

Technical Datasheet **SUPER SAP CCR**



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 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.





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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 25 mm or volumes less than 1 liter	Casting, Potting, Embedments @ thicknesses greater than 25 mm or volumes greater than 1 liter
Potential Use	Engineered countertops, Jewelry, Art/hobby projects	Engineered countertops, Jewelry, Art/hobby projects
Performance Data ¹		
Tensile Modulus (MPa) ²	3089	3040
Tensile Strength (MPa) ²	56	54
Elongation (%) ²	6	6.5
Flexural Modulus (MPa) ³	2689	2824
Flexural Strength (MPa) ³	81	76
Compression Strength (MPa) ⁴	85	75
Onset Tg by DSC (°C) ⁵	32	36
Ultimate Tg by DSC (°C) ⁵	48	52
Hardness (Shore D) ⁶	70-80	70-80
Biobased Carbon Content ⁷	18%	18%
Processing Data		
Mixing Ratio (by volume)	2:1	2:1
Mixing Ratio(by weight)	100:43	100:43
Mixed Specific Density (@ 25°C)	1.098	1.092
Viscosity (mPa/s, @ 25°C)	1850/35/280	1850/25/195
Pot Life (mins, @ 25°C)	90	360
Tack Free Time (hrs, @ 25°C)	24	72
Recommended Full Cure	7 days @ 25°C cure recommended	7 days @ 25°C cure recommended

¹All performance data was taken from neat resin samples that underwent an initial cure at room temperatures for 24 hrs and a post cure at 50°C for 2 hrs

² ASTM D638 ³ ASTM D790 ⁴ ASTM D695 ⁵ ASTM D3418 ⁶ ASTM D2240

⁷ ASTM D6866

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Casting Application Notes:

CCF (FAST) Hardener should ONLY be used for low build casting applications with thicknesses BELOW 25 mm or volumes LESS THAN 1 liter. For all thickness above 25 mm or volumes greater than 1 liter, 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 2 liters as an extreme amount of heat can be generated upon cure.

Processing instructions:

The two components must be weighed very precisely and mixed very well. Inaccurate mixing ratios and / or not clean mixed approaches lead to problems and may result in in sufficient curing or softening of the resin. In such a case, mechanical removal is the only option, a later post curing is not possible.

Caution: Increased humidity or contact with water before the resin is fully cured will result in milky discoloration.

Substrates can be dissolved or they can gas out (specifically with wood). This can be avoided by sealing of the substrate.

The exothermicity (heat development due to the chemical reaction) especially for larger casts (> 1-2 liters) is difficult to estimate and depends on many factors.

Preliminary tests are therefore strongly recommended.

Crystallization:

Resin and hardener can crystallize at temperatures below +15°C, visible through turbidity or solidification of the container contents. Before processing, eliminate the crystallization through heating. Slowly warm the container up to 50-60°C in a water bath or in an oven while stirring or shaking. This will not degrade the quality of the resin.

Only process completely transparent components! Use caution when heating!

Open containers slightly before heating for pressure equalization. Never heat with an open flame! When stirring the heated products wear protective equipment (safety glasses, gloves and respirator).

Recommended Cure Cycles

Cure characteristics for curing at room temperature 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 40°C-80°C 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 www.swiss-composite.ch. 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 15-35°C.

Packaging:

By kg

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