

PRODUCT DATA SHEET

SikaBiresin® RE 461 POLYOL / SikaBiresin® RE 101 ISOCYANATE*

*(previously re 12461 / re 1010)

ELECTRICAL POLYURETHANE RESIN

SEMI-FLEXIBLE – SELF EXTINGUISH – UL 94 V0

DESCRIPTION

Casting resin for mechanical and numerous electrical applications for low and medium voltage when requiring an extinguish characteristic.

PROPERTIES

- Semi Flexible
- Low viscosity
- Several reactivity
- UL 94 V0, UL 746 HAI, HWI
- EN 45545, NF F 16101
- Good thermal conductivity

PHYSICAL PROPERTIES

| Composition | POLYOL | | ISOCYANATE | MIXED | |
|------------------------------|-------------------------------|-----------------|-------------------------------|--------|-------|
| | SikaBiresin® RE 461 | | SikaBiresin® RE 101 | | |
| Mix ratio by weight | | 100 | 16 | | |
| Mix ratio by volume at 25 °C | | 100 | 20 | | |
| Aspect | | liquid | liquid | Liquid | |
| Colour | SikaBiresin® RE 461-(11)–(16) | White | Dark amber | White | |
| | SikaBiresin® RE 461-(35) | Red | | Red | |
| | SikaBiresin® RE 461-(74) | Grey | | Grey | |
| | SikaBiresin® RE 461-(94) | Black | | Black | |
| Viscosity at 25 °C | (mPa.s) | ISO 2555 : 2018 | 7.000 | 20 | 1.100 |
| Specific gravity at 25 °C | (g/cm ³) | ISO 1675 : 1985 | 1,57 | 1,22 | - |
| Specific gravity cured solid | | ISO 2781 : 1996 | - | - | 1,55 |
| Gel time at 25 °C (200 g) | (min) | Gel Timer TECAM | SikaBiresin® RE 461-(11) | | 10 |
| | | | SikaBiresin® RE 461-(94) | | 30 |
| | | | SikaBiresin® RE 461-(74) (35) | | 35 |
| | | | SikaBiresin® RE 461-(16) | | 50 |

MECHANICAL PROPERTIES at 23 °C ⁽¹⁾

| | | | |
|---------------------|----------------|----------------|---------|
| Hardness | ISO 868 : 2003 | Shore D1 / D15 | 46 / 36 |
| Tensile Strength | | MPa | 7 |
| Elongation at break | ISO 37 : 2011 | % | 110 |

(1) Average values obtained on standard specimens / Hardening 16 hours at 80°C and 24 hours at 23°C

THERMAL AND SPECIFIC PROPERTIES ⁽¹⁾

| | | | |
|---|-------------------|----------------------------------|--|
| Working temperature | - | °C | -50 to + 120 |
| Maximum working temperature (10 000 hrs) | - | °C | 130 |
| Thermal conductivity | EN 993-15 | W/m.K | 0,70 |
| Glass transition temperature (Tg) | ISO 11359 : 1999 | °C | -5 |
| Coefficient of thermal expansion (CTE) [-40 to -20]°C | ISO 11359 : 1999 | 10 ⁻⁶ K ⁻¹ | 45 |
| [+20 to +120]°C | | | 140 |
| Auto-extinguishing | UL94 : 1979 | - | V0 6 mm ⁽⁴⁾ |
| Hot wire ignition (HWI) | UL 746 A | Category PLC | 1 - 3 mm ⁽⁴⁾ 0 - 6 mm ⁽⁴⁾ |
| High current arc ignition (HAI) | UL 746 A | Category PLC | 0 - 3 mm ⁽⁴⁾ 0 - 6 mm ⁽⁴⁾ |
| Fire behaviour ⁽²⁾ | NF F 16101 : 1988 | - | I 3 – F1 |
| | EN 45545-2 : 2013 | R 22 | HL1 |
| | | R 23 | HL2 |
| | | R 24 | HL3 |
| Water absorption (23°C – 24 Hours) | ISO 62 : 1999 | % | 0,3 |
| Directive 2015/863/EU (ROHS) ⁽³⁾ | - | - | Conform |

(1) Average values obtained on standard specimens / Hardening 16 hours at 80°C and 24 hours at 23°C.

(2) Products SikaBiresin® RE 461-(16), SikaBiresin® RE 461-(35) and SikaBiresin® RE 461-(94) are certified EN 45545-2. SikaBiresin® RE 461-(94) is also certified NF F16101.

(3) European directive on the restriction of the use of certain hazardous substances electrical and electronic equipment.

(4) UL file number: E113398.

DIELECTRIC AND INSULATING PROPERTIES at 23°C ⁽¹⁾

| | | | |
|---|-----------------------|--------------|--------------------|
| Dielectric strength (50 Hz - 1 mm) | CEI 60243-1 E2 : 1998 | kV/mm | 25 |
| Dielectric constant ϵ (100 Hz) | CEI 60250 : 1969 | - | 7,7 |
| Dissipation factor $\tan \delta$ (100 Hz) | CEI 60250 : 1969 | - | 0,12 |
| Volume resistivity (1000 V) | CEI 60093 E2 : 1980 | Ω .cm | 2.10 ¹⁴ |
| Tracking resistance | CEI 60112 E3 : 1979 | - | IRC-600 - < 0.1 |

(1) Average values obtained on standard specimens / Hardening 16 hours at 80°C and 24 hours at 23°C

PROCESSING

- Before use ISOCYANATE SikaBiresin® RE 101 check carefully the absence of crystallisation or dimerization on each package
 - Solid particle presence
 - Cloudy liquid
- In case of crystallization or dimerization, the product must be placed in an oven at 60°C until complete decrystallization (16 hours maximum). Rehomogenize and return to room temperature. After shaking the product into the package, the product is not clear, DO NOT USE THE PRODUCT.
- Settling may be observed on the polyol. In that case, it is necessary to mix the POLYOL part until both colour and aspect become homogeneous. This is not harmful for the product quality.
- Both parts (POLYOL and ISOCYANATE) have to be mixed at a temperature higher than 18°C according to the mix ratio indicated on the technical datasheet. Before casting check that parts or moulds are free of any trace of moisture

HANDLING PRECAUTIONS

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

- Ensure good ventilation.
- Wear gloves, glasses and protective clothes.

For further information, please consult the Safety Data Sheets.

STORAGE CONDITIONS

Storage at a temperature below 5°C can cause crystallisation and dimerization of the ISOCYANATE SikaBiresin® RE 101.

Shelf life is 12 months for the POLYOL and 12 months for ISOCYANATE in a dry place and in their original unopened containers at a temperature between 15 to 25°C.

Any open can must be tightly closed under dry inert gas (dry air, nitrogen, etc...).

PACKAGING

Packaging information on request, please contact your local sales representative or find your local contact on www.sikaadvancedresins.com

FURTHER INFORMATION

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.

VALUE BASES

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

HEALTH AND SAFETY INFORMATION

For information and advice regarding transportation, handling, storage and disposal of chemical products, users shall refer to the actual Safety Data Sheets containing physical, ecological, toxicological and other safety-related data.

LEGAL NOTICE

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

CONTACT

SIKA DEUTSCHLAND GmbH
Stuttgarter Straße 139
72574 Bad Urach – GERMANY
Tel.: (+49) 7 125 940 492
Fax.: (+49) 7 125 940 401
E-mail : tooling@de.sika.com
Website : www.sikaadvancedresins.de

SIKA AUTOMOTIVE FRANCE S.A.S.
ZI des Béthunes - 15, Rue de l'Equerre
95310 Saint-Ouen-l'Aumône
CS 40444
95005 CERGY PONTOISE Cedex – FRANCE
Tel.: (+33) 1 344 034 60
Fax: (+33) 1 342 197 87
E-mail: advanced.resins@fr.sika.com
Website : www.sikaadvancedresins.fr

AXSON TECHNOLOGIES SPAIN, S.L.
Polígono Industrial Congost - Guardaagullés, 8
08520 LES FRANQUESES DEL VALLES – SPAIN
Tel.: (+34) 932 25 16 20
E-mail: spain@axson.com
Website: www.sikaadvancedresins.es

AXSON ITALIA S.R.L
Via Morandi 15
21047 Saronno (Va) – ITALY
Tel.: (+39) 02 9670 2336
Fax: (+39) 02 9670 2369
E-mail: axson@axson.it
Website: www.sikaadvancedresins.it

AXSON UK Ltd
Unit 15 Studlands Park Ind. Estate
Newmarket Suffolk, CB8 7AU – UNITED KINGDOM
Tel.: (+44) 1638 660 062
Fax: (+44) 1638 665 078
E-mail: sales.uk@axson.com
Website: www.sikaadvancedresins.uk

SIKA AUTOMOTIVE SLOVAKIA s.r.o.
Tovarenska 49
95301 ZLATE MORAVCE – SLOVAKIA
Tel: (+421) 376 422 526
Fax: (+421) 376 422 527
E-mail: axson.sk@axson.com
Web site: www.sikaadvancedresins.sk

SIKA ADVANCED RESINS US
30800 Stephenson Highway
Madison Heights, Michigan 48071 – USA
Tel.: (+1) 248 588-2270
Fax: (+1) 248 577-0810
E-mail: axsonmh@axson.com
Web site: www.sikaadvancedresins.us

SIKA AUTOMOTIVE MEXICO S.A. DE C.V.
Ignacio Ramírez #20
Despacho 202 Col. Tabacalera
C.P. 06030 CDMX – MEXICO
Tel.: (+52) 55 5264 4922
Fax: (+52) 55 5264 4916
E-mail: marketing@axson.com.mx
Website: www.sikaadvancedresins.mx

SIKA AUTOMOTIVE SHANGHAI CO. Ltd
N°53 Tai Gu Road
Wai Gao Qiao
Free Trade Zone, Pudong
200131 Shanghai – CHINA
Tel.: (+86) 21 5868 3037
Fax: (+86) 21 5868 2601
E-mail: marketing.china@axson.com
Website: www.sikaadvancedresins.cn

SIKA JAPAN Ltd
2-5-12 Onishi Okazaki Aichi
444-0871 – JAPAN
Tel.: (+81) 564 26 2591
Fax: (+81) 564 26 2593
E-mail: sales.japan@axson.com
Website: www.sikaadvancedresins.jp

AXSON INDIA Pvt. Ltd.
Office n°8, Building Symphony C - 3rd Floor
Range Hills Road
Bhosale Nagar
PUNE 411 020 – INDIA
Tel: (+ 91) 20 25 56 07 10
Fax: (+ 91) 20 25 56 07 12
E-mail: info.india@axson.com
Website: www.sikaadvancedresins.in

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RE 101 ISOCYANATE*
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