

PRODUCT DATA SHEET

SikaBiresin® CR161 (Formerly EPOLAM 2070NA)

Epoxy Laminating and Infusion System for High Temperature Applications

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

Properties	SikaBiresin® CR161 (A) Resin	SikaBiresin® CH161-6 (B) Hardener
Composition	Epoxy	Amine
Mix ratio – by weight	100	31
Mix ratio – by volume	100	35
Aspect	Clear Liquid	Clear liquid
Color (mixed)	Clear liquid	
Viscosity – Brookfield (mixed)	450 cps	
Pot life (150g) at 77°F (25°C)	125 - 155 Minutes	

DESCRIPTION

SikaBiresin® CR161 is an epoxy-based laminating and infusion system designed for use in the production of high temperature use composite tooling and structures by typical impregnation methods (infusion, wet-lay-up).

PRODUCT BENEFITS

- High Tg capability
- Low mixed viscosity
- Long pot life
- Excellent final properties after post-cure

AREAS OF APPLICATION

SikaBiresin® CR161 is used for high temperature use composite tools and parts for aerospace and a variety of other industries. It is suitable for infusion processing, wet-layup, and vacuum bagging processes.

TYPICAL MECHANICAL AND THERMAL PROPERTIES (NEAT FORM)

Properties, Test Method	SikaBiresin® CR161 (A) Resin	SikaBiresin® CH161-6 (B) Hardener
Hardness - Shore D, ASTM 2240	82	
Tensile strength, ASTM D638	5,100 psi (35 MPa)	
Tensile modulus, ASTM D638	465,000 psi (4,969 MPa)	
Flexural strength, ASTM D790	8,800 psi (61 MPa)	
Flexural modulus, ASTM D790	392,000 psi (2,700 MPa)	
Glass Transition Temperature (Tg), DSC method	289 °F (143°C)	
Coefficient of Thermal Expansion Range: +50°F (10°C) – 176°F (80°C)	35 µm/m°F (64 µm/m°C)	

Cured 24 hours at 77°F (25°C) + 16 hours at 248°F (120°C)

PROCESSING

After mixing according to the required ratio, carry out impregnation of the reinforcements. To ensure an optimal and good impregnation, material must be used at a temperature above 68°F (20°C). ****Please note: Do not allow excess mixed material to remain in bulk; pour into a thin sheet and allow to cure. Excessive amounts of mixed material in bulk has a potential of high exotherm with possible violent reactivity.**

Preliminary self-support cure schedule:

Final Tg is greatly impacted by post cure temperature and time. To reduce the risk of distortion and minimize tool shrinkage, a precise post cure schedule is recommended. Demolding should be conducted only after a minimum self-supporting cure of 12 hours at 104°F (40°C). A support fixture is recommended for complex shapes. Please use a heating rate of 36°F (20°C) maximum per hour between stages and heat up and for cool down. Variable cure temperature and times can be used depending on final tool or part requirements. Some potential cure examples and Tg builds are:

- 8 Hours at 284°F (140°C) cure → 302°F (150°C) Tg
- 8 Hours at 302°F (150°C) cure → 320°F (160°C) Tg
- 48 Hours at 302°F (150°C) cure → 327°F (164°C) Tg

Alternative post-cure options can be used, if needed, in processing. Contact Sika Corporation's Industry Technical Services Department at tsmh@us.sika.com for additional information and advice.

Heating and cooling rates during post-cure:

Always allow tools made with Sika® high temperature systems to gel at room temperature before subjecting them to post cure (24 hours is usually sufficient). This will prevent excessive exotherm and shrink stress from occurring. When oven curing laminated

molds, always place mold in a room temperature oven and increase temperature at a rate of no more than 50°F (30°C) per hour. When heat cure is completed, turn off oven and allow molds to remain in the oven. Never remove mold from oven until mold temperature has been lowered to less than 100°F (38°C).

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 defects and to meet the technical properties on the current Product Data Sheet if used as directed within the product's shelf life. User determines suitability of product for intended use and assumes all risks. User's and/or buyer's sole remedy shall be limited to the purchase price or replacement of this product exclusive of any labor costs. **NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.** Sale of SIKA products are subject to the Terms and Conditions of Sale which are available at <https://usa.sika.com/en/group/SikaCorp/termsandconditions.html> or by calling +1 800-933-7452.