Technical Data Sheet

Metallon E 2602

Solvent Free, Two-Component Adhesive
Can be cured at Ambient and Elevated Temperature

Base: Epoxy Resin

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Product Description

Metallon E 2602 is a paste-like, solvent-free two-component adhesive based on epoxy resin. It consists of an epoxy resin binding agent and a hardener based on polyamide resins, which are mixed in a mixing ratio of 1:1.
Metallon E 2602 can be cured both at ambient temperature and at elevated temperatures. By increasing temperature a distinctive reduction of the curing time is gained. Because no volatile components are cracked off during poly-addition hardening no high pressure onto the matching parts is necessary.
In order to avoid an unintentional movement of the parts and furthermore reach an optimum layer thickness, a fixation of the connection is, however, always recommended.
Bonds made with Metallon E 2602 exhibit high adhesion strength to most nonporous substrates, good peel and temperature resistance, and to a large extent chemical resistance.

Application Areas

Metallon E 2602 is suitable for bonding many materials: steel, nonferrous and light metals and their alloys, nonmetallic materials like porcelain, ceramics, wood, and some plastics (particularly duromers) as well as various other nonporous materials. The materials can be bonded to each other as well as with one another.

Technical Data

	Resin		**Hardener**	
Colour:	black		light grey	
Density:	1,5 ± 0.05 g/cm³		ca. 1,4 ± 0,05 g/cm³	
Consistency:	paste		paste	
Mixing ratio				
by weight:	1	:	1	
by volume:	0,93	:	1	

	Mixture (Component A + B)	
Colour:	grey	
Density:	ca. 1.45 g/cm³	
Solids:	100 %	
Consistency:	paste, flowing	
Potlife: (150g,20°C)	105 ± 15 min	M-20
Glass Transition Temperature:	70°C	

Curing times		
Initial strength:	7 h at 20°C	
Final strength:	3 d at 20°C	
	8 h at 50°C	
	6 h at 80°C	
	1 h at 100°C	
Shear strength		
based on DIN EN 1465:	see test results	M-40
Peel resistance		
based on DIN 53282:	see test results	
In service temperature range:	-40°C to 120°C	
Short exposure (up to 1 h):	150°C	

Preliminary statement

Prior to application it is necessary to read the **Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed.

Pretreatment

The parts to be bonded must be cleaned with suitable grease solvents, e.g. acetone, petroleum ether, alcohol, ethyl acetate or other solvents from oil, grease and dirt. Dust, rust, layers of oxides and paints should be removed thoroughly. In order to reach a good adhesion of the adhesive a mechanical roughening by grinding or sandblasting is recommended for metal and plastic parts. For many plastic parts machining – milling, brushing, turning on a lathe – will already be sufficient for roughening. By this method anti-adhesive release agents and other contaminations will be removed from the surface leading to a better wetting of the substrates with Metallon. If in practice a pretreatment is not possible pretrials are recommended to check whether the results will meet the requirements.
Besides these mechanical methods of pretreatment, chemical methods are recommended for obtaining optimum adhesion strength with metals with minimum variability in production line conditions. For plastics, particularly for unpolar materials, testing of surface activating pretreatment methods (flaming, corona or plasma) is useful.

Application

For the application of Metallon E 2602 weigh the two components (resin and hardener) to the specified mixing ratio of 1:1 and, dependent on the batch size, mix either manually or with an electric drill or mixer.
It is also possible to use special automatic mixing and metering equipment or complete special systems (we would be pleased to provide information on suitable systems on request).
When mixing is completed the product is ready for use and must be used within 1.5 hours (application time quoted for 20°C and 150 g mixture), since its viscosity increases when curing commences with a negative influence on the adhesion to the substrates. The application time is dependent on temperature and batch size: it reduces as the temperature and mix volume increase.
The adhesive should be applied to the parts to be bonded either manually (by spreading with a spatula or blade) or mechanically (e.g. by extrusion of beads from automatic mixing and dosing units) as soon as possible after mixing. When applying Metallon E 2602 keep an even and thin spread (ideal layer thickness: ca. 100 microns). Sometimes optimum joint width can already be obtained by the selected fixing aid being used.

Curing

During curing no fixation pressure is necessary. However, a fixation under light contact pressure against displacement, for better contact of the surfaces and for gap adjustment is advantageous in any case. (Adhesive being pressed out of the joints can easily be removed by spatula or cleaning paper.)
The curing times necessary for optimum adhesion strength depend largely on the curing temperature.

Typical Test results

1. Testing of the shear strength (based on DIN EN 1465) **at various curing temperatures**
(strengths in MPa, measured on alu/alu, sandblasted)

Curing mode	-40°C	0°C	20°C	40°C	60°C	80°C
cold curing at 20°C	22	25	24	18	5	2
temperature curing 1 h at 100°C	32	30	24	14	6	2

2. Testing of the peel resistance (based on DIN 53282) **at various curing temperatures**
(values in N/cm; measured on alu/alu, grinded; 1st value = initial tear; 2nd value = peeling)

Curing mode	-40°C	0°C	20°C	40°C	60°C	80°C
cold curing at 20°C	700/50	550/60	550/55	350/45	200/35	140/25
temperature curing 1 h at 100°C	450/50	500/50	350/55	350/45	300/35	100/30

Cleaning

Fresh, uncured material may be removed from tools or substrates with Macroplast B 8040; fully cured adhesive can only be removed mechanically.

Storage

Frost-sensitive	no
Recommended storage temperature	10°C to 20°C
Shelf-life	18 months in original packaging

Packaging

Resin:	
Pail	5 kg
Box	6 tins at 350 g
Hardener:	
Pail	5 kg
Box	6 tins at 350 g

Hazard Indications /
Safety Recommendations /
Transport Regulations — see Safety Data Sheet

Important

The data above, particularly the recommendations for application and use of our products is based on our knowledge and experience. Due to different materials and conditions of application which are beyond our knowledge and control we strongly recommend carrying out sufficient tests in order to ensure that our products are suitable for the intended process and applications. Except for willful acts any liability based on such recommendations or any oral advice is hereby expressly excluded.

This Technical Data Sheet supersedes all previous editions.

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