DIELECTRIC AND ENCAPSULATING RESINS

ELECTRONIC, POWER MANAGEMENT, AUTOMOTIVE, E-MOBILITY

BUILDING TRUST

CREATING A STRONG FUTURE

Worldwide solutions in PUR and EP resins

YOUR ADDED VALUE

Reliability and Safety
Advanced Resins is on your side as a strong global player. As an inherent part of the Swiss concern Sika AG you can rely on us.

Quality and Innovation
Our commitment to delivering high-quality end products is unwavering. Drawing on extensive expertise in the development of top-tier PUR and EP resins, we ensure that our clients benefit from industry-leading quality standards. Additionally, our dedication to quality is backed by external approvals, with adherence to stringent standards.

Flexibility and integrated solutions
As individual as your task. The comprehensive and integrated product range of Advanced Resins Team offers you even more solutions for your applications.

Professional global support worldwide
Local experts provide you with personal on-site support in all issues relating to product processing and plant technology.

Global Availability
The consolidation of worldwide production sites, several development departments and our global dealer network maximizes the availability of our products – wherever you are located.

"As a global leader in electrical potting and casting it is our aim to provide our customers with best in class innovative and tailor made solutions. Being close to our customers is not only a word for us: Worldwide production and on-site support of our experts is the basis of our success. Every day, we are looking forward to create new and better solutions together with our customers."

MORTEN MUSCHAK
Head Corporate Automotive & Industry

CUSTOMIZED SOLUTIONS FOR:

- Foundry model making
- Automotive industry
- Transportation industry
- Sports and leisure
- Industrial applications
- Boat and yacht building industry
- Aviation industry
- Renewable energies
- Dielectrics

ADVANCED RESINS IS PART of Sika Industry and with over 75 years of experience, is a world leading provider and developer of high performance resins. It offers customized solution for the composite industry as well as structural adhesives. In addition Advanced Resins offers technical casting for industrial filters.

SikaBiresin® RE by Advanced Resins Team is our brand of polyurethane and Epoxy Resins for electrical potting and casting. We offer a complete range of flexible and rigid bi-component polyurethane resins as well as epoxies to protect low and medium voltage electrical applications. With our resins SikaBiresin® RE, we offer customers the security and durability for their electrical systems.

Thanks to our two laboratories in Europe and two laboratories in China and USA, we are as close as possible to our customers to offer them the best solutions compliant with specific approval such as UL 94, UL 746, EN 45545, AITF etc., for insulation material.

CONTENT

Electrical Insulation for Automotive Industy	04
Electronic and Lighting	06
Power Management	07
E-Mobility	08
Detailed Information: Dielectric Resins	10

ELECTRICAL INSULATION FOR AUTOMOTIVE INDUSTRY

Our resins provide safety and durability to automotive OEMs for their mechatronic sensor and systems to ensure safety, passenger comfort and CO_2 reduction.
Our resins protect embedded electronics from heat, humidity and chemical aggression.

Drivers' assistance systems improve communication between the driver and its outside environment, as well as the ability to manage autonomous vehicle driving.
In the future, electronic systems will strengthen the interaction between the driver and the automobile.
For all these applications, Sika offers resin solutions to make the sensors even safer and more reliable.

EXTERNAL APPLICATION
Handle sensor, park sensor, tyre pressure monitoring sensor, latches, etc.

OVERVIEW DIELECTRIC RESINS

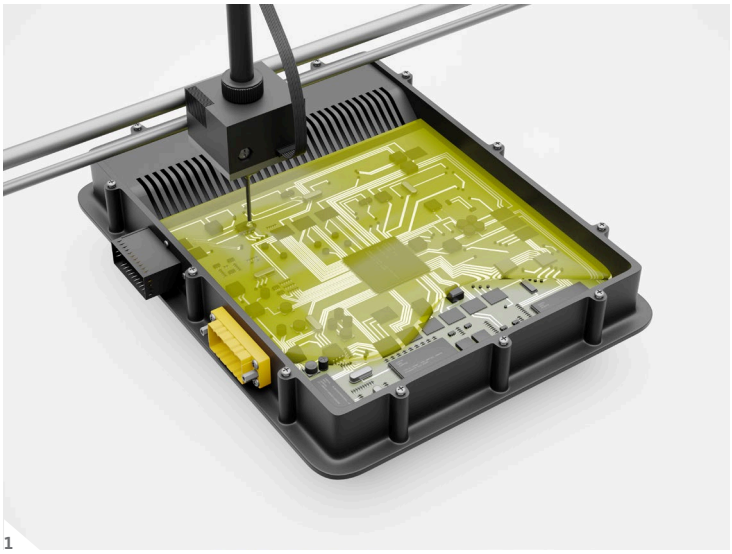
	Characteristics	Shore hardness	Mixed viscosity, at 25 °C [mPa.s]	Pot life, at 25 °C [min]	Density [g/cm³]
PU					
SikaBiresin® RE323 - RE111	Very soft, unfilled, quick setting material with very good hydrolysis resistance and low dielectric constant ► recommended for sensors	32 A	1,700	14	0.98
SikaBiresin® RE602A - RE602	Semi rigid, chemical delayed thixotropy with good adhesion on plastic ► used on connectors	60 D	Thixo	7	1.30
SikaBiresin® RE812 - RE103	Rigid, good adhesion, very short pot life for short cycle time ► dedicated for switches	80 D	5,700	2	1.38

Placed as close as possible to the engine, our insulating resins help optimize thermal management, improve energy efficiency in order to reduce CO_2 emissions, but also contribute to the acoustic comfort of the automobile.

The high thermal resistance and the very good chemical resistance to automotive fluids guarantee optimal operation of the electromechanical parts.

ENGINE COMPARTMENT
Harness, electric steering system, gear box sensor, etc.

1 Encapusulation Electrical System
2 Main Harness Encapsulation by with SikaBiresin®



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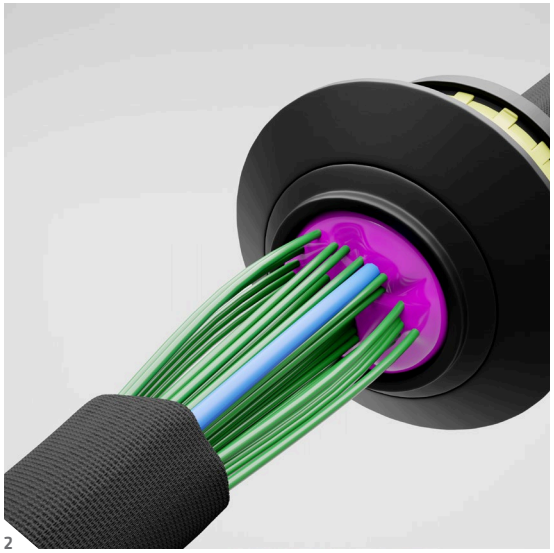

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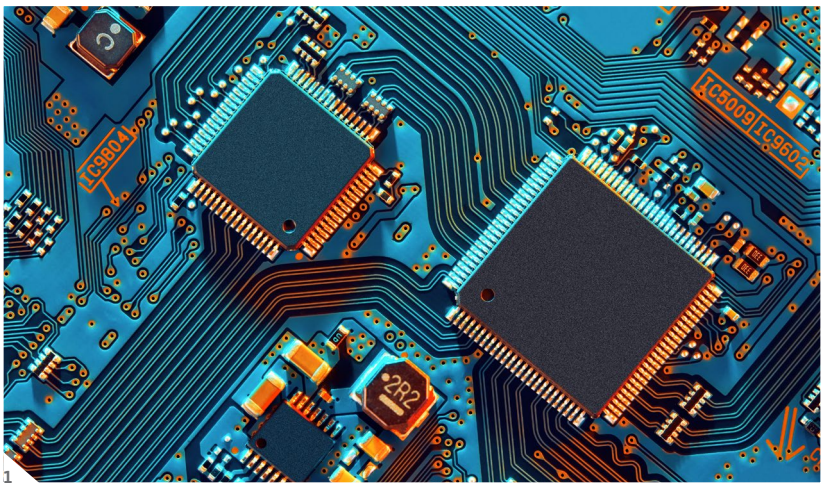
OVERVIEW DIELECTRIC RESINS

	Characteristics	Shore hardness	Mixed viscosity, at 25 °C [mPa.s]	Pot life, at 25 °C [min]	Density [g/cm³]
PU					
SikaBiresin® RE710-RE102	Soft, low viscosity, short cure	70 A	1,750	11	1.19
SikaBiresin® RE531 - RE102	Semi rigid UL VO, UL 746 RTI 150 °C, EN 45545 approval, high temperature resistance	53 D	1,650	22	1.57

ELECTRONIC AND LIGHTING

When varnish protection is not sufficient, our resins protect electronic cards from severe climatic conditions to guarantee exceptional longevity. Typical applications for our resins include underwater, medical and connected devices.

1 Underwater Application
2 Coating Electronic Circuit



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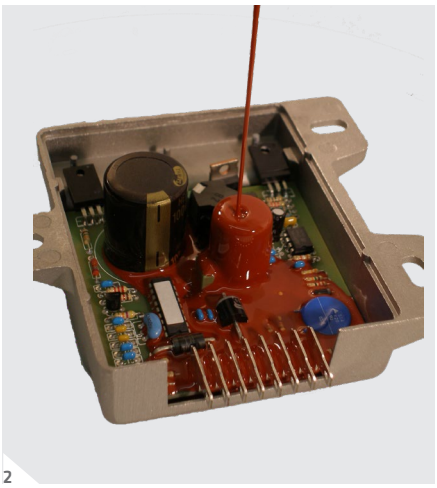
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OVERVIEW DIELECTRIC RESINS

	Characteristics	Shore hardness	Mixed viscosity, at 25 °C [mPa.s]	Pot life, at 25 °C [min]	Density [g/cm³]
PU					
SikaBiresin® RE451A - RE101	Soft UL 94 V0 approval designed to pass thermal shock test -40/+85 °C	45 A	2,150	50	1.28
SikaBiresin® RE601A - RE102	Soft UL 94V0, high thermal resistance	70 A	3,000	50	1.35
SikaBiresin® RE461 - RE101	Semi rigid UL V0, EN 45545 approval, multi color and reactivity easy processing	46 D	1,100	10 – 60	1.57

POWER MANAGEMENT

Between the production of electricity and the end user, manufacturers implement electrical equipment throughout the distribution chain to regulate voltage and current but also to monitor devices.

The electricity supply of cities, industry but also transportation must always be guaranteed for the safety of the users. Advanced Resins Team is a major supplier to manufacturers of transformers, capacitors and current and voltage sensors.

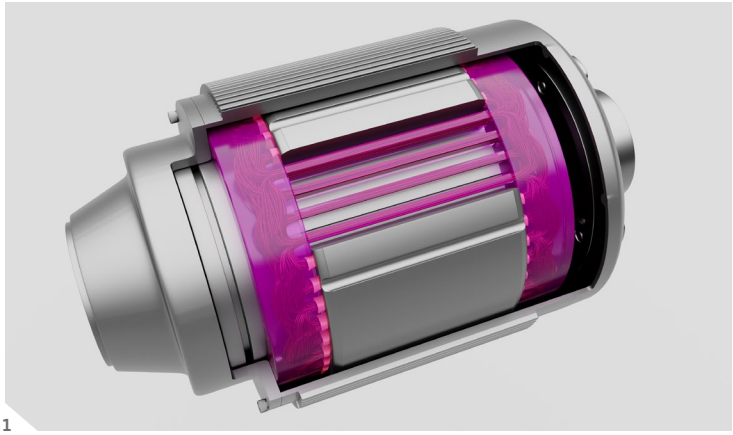
Dielectric Measurement Test

OVERVIEW DIELECTRIC RESINS

	Characteristics	Shore hardness	Mixed viscosity, at 25 °C [mPa.s]	Pot life, at 25 °C [min]	Density [g/cm³]
PU					
SikaBiresin® RE830 - RE103	Rigid with good thermal conductivity and crack resistance ► recommended for CTVT transformer	83 D	1,200	30	1.41
SikaBiresin® RE651 - RE102	UL 94 V0 1,5 mm ► recommended for capacitor	70 D	1,900	30	1.56
SikaBiresin® RE885 - RE103	Rigid, high TG and thermal resistance	88 D	1,900	30	1.53
EP					
SikaBiresin® RE891 - RE203	Rigid epoxy, long pot life, UL 94 V0, high thermal and chemical resistance	89 D	3,000	200	1.49

E-MOBILITY

The accelerated growth of New Electric Vehicles is driven by the consumer and manufacturer need for improved environmental performance with enhanced quality, safety and security features. Heat transfer solution is the new technical challenge for electric and hybrid vehicle manufacturers. Sika's Advanced Resins Team can offer electrical protection and insulation solutions as well as thermal transfer along the current path from the connector, on board charger, battery and electric motor as well as the electronic control unit and management.



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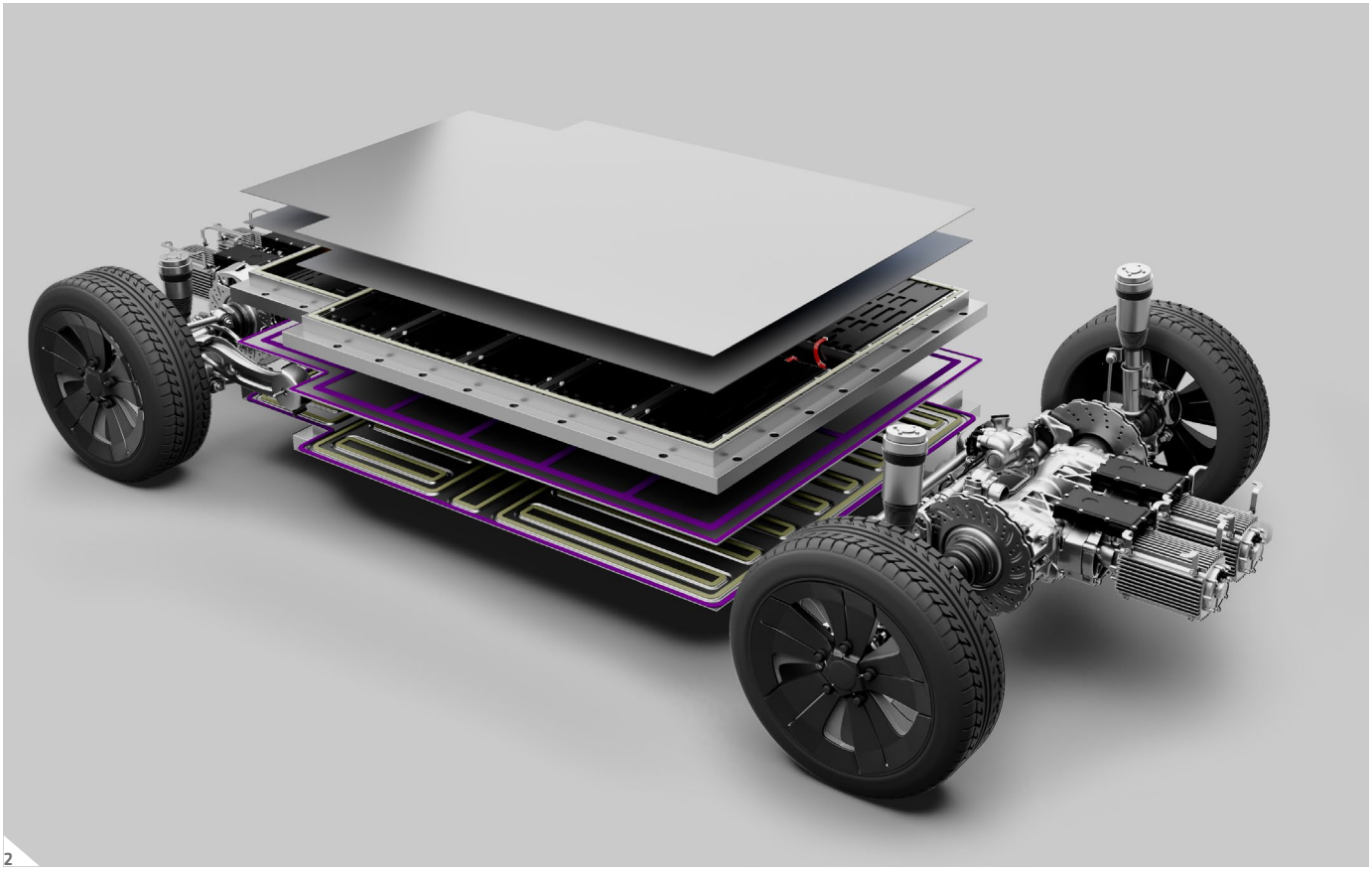

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1 e-Motor
2 Battery Packt

Because our customers are constantly looking for innovative solutions to provide more efficient, reliable and safer electric vehicles, we have recently developed a 2-component epoxy resins for e-Motor Stator encapsulation. This product not only enhances motor performance while facilitation design options, but also supports weight reduction and improvements in manufacturing by reducing cycle times. Our solutions also include multiple dielectric potting chemistries for controllers and on board chargers, as well as harnesses and connectors.

With our full range of SikaBiresin® RE we are able to tackle all major challenges such as:

1. Active cooling of high voltage power electronic systems such as OBC (on board charger) and low stress on sensitive component.
2. Provide high mechanical and electrical protection as well as crack resistance on e-Motors especially after thermal cycling – 45 °C / + 180 °C
3. Deliver durable and safer performance with outstanding heat, chemical and fire resistance.

OVERVIEW DIELECTRIC RESINS

	Characteristics	Shore hardness	Mixed viscosity, at 25 °C [mPa.s]	Pot life, at 25 °C [min]	Thermal conductivity [W/m.K]
PU					
SikaBiresin® RE461 - RE101	Semi rigid, liquid, thermal conductivity, high thermal resistance, UL94 V0, RTI 150°C ► recommended for battery cell potting	46 D	1,100	10-50	0.7
SikaBiresin® RE786 - RE102	High thermal conductive material for power electronic application	65 A	5,000	45	1.0
EP					
SikaBiresin® RE896 - RE896	Hot cure epoxy with high crack resistance for e-Motor impregnation	90 D	600/70 °C	60	1.0

DETAILED INFORMATION: DIELECTRIC RESINS

DIELECTRIC

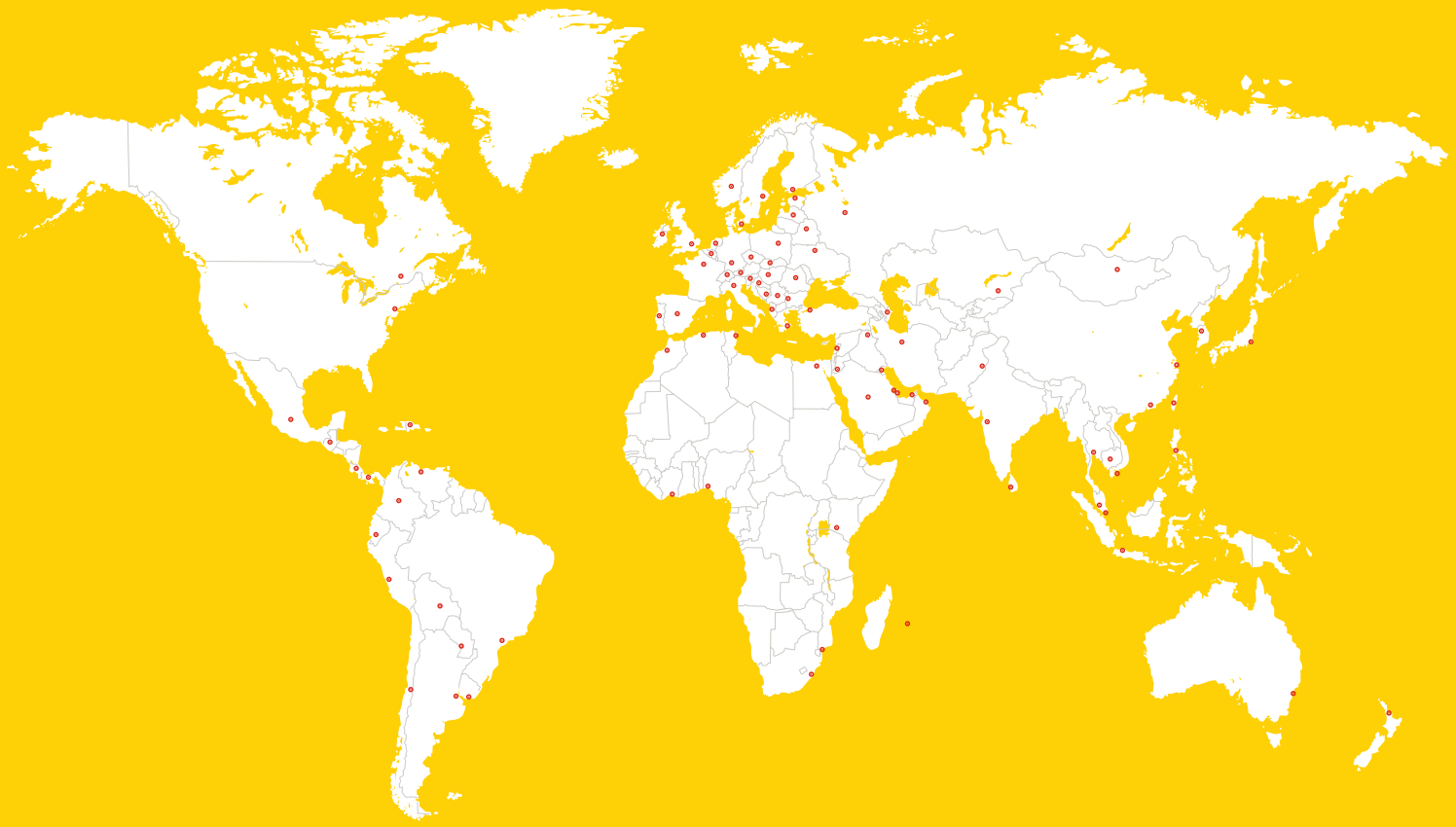
A	B	Characteristics Applications	Colour	Mixing ratio [g]		Mixed viscosity, at 25 °C [mPa.s]	Density	Pot life, at 25 °C [min]	Shore hardness
				A	B				
POLYURETHANE									
SikaBiresin® RE323	**RE111**	very soft, water resistance for electronic application	black	100	19	1,700	0.98	14	A 32
SikaBiresin® RE451A	**RE101**	soft, UL94 V0, water resistance	black	100	10	2,150	1.28	50	A 47
SikaBiresin® RE601	**RE102**	UL94 V0, thermal resistance	black	100	10	3,000	1.35	50	A 70
SikaBiresin® RE 786		soft, self extinguish, thermal conductivity	black	100	10	5,000	1,76	45	A 65
SikaBiresin® RE 820	**RE 102**	soft, water resistance, radio application	black	100	25	4,300	1,10	10/50	A 82
SikaBiresin® RE 880		soft, thermal resistance	black	100	20	1,500	1,41	40	A 88
SikaBiresin® RE 461	**RE 101**	UL94 V0, EN45545, general purposes	MULTI	100	16	1,100	1,55	10/50	D 46
SikaBiresin® RE 531	**RE 102**	UL 94 V0, EN45545, RTI 150°C high performance	black	100	14	1,650	1,57	22	D 53
SikaBiresin® RE 551		semi rigid, UL94 V0, affordable price	black	100	14	2,400	1,55	30/60	D 55
SikaBiresin® RE 560		semi rigid, low viscosity, general purpose	MULTI	100	25	1,300	1,33	25/50	D 56
SikaBiresin® RE 602A	**RE 602**	thixotropic , fast cure	black	100	80	Thixo	1,30	7	D 57
SikaBiresin® RE 651	**RE 102**	semi rigid, self extinguish , general purposes	black	100	20	1,900	1,56	30	D 70
SikaBiresin® RE 800		rigid, toughness, water resistance	red-black	100	28	1,200	1,38	65	D 80
SikaBiresin® RE 812	**RE 103**	rigid, fast cure, slight thixotropy	beige	100	30	5,700	1,38	2	D 81
SikaBiresin® RE 830		rigid, toughness, for CTVT transformer	brown	100	37	1,200	1,41	30	D 83
SikaBiresin® RE 851		rigid, self extinguish, thermal conductivity	beige	100	20	3,800	1,63	10	D 85
SikaBiresin® RE 885		rigid, high TG, high performance	MULTI	100	40	1,900	1,53	13/30	D 88
SikaBiresin® RE 321	**SF 020**	rigid, UL 94 V0, high dielectric strength	beige	100	40	2200	1,55	18	D 89
EPOXY									
SikaBiresin® RE 891	**RE 203**	rigid, UL 94 V0, chemical & thermal resistance	black	100	12	3,000	1,49	200	D 88
SikaBiresin® RE 896	**RE 896**	hot cure epoxy, thermal conductivity, crack resistance	black	100	13	600/70°C	2,30	60/70	D 90

* Internal test method

The information herein is offered for general guidance only. Advice on specific applications is available on request from the Technical Department of Sika Advanced Resins. Copies of the following publications are available on request: Safety Data Sheets. Product availability depends on region.

Tensile strength [MPa]	Elongation at break [%]	Max operating temperature [°C]	Thermal conductivity [W/m.K]	Glass transition temperature [°C]	Water absorption [% / 24h]	Self estinguishing [mm]	Dielectric strength [kV/mm]	Dielectric constant	Dissipation factor	Volume resistivity [Ω.cm]
1.20	400	100	0.20	-50	0.30	–	–	3.,5	0.02	1E+14
1.10	145	115	0.40	-40	0.30	V0 12.7	22	6.0	0.06	2E+12
1.90	300	130	0.30	-45	1.60	V0 3	25	8.4	0.04	2E+11
1,00	380	120	1,00	-35	0,90	V0 3*	24	9,6	0,12	7E+10
6,0	230	120	0,25	-50	0,30	-	28	3,5	0,02	1E+16
6,0	85	130	0,34	-25	0,50	-	23	7,0	0,06	5E+13
7,0	110	120	0,70	-5	0,30	V0 6	25	7,7	0,12	2E+14
5,0	50	160	0,73	-10	0,30	V0 3	22	7,0	0,14	4E+13
5,0	50	130	0,73	- 8	0,30	V0 6	22	7,0	0,14	5E+14
10,0	110	120	0,32	25	0,30	-	24	4,9	0,06	5E+15
9,0	120	110	0,30	20	0,45	-	18	5,4	0,07	1E+14
9,0	55	130	0,63	30	0,15	V0 1,5	28	5,3	0,06	4E+12
20,0	20	120	0,35	45	0,20	-	27	4,5	0,03	1E+16
20,0	14	130	0,45	50	0,20	-	26	4,8	0,03	2E+16
33,0	12	130	0,45	55	0,20	-	24	4,0	0,01	2E+15
28,0	4	130	0,75	43	0,17	V0 6*	24	5,0	0,04	2E+16
57,0	3	150	0,42	90	0,18	-	25	4,1	0,005	1E+16
45,0	2	130	0,60	70	0,08	V0 4*	38	4,2	0,030	2E+15
40,0	2	160	0,65	65	0,10	V0 6	27	4,0	0,04	5E+15
70,0	1,2	180	1,00	100	-	V0 6 *	17	5,0	0,02	1E+16

GLOBAL BUT LOCAL PARTNERSHIP



WHO WE ARE

Sika AG, Switzerland, is a globally active specialty chemicals company. Sika supplies the building and construction industry as well as manufacturing industries (automotive, bus, truck, rail, solar and wind power plants, facades). Sika is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting load bearing structures. Sika's product lines feature high quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

FOR MORE INFORMATION

www.sika.com/advanced-resins

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.

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