

System 2000 Epoxy Laminating Resin 2000, 2020, 2060, 2120



Overview: System 2000 Epoxy Laminating Resin is a low viscosity, light amber laminating resin that is designed for fabricating parts and other demanding structural applications. Use this system to maximize the physical properties of carbon fiber, Kevlar, and glass laminates! Test results have proven superiority over other room temperature epoxies. It's low viscosity and great handling characteristics make it a favorite in the shop too! Resin available in quarts, gallons, 5 gallon pails and drums. Hardeners available in 1/2 pint, quarts, gallons and 5 gallon pails.

Features & Benefits:

- 2000 Epoxy Resin is a low viscosity, unfilled, light amber laminating resin that is designed for structural production applications.
- When used with the three hardeners listed here, the combinations provide excellent wet_out of fiberglass, carbon and aramid fibers.
- Special additives have been incorporated into these products to promote chemical adhesion of fabrics made with these fibers.
- These products can be considered low toxicity materials that have minimum hazard potential when used properly and in a clean and responsible manner.
- 2000 does not contain methylene dianiline (MDA), or other potentially harmful aniline derivatives.
- Neither the resin nor the hardeners will crystalize in normal shipping and storage conditions. Both components have excellent moisture resistance, for minimal problems in high humidity environments.

Typical Cure Schedule:

	2000	2020	2060	2120	Test Method
Mix Ratio by Weight	N/A	100 : 23	100 : 27	100 : 27	PTM & W
Mix Ratio by Volume	N/A	4.3 : 1	3 : 1	3 : 1	PTM & W
Pot Life	N/A	20 Min	60 Min	120 Min	ASTM D2471
Full Cure at 72°	N/A	18 - 24 Hr	24 Hr	24 Hr	PTM & W
Color	Light Amber	Amber	Amber	Amber	Visual
Viscosity	1,650 Cps	150 - 175 Cps	190 - 200 Cps	200 - 250 Cps	ASTM D2393
Specific Gravity	1.15	0.96	0.96	0.95	ASTM D1475

Typical Product Properties:

	2000 / 2020	2000 / 2060	2000 / 2120	Test Method
Mix Ratio by Weight	100 : 23	100 : 27	100 : 27	PTM & W
Mix Ratio by Volume	4.3 : 1	3 : 1	3 : 1	PTM & W
Color	Light Amber	Light Amber	Light Amber	Visual
Viscosity	850 - 875 Cps	900 - 950 Cps	925 - 975 Cps	ASTM D2393
Specific Gravity	1.16	1.11	1.12	ASTM D1475
Density Lb./Cu. In	0.42	0.401	0.401	ASTM D792
Density Lb./Gallon	9.68	9.26	9.47	ASTM D792
Specific Volume Cu. In/Lb.	23.8	25	24.4	ASTM D792

Typical Mechanical Properties:

	2000 / 2020	2000 / 2060	2000 / 2120	Test Method
Cured Hardness, Shore D	88D	88D	87D	ASTM D2240
Tensile Strength	45,350 psi	45,170 psi	45,870 psi	ASTM D638
Elongation	1.91%	1.96%	1.98%	ASTM D638
Tensile Modulus	2.8 x 10 ⁶ psi	2.62 x 10 ⁶ psi	2.52 x 10 ⁶ psi	ASTM D638
Flexural Strength	68,167 psi	62,285 psi	66,667 psi	ASTM D790
Flexural Modulus	2.77 x 10 ⁶ psi	2.56 x 10 ⁶ psi	3.05 x 10 ⁶ psi	ASTM D790
Glass Transition Temperature	194°F	196°F	194°F	TMA
Coefficient of Thermal Expansion Range: 100°F -150°F	3.7 x 10 ⁻⁵ In./In./°F	4.3 x 10 ⁻⁵ In./In./°F	4.15 x 10 ⁻⁵ In./In./°F	ASTM D696

Typical Mechanical Properties of Laminates:

	2000 / 2060 Unreinforced	2000 / 2060 Fiberglass	2000 / 2060 Graphite	2000 / 2060 Kevlar
Cured Hardness, Shore D	86-88D	86-88	86-88D	86-88D
Tensile Strength	9,828 psi	45,170 psi	75,640 psi	45,400 psi
Elongation	1.90%	1.96%	0.91%	1.31%
Tensile Modulus	418,525 psi	2,620,000 psi	8,170,000 psi	3,770,000 psi
Flexural Strength	16,827 psi	62,285 psi	96,541 psi	34,524 psi
Flexural Modulus	462,910 psi	2,560,000 psi	6,480,000 psi	2,500,000 psi
Glass Transition Temperature	196°F	196°F	196°F	196°F
Coefficient of Thermal Expansion Range: 100°F -150°F	4.3 x 10 ⁻⁵ In./In./°F	4.3 x 10 ⁻⁵ In./In./°F	4.3 x 10 ⁻⁵ In./In./°F	4.3 x 10 ⁻⁵ In./In./°F

Mixing Directions:

Using clean glass, plastic or paper containers measure out the proper portions of epoxy and hardeners as specified on the hardener label. Mix thoroughly for at least one minute, making sure to scrape material from the edges and the bottom of the container. Once the resin and hardener have been combined, realize that the mix will begin to gel in the time specified under "Pot-Life" on the Hardener label.

Mix only the materials that can be applied before the resin gels. We suggest that you start by mixing small amounts of material and then let your experience determine the size of future batches. Measure the resin and hardener. DO NOT attempt to alter the cure time by modifying this ratio. Clean up tools with lacquer thinner, Acetone, or alcohol.

Safety and Handling:

System 2000 Epoxy Laminating System contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn. Individuals should wash with soap and water before eating, or drinking. Individuals should observe conditions of good industrial hygiene and safe working practice. For more detailed instructions on handling please see the MSDS sheet.

All containers should be properly labeled to prevent accidental ingestion or improper disposal. Individuals should reseal any partly used material back in the container. Store under cool, dry conditions away from open flames and high temperatures. For more detailed instructions on storage please see the MSDS sheet.