

RAPID Polyurethane Casting Resins

RAPID Casting Resins for Electrical Installation and Electronics

Rich heritage, strong tradition

TE Connectivity Raychem, Berlin, is a manufacturer of cable accessories with a tradition dating back more than 80 years. Engineering advances in electrical energy distribution figure prominently in the company's history. Having developed and manufactured high-standard casting resins for cable insulation for over 30 years, we added casting resins for electronics to our product range in 1996. The depth and breadth of this product line has since been extended. Today when we set out to develop new products, we focus on the attractive growth market of electronics encapsulation.

Premium materials - developed in the lab, proven in the field

We attach the greatest importance to steadily improving our products in close cooperation with our customers; this is, in fact, a cornerstone of the TE Connectivity philosophy.



Our R&D department creates casting and coating materials for electronics as well as insulating resins and putty for electrical installation applications.



Because RAPID polyurethanes are so versatile, they play a key role in our product range. From rubber-elastic encapsulants offering excellent flexibility at low temperatures to tough, rigid resins with high tensile strength, we offer you a wide range of RAPID potting materials to choose from.

RAPID Polyurethane Casting Resins

Designed for electrical engineering and electronics applications, RAPID two-component cold casting resins are especially well-suited for potting and coating to protect against moisture, environmental influences, mechanical shock and vibration. Courtesy of their water-repelling properties, RAPID polyurethane encapsulants are very resistant to hydrolysis. RAPID casting resins' sensitivity to moisture is very low, ensuring easy handling and safe processing.



The RAPID Product Family : Technical Data

(valid for the cured material, if not stated otherwise)

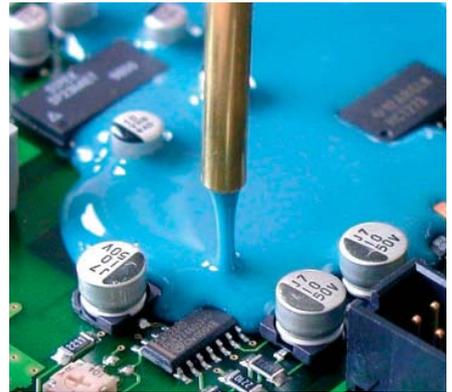
		P1 opaque	P1T transparent	
Typical field of application		Electronics	Electronics	
Cured material, specific properties		elastic, high temperature resistance	elastic, high temperature resistance	
Mixing ratio	by weight	100 : 13.5	100 : 19	
	by volume	100 : 10.5	100 : 15.7	
Viscosity of fresh mixture [Pa s]	@ 20 °C [DIN 53019] @ 40 °C	18 4.3	19 4.5	
Pot life @ 23 °C [min]	[HD 631.1 S2]	10	50	
Cure time	@ 23 °C @ 80 °C	2 h 25 min	--- 60 min	
Max. reaction temperature [°C] (valid for 300 ml)	[HD 631.1 S2]	60	48	
Density of cured material [g/cm ³]		0.99	0.98	
Glas transition temperature [°C]	[DIN 53445]	ca. -40	-40	
Operating temperatures [°C]		-40 to +150	-40 to +150	
Hardness Shore A / Shore D	[ISO 868]	A 40	A 50	
Tear strength [N/mm ²]	[ISO 527]	1.0	0.8	
Tear strength [N/mm ²]	after 28 d water immersion @ 90 °C	0.6	0.7	
Tear strength [N/mm ²]	after 28 d @ 150 °C	0.6	0.6	
Elongation [%]	[ISO 527]	107	45	
Elongation [%]	after 28 d water immersion @ 90 °C	194	63	
Elongation [%]	after 28 d @ 150 °C	64	40	
Dielectric breakdown strength [kV/mm]	[DIN VDE 0370 / IEC 156]	24	24	
Relative permittivity ϵ_r (0 °C - 50 °C, 10 Hz - 10 ⁵ Hz)		4.0 to 5.0	4.0 to 4.8	
Thermal conductivity [W/(mK)] @ 23 °C		ca. 0.2	ca. 0.2	
Thermal coefficient of expansion (20 °C to 140 °C)	linear - [K ⁻¹]	2.1 x 10 ⁻⁴	2.1 x 10 ⁻⁴	
	cubic - [K ⁻¹]	6.4 x 10 ⁻⁴	6.4 x 10 ⁻⁴	
Water absorption [%]	[DIN EN ISO 62]	0.15	0.24	

n.m. = not measured

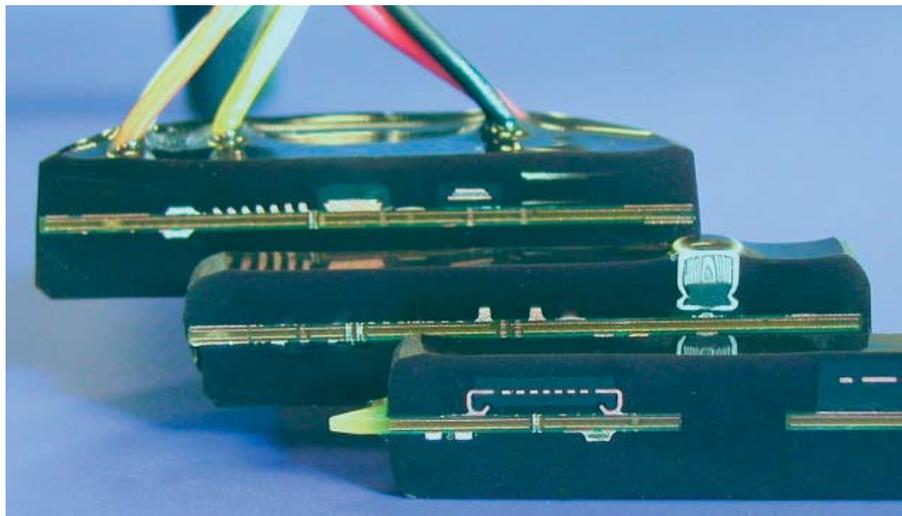
The data presented in this leaflet are in accordance with the present state of our knowledge, but do not release the user from checking all supplies carefully. We reserve the right to alter product constants within the scope of technical process or new developments. The mechanical properties of the cured materials are measured after standard cure conditions (24 h 23°C, 24 h 80 °C) according to HD 631.1 S2.

	flame retardant					
	C0 opaque	Y16 black	FY15 brown	6100B beige	4300 beige	3020 black
	Electronics / Electro-installation	Electronics	Electronics	Electronics / Electro-installation	Electronics / Electro-installation	Electronics / Electro-installation
	tough and elastic high resistance against fuel and oil	elastic, flexible at low temperatures	elastic, flexible at low temperatures self-extinguishing UL94 V-0	elastic, high hydrolysis resistance	elastic, inexpensive standard resin	tough and rigid, high tensile strength
	100 : 43.5 100 : 39.3	100 : 19.5 100 : 14.8	100 : 11.2 100 : 11.1	100 : 33 100 : 44.4	100 : 16 100 : 19.2	100 : 48 100 : 42.6
	1.5 0.4	7.6 2.3	12.6 3.6	3.0 0.7	6.6 2.6	1.3 0.3
	30	20	20	27	30	30
	2 h 15 min	3 h 20 min	3 h 20 min	3 h 15 min	3 h 15 min	4 h 17 min
	92	64	45	80	55	95
	1.17	0.97	1.23	1.34	1.44	1.15
	ca. 10	-60	-65	ca. 5	- 5	80
	up to +120	-50 to +125	-40 to +140	up to +120	up to +120	up to +120
	A 88 / D 41	A 68	A 71	D 36	A 85 / D 35	D 66
	10.0 2.6	1.6 1.6	2.4 2.0	3.0 3.6	4.3 3.9	18.0 20.0
	91 128	54 52	45 44	22 27	35 36	13 11
	15	21	18	15	16	9
	8.8	2.7 to 3.0	3.1 to 3.8	n.m.	8.4	4.4
	ca. 0.2	ca. 0.2	ca. 0.5	ca. 0.3	n.m.	n.m.
	2.3 x 10 ⁻⁴ 7.4 x 10 ⁻⁴	2.1 x 10 ⁻⁴ 6.2 x 10 ⁻⁴	1.8 x 10 ⁻⁴ 5.4 x 10 ⁻⁴	5.3 x 10 ⁻⁴ 15.9 x 10 ⁻⁴	1.6 x 10 ⁻⁴ 4.6 x 10 ⁻⁴	1.7 x 10 ⁻⁴ 5.2 x 10 ⁻⁴
	0.42	0.17	0.22	0.12	0.11	0.15

We are your first-choice partner when it comes to developing new materials and offering services tailored to your needs. You haven't found the right material in our assortment? We also offer customized resin formulation and development services. Whatever your project may entail, we will provide the expert consulting you need to make it a success.



RAPID polyurethane casting resins can easily be handled with ordinary two-component dispensing devices.



Encapsulation Technology and Services

- Casting resins
- Materials consulting
- Customized development
- Casting and coating service
- Sample and pilot production
- Inspection and testing
- Tooling

We provide the expertise and tailored services you need.

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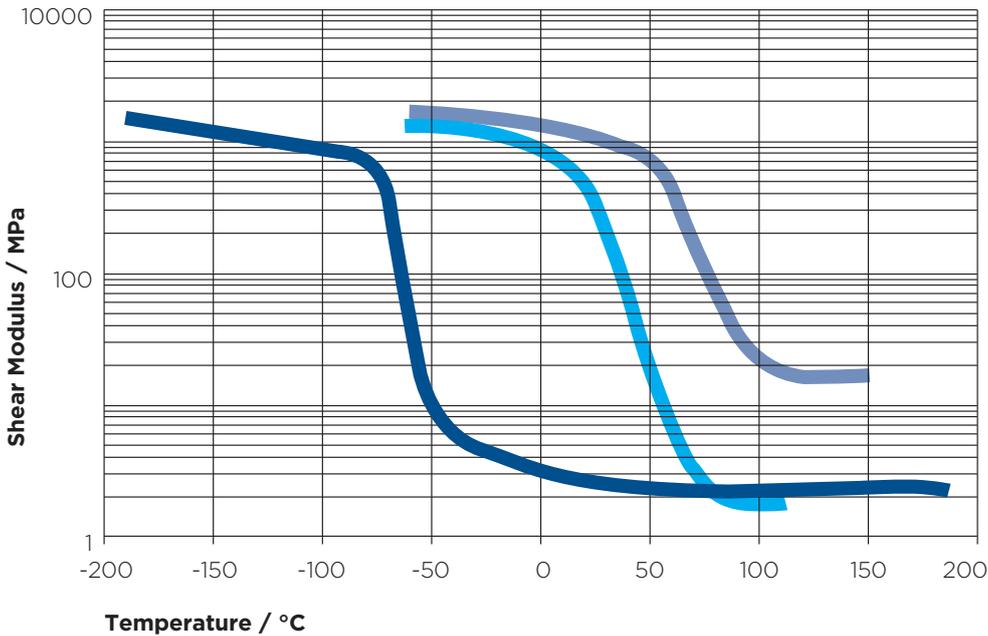
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Shear Modulus at Glass Transition Temperature



RAPID Y 16
 RAPID 3010 B
 RAPID 3020

Graphic representation of the shear modulus dependent on temperature for different RAPID casting resin grades used to determine the glass transition temperature according to German industrial standard DIN 53445.

RAPID casting resins are available in different grades according to the functional requirements of the particular application: From materials featuring rubber elasticity and low glass transition temperature for sensitive electronics to tough and rigid materials for mechanical protection or classic insulation technology.

Working with our international sales organization we, as a member of TE Connectivity, cultivate worldwide customer relationships. We develop and manufacture you high standard casting resins. TE Connectivity Raychem GmbH is certified according to OHSAS 18001, DIN EN ISO 9001 as well as to DIN EN ISO 14001.

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