



## Technical Data Sheet

### SUPER SAP® CCR Epoxy System– Clear, Low Viscosity Liquid Epoxy Resin for Casting, Potting, and Embedments

#### Product Overview

SUPER SAP® CCR SYSTEM is composed of Super Sap® CCR Epoxy, a modified, clear liquid epoxy resin, with two hardener speeds, Super Sap® CCF (FAST) Hardener and Super Sap® CCS (SLOW) 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® CCR System is a clear, UV stabilized epoxy system designed specifically for casting, potting, and embedding applications. Low color and low viscosity allow for bubble free, crystal clear castings ideal for art and hobby applications.

#### 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 emissions<sup>1</sup>
- 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.

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

Product Combo (Epoxy/Hardener)	CCR/CCF	CCR/CCS
Key Features	Excellent clarity, UV stability, Excellent air release	Excellent clarity, UV stability, Excellent air release, Low exotherms for large castings
Applications	Casting, Potting, Embedments @ thicknesses less than 1in or volumes less than 1qt	Casting, Potting, Embedments @ thicknesses greater than 1in or volumes greater than 1qt
Potential Use	Engineered countertops, Jewelry, Art/hobby projects	Engineered countertops, Jewelry, Art/hobby projects
<b>Performance Data<sup>2</sup></b>		
Tensile Modulus (psi) <sup>3</sup>	448,000	440,850
Tensile Strength (psi) <sup>2</sup>	8,140	7,910
Elongation (%) <sup>2</sup>	6	6.5
Flexural Modulus (psi) <sup>4</sup>	390,000	409,670
Flexural Strength (psi) <sup>3</sup>	11,850	11,100
Compression Strength (psi) <sup>5</sup>	12,380	10,860
Onset Tg by DSC (°F) <sup>6</sup>	90	96
Ultimate Tg by DSC (°F) <sup>5</sup>	119	127
Hardness (Shore D) <sup>7</sup>	70-80	70-80
Biobased Carbon Content <sup>8</sup>	18%	18%
<b>Processing Data</b>		
Mix Ratio (by volume)	2:1	2:1
Mix Ratio (by weight)	100:43	100:43
Mixed Specific Density (@ 77°F)	1.098	1.092
Viscosity (A/B/Mixed, cPs, @ 77°F)	1850/35/280	1850/25/195
Pot Life (mins, @ 77°F)	90	360
Tack Free Time (hrs, @ 77°F)	24	72
Recommended Full Cure	7 days @ 77°F, Post cure recommended	7 days @ 77°F, Post cure recommended

<sup>2</sup> 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

<sup>3</sup> ASTM D638

<sup>4</sup> ASTM D790

<sup>5</sup> ASTM D695

<sup>6</sup> ASTM D3418

<sup>7</sup> ASTM D2240

<sup>8</sup> ASTM D6866

### Casting Application Notes

**CCF (FAST)** Hardener should **ONLY** be used for low build casting applications with thicknesses **BELOW 1"** or volumes **LESS THAN 1 qt.** For all thickness above 1" or volumes greater than 1 qt, **CCS (SLOW)** Hardener should be used. Curing epoxy is an exothermic reaction it can presents a danger to the user and workplace when cured in large quantities. Please use caution when casting volumes above 0.5gal as an extreme amount of heat can be generated upon cure.

### 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.

To reach optimal mechanical characteristics we recommend an elevated temperature post cure of 100°F – 180°F after the casted resin has been cured to a tack free point.

### 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.

	IBC	Drum	Pail	Gallon
Epoxy Resin	2200 lbs	440 lbs	45 lbs	9.0 lbs
Hardener	-	420 lbs	42 lbs	8.75 lbs

*Weights are approximates and will vary depending upon product and mix ratio*

### Sales Packages

#### Contact Information

##### Entropy Resins

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