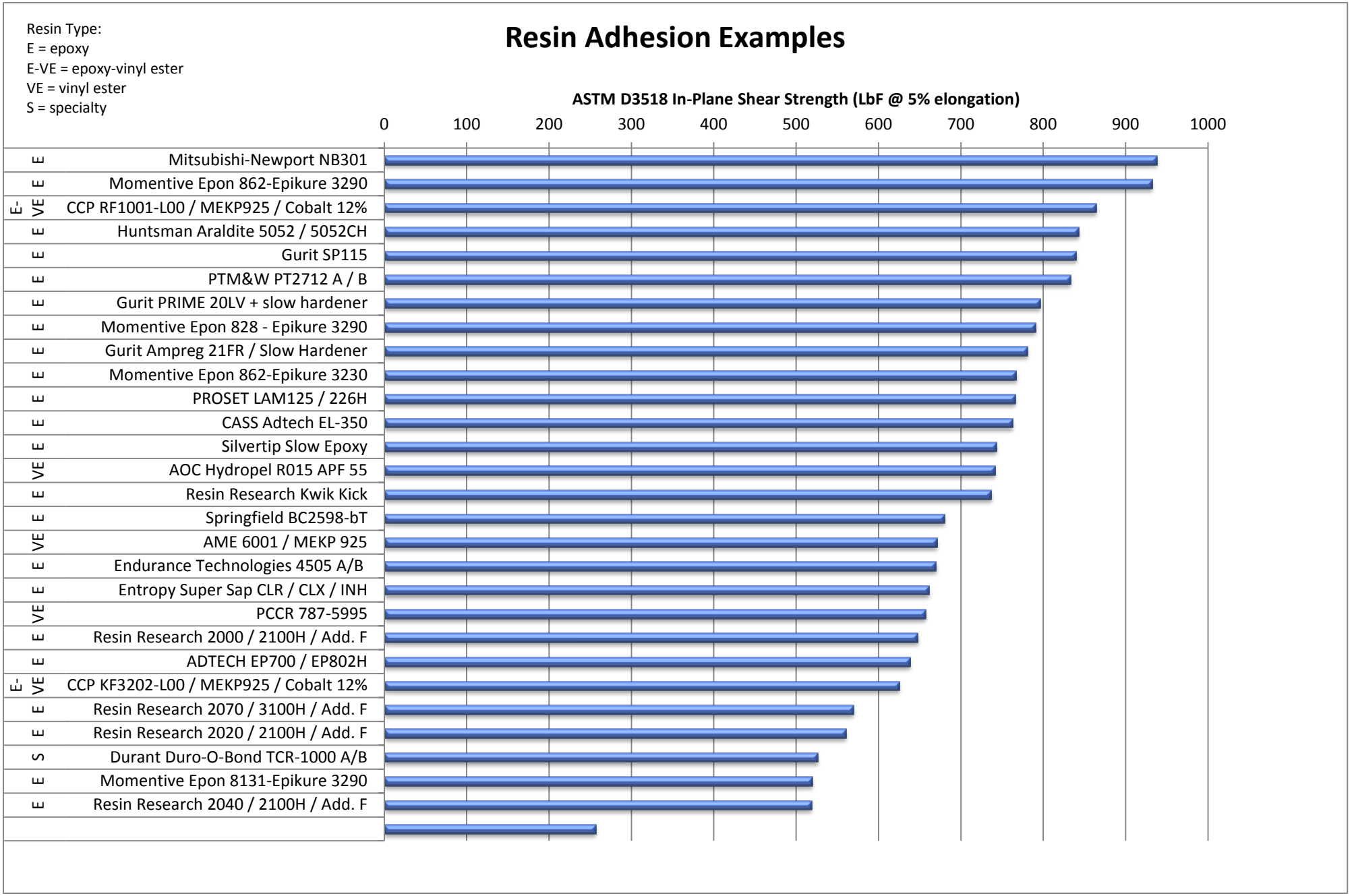
Resin Adhesion Examples

Resin Type:
E = epoxy
E-VE = epoxy-vinyl ester
VE = vinyl ester
S = specialty



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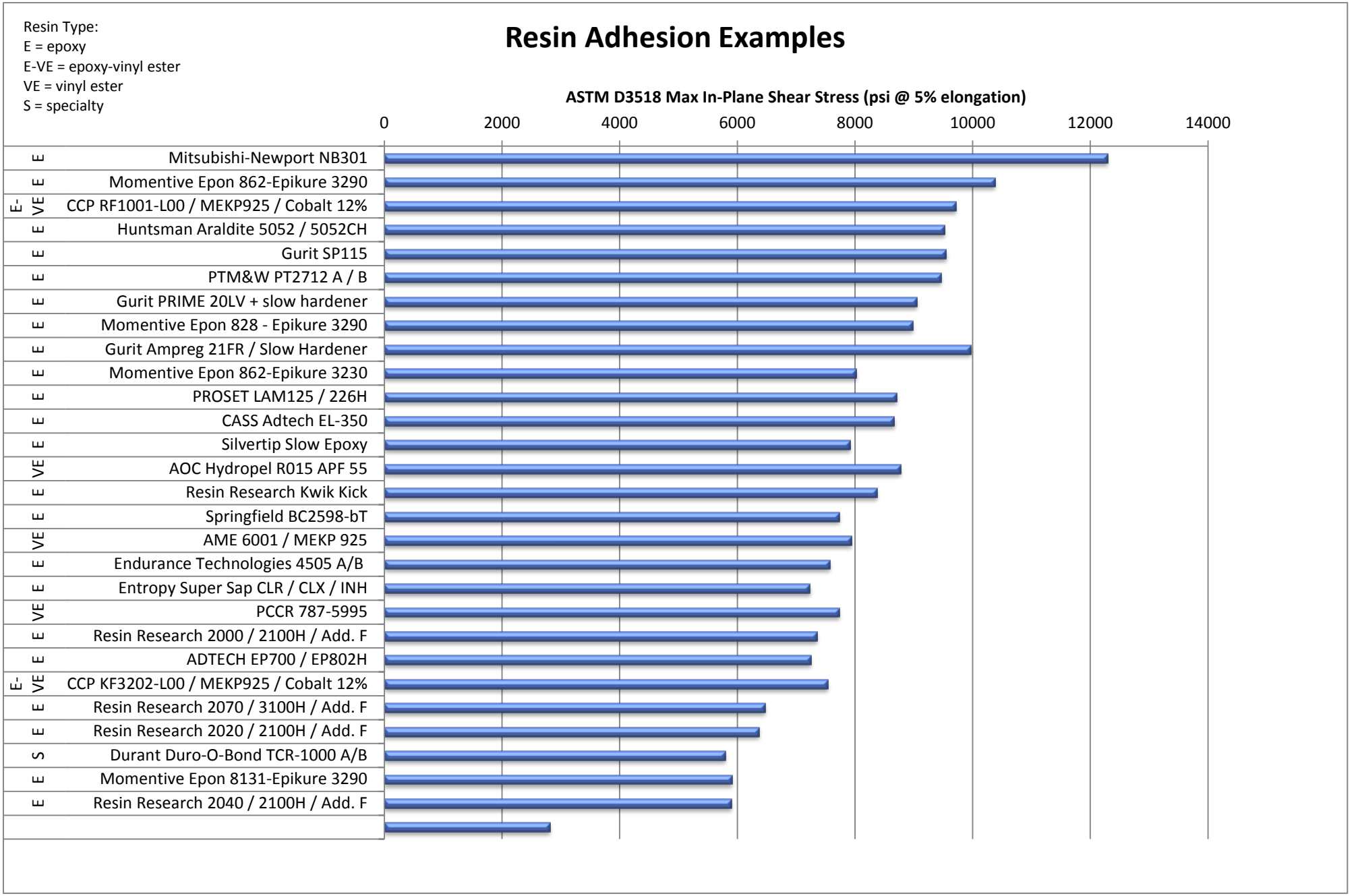

Resin Manufacturer and Product	Resin type	Adhesion Test Values ASTM D3518 (LBf @ 5% Elong)	In-Plane Shear Stress @ 5% Elong (PSI)	Panel and Process Observations Ply Schedules: [7781FG / Innegra IN36A] 8 Ply ±45°	Resin Mix Viscosity (cP)	Cure / Postcure	Resin Tg (degC)	Resin % Tensile Elong
Mitsubishi-Newport NB301	**epoxy**	938	12295	Low temp cure, toughened, controlled flow epoxy prepreg resin system. Suitable for structural applications in sporting goods, marine, medical, and industrial manufacturing	n/a	ı @ 250F / 25psi in plater	120	
Momentive Epon 862-Epikure 3290	Bis-F Epoxy	932	10383	Recommended for infusion, RTM, hand layup, filament winding. Exothermic at 20 minutes. Kicked before all air bubbles removed by vacuum (had to fix small leak).	400 - 500 @ 77°F(25°C)	> 7 days @ RT		
CCP RF1001-L00 / MEKP925 / Cobalt 12%	Bis-A epoxy - vinyl ester	864	9712	Superior adhesion to Innegra fabric. High degree of toughness and chemical resistance.	100 @ 77°F (25°C)		HDT 106	5.5
Huntsman Araldite 5052 / 5052CH	Bis-A Epoxy	843	9524	Low viscosity when the resin is heated before mixing. Slight green tint. Requires 250°F post cure to achieve 212°F Tg. The 2 hr potlife is good for larger parts.	250 @ 104°F (40°C)	24 hr RT / 15 h 50C	85	3.5
Gurit SP115	Bis-A / Bis-F Blend	840	9548	Superior adhesion to Innegra fabric. Ultra clear, good UV resistance, high degree of toughness and water resistance.	723 @ 77°F (25°C)	24 hr RT / 15 h 50C	74	4.7
PTM&W PT2712 A / B	ISOPROPYLBIPHENYL / Bis-A Epoxy	833	9468	Strong adhesion, low elongation (2.54%). flows well, and produces dense, void-free laminates. Cured properties are very high. Slight Amber tint when cured.	320 @ 77°F (25°C)		96	6.3
Gurit PRIME 20LV + slow hardener	Epoxy	796	9046	Specifically designed for use in Infusion, RTM, SCRIMP™ and RIFT. Low exothermic, excellent mechanical and physical properties.	620±20 @ 77°F (25°C)	24 hr RT / 15 h 50C	70	3.5
Momentive Epon 828 - Epikure 3290	**Bis-A Epoxy**	791	8984	Recommended for filament winding, hand layup. Sample prepared by wet layup / vacuum bag.	750 - 1000 @ 77°F(25°C)	> 7 days @ RT		
Gurit Ampreg 21FR / Slow Hardener	Epoxy	780	9963	Clear laminating / vacuum bagging epoxy system. FR (flame retarded) system	480 @ 77°F (25°C)	24 hr 20C / 16 hr 50C	80	3.9
Momentive Epon 862-Epikure 3230	Bis-F Epoxy	767	8024	Recommended for infusion, RTM, hand layup, filament winding.	300 @ 77°F(25°C)	> 7 days @ RT		
PROSET LAM125 / 226H	Bis-A Epoxy	766	8707	Medium cure 2-3 hrs working time. Optimized for hand wet out and machine impregnation in contact molding, vacuum bagging and Light RTM applications.	475 @ 77°F (25°C)			
CASS Adtech EL-350	Bis-A Epoxy Blend	763	8667	Clear, UV resistant, 100% solids good for vacuum infusion, RTM and filament winding applications.Good steady flow with Infusion process.	330 @ 77°F (25°C)			
Silvertip Slow Epoxy	Epoxy	743	7919	Clear laminating/infusion resin.	700 @ 77°F (25°C)	12 hr 25C / 2 hr 60C	106	7.5
AOC Hydropel R015 APF 55	Vinyl Ester 37% Styrene	741	8774	Nonthixed and prepromted suited for manufacturing boats and marine craft along with other composite applications needing superior properties.	90 @ 77°F (25°C)		HDT 117	4.5
Resin Research Kwik Kick	Bis-A Epoxy	737	8374	Nice wetout, fast cure (45 min @80°F), Good UV stability and great clarity. Excellent for light marine applications.	850 @ 77°F (25°C)			
Springfield BC2598-bT	Bis-F Epoxy	680	7731	Recommend as wet layup / vacuum bag process. Good for infusion when warmed.	850 @ 77°F (25°C)			
AME 6001 / MEKP 925	vinyl ester, thixotropic modified	671	7941	Recommended for wet lay-up or spray-up operations. Thixotropic modified, prepromoted. Reduced HAP resin formulation.	500	n/a	HDT 91C	5.2
Endurance Technologies 4505 A/B	Bis-A Epoxy	670	7576	Composite Polymer Design Tooling resin. Good clarity and wet out.	350 @ 77°F (25°C)	24 hr RT / 15 h 50C	78	6.8
Entropy Super Sap CLR / CLX / INH	Bio Epoxy	661	7233	Contains biobased renewable materials and has excellent elongation. Clear color after cure.	580 @ 77°F (25°C)			
PCCR 787-5995	Vinyl Ester	657	7734	toughened vinyl ester resin that offers dramatically improved fracture toughness and corrosion resistance over typical vinyl ester resins.	340 @ 77°F (25°C)		HDT 88	8
Resin Research 2000 / 2100H / Add. F	Bis-A Epoxy	648	7359	Good all purpose system. Best for use with most fiberglass hand lay up systems.	700 @ 77°F (25°C)			
ADTECH EP700 / EP802H	Bis-A Epoxy	638	7253	for applications of laminating, filament winding, pultrusion and compression molding. Good mechanical and chemical resistant properties with post cure.	580 ±10 @ 77°F			
CCP KF3202-L00 / MEKP925 / Cobalt 12%	Bis-A epoxy - vinyl ester	625	7533	an unpromoted, elastomeric modified Bis-A epoxy vinyl ester resin formulated for building reinforced plastic parts.	100 @ 77°F (25°C)		HDT 96	8.6
Resin Research 2070 / 3100H / Add. F	Bis-A Epoxy	570	6472	Best for standard E-Glass infusion and fabric intensive wet lay up. Excellent penetration and bond for porous substrates.	250 @ 77°F (25°C)			
Resin Research 2020 / 2100H / Add. F	Bis-A Epoxy	560	6366	For use where flexibility and toughness are required. Also good with synthetic fabrics, encapsulation, vacuum bagging and concrete primers.	600 @ 77°F (25°C)			
Durant Duro-O-Bond TCR-1000 A/B	proprietary blend	526	5801	Designed as a casting resin with high toughness and impact resistance. Very fast gel time (10 - 15 min). Significant odor (styrene / acrylate)	1000	n/a		
Momentive Epon 8131-Epikure 3290	Bis-A Epoxy diluted with castor oil glycidyl ether	520	5913	Recommended for filament winding, hand layup, infusion, RTM. Panels delaminated during testing.	400 - 500 @ 77°F(25°C)	> 7 days @ RT		> 10%
Resin Research 2040 / 2100H / Add. F	Bis-A Epoxy	519	5898	Used for flexible composites and for bonding to difficult substrates. Excellent penetration and bond for porous substrates.	500 @ 77°F (25°C)			
Momentive Epon 8131-Epikure 3230	Bis-A Epoxy diluted with castor oil glycidyl ether	257	2814	Recommended for filament winding, hand layup, infusion, RTM. After 16 hours at room tempurature was still viscous. After 8 more hours with heat lights at 120°F, 16 hours at room tempurature, 2 more hours at 120°F, and 4 hours at 50°C in oven panel still appeared rubbery. Residue left on table when removed. Delaminated during testing.	200 - 300 @ 77°F(25°C)	> 7 days @ RT		> 10%