



Technical Data Sheet

SUPER SAP® CLR Epoxy System– Clear, General Purpose Liquid Epoxy Resin

Product Overview

SUPER SAP® CLR SYSTEM is composed of Super Sap® CLR Epoxy, a modified, clear liquid epoxy resin, with three hardener speeds, Super Sap® CLF (FAST) Hardener and Super Sap® CLS (SLOW) Hardener and our new surfboard specific laminating system Super Sap® CLX (EXTRA FAST) Hardener. As opposed to traditional epoxies that are composed primarily of petroleum-based materials, Super Sap® formulations contain biobased renewable materials sourced as co-products or from waste streams of other industrial processes, such as wood pulp and bio-fuels production. These natural components have excellent elongation and exceptionally high adhesion properties.

Applications

SUPER SAP® CLR System is a water clear, UV stabilized epoxy system for applications that require a low color, low yellowing epoxy resin, such as for surfboard lamination and coating. It has an ideal viscosity for a wide range of applications that use hand layup techniques with fast room temperature cures.

WHY CHOOSE SUPER SAP

Performance Grade:

- Improved mechanical performance
- Formulas catering a wide range of processes and applications

Reduced Environmental Impact:

- 50% minimum reduction in CO and greenhouse gas emissions¹
- Green chemistry eliminates harmful by-products
- Reduced power and water consumption

Considerations for the Environment & User

Safety:

- Agricultural land use
- Reduced harmful by-products such as chlorinated hydrocarbons
- Reduced power and water consumption during processing
- Lowered sensitizing components for increased user safety

SUSTAINABLE TECHNOLOGY

Waste and Non-Food Grade Vegetable Oils

By-products of bio-fuels production provide a green chemistry route to one of the main components in our epoxy production. This renewable feedstock replaces additional petrochemical components in our resins with a rapidly renewable resource.

¹ As compared to 100% petroleum derived epoxies, depends on final system bio-content, LCA measurement using ISO 14040:2006.

Product Combo (Epoxy/Hardener)	CLR/CLX ²	CLR/CLF ²	CLR/CLS ³
Key Features	Best in class clarity, UV stability, Yellowing resistance	Excellent clarity, UV stability, Low yellowing	Excellent clarity, UV stability, Low yellowing, Long room temp working time
Applications	'Professional laminating, coating system, Hand layup	General laminating, Adhesive, Coating system, Hand layup, Vacuum molding	General laminating, Adhesive, Coating system, Hand layup, Vacuum molding
Potential Use	Clear coatings, Marine, Surfboards	Clear coatings, Tooling, Marine, Surfboards	Clear coatings, Tooling, Marine, Surfboards
Performance Data			
Tensile Modulus (psi) ⁴	445,880	440,000	432,540
Tensile Strength (psi) ²	8,510	9,500	9,220
Elongation (%) ²	4.1	5	4.6
Flexural Modulus (psi) ⁵	423,720	440,000	425,660
Flexural Strength (psi) ³	12,830	13,500	14,190
Compression Strength (psi) ⁶	12,460	11,330	13,710
Onset Tg by DSC (°F) ⁷	111	102	103
Ultimate Tg by DSC (°F) ⁵	135	149	158
HDT (°F) ⁸	-	118	-
Hardness (Shore D) ⁹	70-80	70-80	70-80
Biobased Carbon Content ¹⁰	17	17	21
Processing Data			
Mix Ratio (by volume)	2:1	2:1	2:1
Mix Ratio (by weight)	100:48	100:47	100:47
Mixed Specific Density (@ 77°F)	1.10	1.12	1.09
Viscosity (A/B/Mixed, cPs, @ 77°F)	1850/100/580	1850/265/725	1850/300/800
Pot Life (mins, @ 77°F)	15	25	40
Tack Free Time (hrs, @ 77°F)	2	4	8
Recommended Full Cure	7 days @ 77F	7 days @ 77F	7 days @ 77F, Post cure recommended

² All performance data was taken from neat resin samples that underwent an initial cure at room temperatures for 24 hrs and a post cure at 120°F for 2 hrs

³ All performance data was taken from neat resin samples that underwent an initial cure at room temperatures for 24 hrs and a post cure at 180°F for 2 hrs

⁴ ASTM D638

⁵ ASTM D790

⁶ ASTM D695

⁷ ASTM D3418

⁸ ASTM D648

⁹ ASTM D2240

¹⁰ ASTM D6866

Recommended Cure Cycles

Cure characteristics for room temperature cures will depend greatly on the ambient conditions of your working area, namely temperature and humidity. To achieve optimal mechanical characteristics all room temperature cure systems should be allowed the recommend cure cycle before being placed into service. We recommend building sample coupons using proposed materials and processes to fully understand curing characteristics of the resins in your working environment.

All **SLOW** cure hardener systems will cure to a brittle B stage in the allotted tack free time. To achieve full cure we recommend an elevated temperature post cure of 100°F – 180°F to reach optimal mechanical properties.

Safety and Handling

Please refer to the MSDS for the most up to date Safety and Handling information. MSDS downloads are available on the web at <http://www.entropyresins.com/products>.

Despite their natural derivation, exposure to these materials represents hazards typical to all epoxy resins. Exposure should be minimized and avoided through the use of proper protective clothing and equipment and appropriate manufacturing controls. All persons who use, store, or transport these materials should properly understand the handling precautions and recommendations as stated in the MSDS.

Shelf life should be no less than 24 months when stored in closed containers, in a dry place, out of direct sunlight, and at stable temperatures between 60 - 95°F.

Sales Packages

	IBC	Drum	Pail	Gallon
Epoxy Resin	2200 lbs	440 lbs	45 lbs	9.0 lbs
Hardener	-	420 lbs	42 lbs	8.75 lbs
<i>Weights are approximates and will vary depending upon product and mix ratio</i>				

Contact Information

Entropy Resins

www.entropyresins.com
info@entropyresins.com

Phone:

(877) 882-2120 – Toll Free
(310) 882-2120

Address:

30621 San Antonio St.
Hayward, CA 94544

24/7 Emergency Hotline: (760) 476-3962
Global Response Access Code: 333178

All technical information is provided in good faith and is based on Entropy Resins, Inc. best knowledge. Entropy Resins, Inc. does not guarantee any of this data nor the misuse of its products or the consequences because of conditions that are beyond their control.

© Copyright Entropy Resins Inc. 2013