



Epoxy resin adhesives and potting compounds
for applications in electronics, electrical engineering,
optics and medical technology
Product brochure

Epoxy resin adhesives and potting compounds for applications in electronics, electrical engineering, optics and medical technology

Epoxy resin adhesives and potting compounds are widely used in many industrial applications. Generally speaking, the materials are characterized by the fact that they are internally very rigid, adhere well to a multitude of surfaces and are highly resistant to temperature loads and chemical influences. The material properties with respect to flow behavior, curing speed and flexibility can be adjusted across a relatively wide spectrum.

Extremely diverse usage and processing conditions

Epoxy resin adhesives and potting compounds are generally optimized for specific areas of use and applications. In addition it is often required that they can be used in a wide range of production processing. When deciding the ideal product for a specific application certain issues will be important to consider. The number of components desired, curing temperature, curing time as well as usage conditions are all part of selecting the best product.

Applications for epoxy resin adhesives and potting compounds

Whether products are used in electronics, electrical engineering, optics or medical technology, epoxy resin adhesives and potting compounds help to permanently bond a wide range of materials and to protect sensitive units from environmental influences.

- **Microelectronics:**
SMD assembly, covering units, potting assemblies
- **Optics:**
Positioning lenses and prisms, securing optical sensors, bonding fiber-optic cables
- **Medical technology:**
Autoclavable, biocompatible bonding of medical devices such as endoscopes
- **Electrical engineering:**
Bonding magnets, potting micro switches

Benefits of bonding

Epoxy resin adhesives enable bonding of almost any material combination – even difficult ones such as metals, plastics, glass or ceramic. As they have a low viscosity, potting compounds even penetrate fine cracks and openings and thereby protect sensitive units against mechanical loads and the influence of most process media such as water, oil or gases.

The perfect product for your application

The adhesives and potting compounds presented here are unfilled resin and hardener systems. They are available in the form of two-component products that can be cured at room temperature or as one-component, hot-curing formulations wherein the hardener is already “incorporated” in solid form. You achieve by far the highest resistance to temperature loads and chemical influences with two-component, hot-curing products.



The following table provides an overview of the various processing and material properties.

Processing	Cold-curing	Hot-curing	
		1C	2C
Components	2C	1C	2C
Optically transparent, high-strength	EP 601	EP 501	–
Optically transparent, flexible	EP 610	–	–
Highest temperature and chemical resistance	EP 660	–	EP 642
Biocompatible	EP 601	–	EP 630 EP 653 EP 655-T
Biocompatible and autoclavable	–	–	EP 630 EP 653 EP 655-T

Variants and customized developments

Are you looking for a product with particular properties? Most of these adhesives and potting compounds also come as thinner, thixotropic, colored or pre-mixed and frozen variants. One of the strengths of

Polytec is the ability to partner with you to develop customized products according to your specifications. Please don't hesitate to contact us.

Epoxy resin adhesives and potting compounds

Product code	Processing properties					Thermal properties		Mechanical properties				
Parameter	Mix	Specific gravity	Viscosity	Pot life @ 23 °C	Cure schedule	Max. cont. service temp.	Glass transition temp.	Shore-hardness	Lap shear strength	Tensile strength	Young's modulus	Elongation at break
Method	–	PT TM 201	PT TM 202*	PT TM 702	–	PT TM 302	PT TM 501	PT TM 601	PT TM 604	PT TM 605	PT TM 605	PT TM 605
Unit	by weight	g/cm ³	mPa s	–	examples	°C	°C	–	MPa (Al/Al)	MPa	GPa	%
EP 501	–	1.2	16.000	1 mon	150 °C, 10 min	180	80	D85	31	76	3.6	4.0
EP 601	100:35	1.2	460	4 h	23 °C, 16 h	200	65	D80	37	65	3.5	2.9
EP 601-T	100:35	1.2	3.000	4 h	23 °C, 16 h	200	65	D80	37	65	3.5	2.9
EP 610	100:50	1.1	780	6 h	23 °C, 24 h	150	<23	A65	12	6	0.003	60
EP 610-T	100:50	1.1	3.000	6 h	23 °C, 24 h	150	<23	A65	12	6	0.003	60
EP 630	100:10	1.1	3.000	24 h	150 °C, 5 min	230	90	D85	19	63	3.2	2.9
EP 630-LV	100:10	1.1	1.000	24 h	150 °C, 5 min	230	90	D85	13	63	3.4	2.9
EP 642	100:5	1.1	10.000	24 h	180 °C, 15 min	250	150	D85	14	51	1.6	1.9
EP 653	100:10	1.1	6.000	24 h	150 °C, 5 min	230	80	D85	16	62	3.2	2.8
EP 653-T	100:10	1.1	23.000	24 h	150 °C, 5 min	230	80	D85	17	65	3.6	2.4
EP 655	100:10	1.2	5.600	24 h	150 °C, 5 min	220	100	D80	16	55	2.9	2.8
EP 655-T	100:10	1.2	11.000	24 h	150 °C, 5 min	220	100	D80	16	55	2.9	2.8
EP 660	100:17	1.1	1.000	45 min	23 °C, 16 h	240	120	D80	19	87	3.8	5.6

* Dynamic viscosity at 23 °C, plate – plate, gap: 0.5 mm, shear velocity: 84 s⁻¹

With the exception of EP 660, all of the two-component adhesives also come as pre-mixed, frozen variants.

The above listed information are typical data and do not constitute specifications.

 **Polytec PT GmbH**
Polymere Technologien
 Ettlinger Straße 30
 76307 Karlsbad
 Tel. +49 7243 604-4000
 Fax +49 7243 604-4200
 info@polytec-pt.de

 **Polytec France S.A.S.**
 Technosud II
 Bâtiment A
 99, Rue Pierre Semard
 92320 Châtillon
 Tel. +33 1 496569-00
 info@polytec.fr

 **Polytec South-East Asia Pte. Ltd.**
 Blk 4010 Ang Mo Kio Ave 10
 #06-06 TechPlace I
 Singapore 569626
 Tel. +65 64510886
 info@polytec-sea.com