

PRODUCT DATA SHEET

SikaBiresin® SC175 (Formerly SC 175)

Epoxy Modeling Paste for Master Models, Plugs, and Direct-to-Mold

TYPICAL PHYSICAL PROPERTIES (FOR FURTHER VALUES SEE SAFETY DATA SHEET)

Properties	SikaBiresin® SC175 (A) Resin	SikaBiresin® SC175 (B) Hardener
Composition	Epoxy	Amine
Mix ratio – by weight	100	100
Mix ration – by volume	100	100
Aspect	Viscous paste	Viscous paste
Color	Grey	Orange
Color (mixed)	Orange	
Viscosity – Brookfield ASTM D2393	3,000,000 cps	3,000,000 cps
Viscosity – Brookfield (mixed) ASTM D2393	3,000,000 cps	
Density at 77°F (25°C) ASTM D792	5.2 lbs./gal	5.2 lbs./gal
Density at 77°F (25°C) (mixed) ASTM 792	5.2 lbs./gal	
Specific gravity at 77°F (25°C) (mixed) ASTM 792	0.63 g/cm ³	

DESCRIPTION

SikaBiresin® SC175 is an extrudable epoxy paste for model, tool, and plug production by extrusion process.

PRODUCT BENEFITS

- Good surface aspect.
- Good behavior on vertical surfaces in thickness up to 1.18 inches
- Separate resin and hardener colors aid in mix indication
- Application thickness of up to 1.18 inches in a single pass of extrusion nozzle
- Lightweight
- Good heat-cured thermal resistance

AREAS OF APPLICATION

SikaBiresin® SC175 is suitable for model, tool, and plug production.

Tests with actual materials and conditions have to be performed to ensure satisfactory performance.

TYPICAL MECHANICAL AND THERMAL PROPERTIES (MIXED, NEAT FORM)

Properties, Test Method	Cure schedule: 7 Days at 74°F (23°C)	Cure schedule: 24 Hours at 140°F (60°C)
Shore D hardness, ASTM D2240 ^{A,C}	51	60 ^A
Compressive strength, ASTM D695 ^{A,C}	1,670 psi (12 MPa)	1,900 psi (13 MPa) ^A
Compressive modulus, ASTM D695 ^{A,C}	68,890 psi (475 MPa)	59,660 psi (411 MPa) ^A
Tensile strength, ASTM D638 ^{A,B}	1,000 psi (6.9 MPa)	1,375 psi (9.5 MPa)
Tensile modulus, ASTM D638 ^{A,B}	114,700 psi (791 MPa)	131,400 psi (906 MPa)
Tensile elongation, ASTM D638 ^{A,B}	1.8 %	2.3 %
Flexural strength, ASTM D790 ^{A,B}	2,025 psi (14 MPa)	2,406 psi (17 MPa)
Flexural modulus, ASTM D790 ^{A,B}	107,900 psi (744 MPa)	119,700 psi (825 MPa)
Glass transition temperature T _g (TMA), ASTM E1545 ^{A,B}	131 °F (55°C)	181 °F (83°C)
Coefficient of Thermal Expansion (CTE), ASTM E1545 ^{A,B}	46 ppm/°F (83 ppm/°C)	39 ppm/°F (70 ppm/°C)
Impact resistance, ASTM D256-05 ^{A,B}	0.124 ft-lb/in. (6.62 J/m)	0.177 ft-lb/in. (9.45 J/m)

^A)Cure schedule: 24 Hours at room temperature + 12 hours at 140°F (60°C)

EXOTHERMIC PEAK AND HARDENING TIME ^A

Thickness in. (mm)	Product Temperature °F (°C)	Exothermic Peak hours	Exothermic Peak °F (°C)	Workability hours
1.18 (30)	77 (25)	3	158 (70)	24
1.18 (30)	68 (20)	3.5	122 (50)	48

^A) Room temperature: 68-72°F (20-22°C); polystyrene support

Influence of Flow Rate and Dynamic Mixer Speed on the Temperature of the Mixed Paste

Flow Rate GPM (lpm)		Dynamic Mixer Speed in RPM										
		1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	5,500	6,000
0.26	1.00	81 (27)		84 (29)		88 (31)		93 (34)		99 (37)		104 (40)
0.33	1.25											
0.40	1.50	77 (25)		81 (27)		84 (29)		88 (31)		93 (34)		97 (36)
0.46	1.75											
0.53	2.00	75 (24)		79 (26)		82 (28)		86 (30)		88 (31)		92 (33)
0.59	2.25											
0.66	2.50			75 (24)		81 (27)		84 (29)		86 (30)		90 (32)
0.73	2.75											
0.79	3.00					77 (25)		81 (27)		84 (29)		88 (31)
0.86	3.25											
0.90	3.40							77 (25)		81 (27)		84 (29)

Note 1 Temperatures in cells are actual test values at given rpm and flow rate

Note 2 Initial product temperature 70 - 72°F (21 - 22°C)

	Excessive exotherm when applied at any usable thickness
	Risk of excessive exotherm when applied at greater than 0.79 inches (20 mm) thick
	Risk of excessive exotherm when applied at greater than 1.18 inches (30 mm) thick
	Risk of excessive exotherm when applied at greater than 1.38 inches (35 mm) thick
	Optimum for dispensing up to 1.57 inches (40 mm) thick
	Risk of insufficient mixing

PROCESSING

During extrusion, the dispensing nozzle must be maintained perpendicular to the surface on which the product is applied. Ensure overlap of ribbon.

Note: Exothermic reactions mostly depend on the type of machine and on the working parameters such as room temperature, insulating property of frame, the mixture's temperature (depending on the type of mixer: static or dynamic), the speed of mixing, output, and applied thickness.

PROCESSING CONDITIONS

On vertical areas, it is recommended to apply a thin coat of product with a spatula. This will help to reinforce the bonding on the support.

For ceiling application, we recommend a maximum thickness of 1.18 in. (30 mm).

An elevated temperature cure of 16 hours at 104°F (40°C) after initial room temperature cure is highly recommended to allow the paste to develop its full properties for demanding applications.

Normal health and safety precautions should be observed when handling these products:

- Ensure adequate ventilation
- Wear gloves, glasses, and protective clothes

For further information, please consult the Safety Data Sheets.

STORAGE CONDITIONS

Shelf life of resin and hardener is 12 months when stored in original, unopened containers between 65-77°F (15 - 25°C). Any opened can must be tightly closed.

PACKAGING INFORMATION

Packaging information is available upon request. Please contact your local Sika sales representative.

FURTHER INFORMATION

Advice on specific applications will be given on request. To contact Sika Corporation's Industry

Technical Services Department, send an email to tsmh@us.sika.com. Copies of Safety Data Sheets and Product Data Sheets are available upon request.

BASIS OF PRODUCT DATA

All technical data stated in this document are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

ENVIRONMENTAL, HEALTH AND SAFETY

For further information and advice regarding transportation, handling, storage and disposal of chemical products, user should refer to the actual Safety Data Sheets containing physical, environmental, toxicological and other safety related data. User must read the current actual Safety Data Sheets before using any

products. In case of an emergency, call CHEMTREC at 1-800-424-9300, International 703-527-3887.

LEGAL DISCLAIMER

Prior to each use of any product of Sika Corporation, its subsidiaries or affiliates ("SIKA"), the user must always read and follow the warnings and instructions on the product's most current product label, Product Data Sheet and Safety Data Sheet which are available at usa.sika.com or by contacting SIKA's Technical Service Department via email at tsmh@us.sika.com. Nothing contained in any SIKA literature or materials relieves the user of the obligation to read and follow the warnings and instructions for each SIKA product as set forth in the current product label, Product Data Sheet and Safety Data Sheet prior to use of the SIKA product. SIKA warrants this product for one year from date of installation to be free from manufacturing

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