

3MS.019

Encapsulating Resins



Summary

Overview

OVERVIEW

SAFETY

LIQUID RESINS

Durapot™ 861
Durapot™ 862

STANDARD RESINS

Durapot™ 863
Durapot™ 865
Durapot™ 868

FLEXIBLE RESINS

Durapot™ 864
Durapot™ 868

TECHNICAL DATA

Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.

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Final Advanced Materials offers three types of epoxy resins:

- **Standard resins:** high viscosity, excellent resistance to chemicals and solvents
- **Liquid resins:** very low viscosity
- **Flexible resins:** flexible after curing

Preparation of the resin

- Mix the epoxide prior to application.
- Two components resin: mix each of these components individually.
- The mixing shouldn't introduce too many air bubbles.

Note: Heating the adhesive to between 35 and 50 °C significantly reduces its viscosity (it behaves like an engine oil), which can facilitate mixing and kneading. It should be kept in mind that this reduces the pot life and therefore it is important to work quickly in this case.

Surface preparation

Surfaces should be cleaned of all bond residues, dust, traces of oil, grease and dirt before bonding. For oil and grease, the best results are obtained with organic solvents such as acetone, ethanol, MEC (methylethylcetone).

Cleaning the surfaces improves the adhesion of the adhesive. The adhesive generally adheres well to metals (with the exception of chromium and titanium), ceramics and synthetic materials. Among these, it may be necessary, for polyolefins or PTFE-based materials, to allow for an initial impregnation. For example, you can use a mixture of oxygen and sulphur hexafluoride.

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Safety

The legal information and safety guidelines are provided in the safety data sheets available to you.

Avoid contact with the skin. Wear gloves at all times.

In case of contact with the skin:

NEVER clean adhesive on the skin with an organic solvent.

Any contact with adhesive or organic solvent can cause irritation to the skin.

Use soap and water to clean the skin, or, failing that, special hand wash pastes.

Liquid Resins

Durapot™ 861- Low viscosity

Properties

- Translucent and fluid resin
- Max. operating temperature: 260 °C
- Cures at room temperature

Implementation

- Curing: 24 hours at room temperature
- Post-curing: 1 hour at 120 °C followed by 1 hours at 175 °C

Applications

- Good impregnation of porous or fibrous materials
- Ideal for electronic applications

Durapot™ 862-High temperature

Properties

- Very fluid and translucent
- Max. operating temperature: 315 °C

Implementation

- Fast curing in 4 hours
- Post-curing: 1 hour at 175 °C followed by 16 hours at 230 °C

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Standard Resins

Durapot™ 863- High temperature encapsulating

Properties

- Excellent dielectric stability at high temperature.
- Resistant to solvents and moisture.
- Max. operating temperature: 315 °C

Applications

- Bonding organic materials and minerals

Implementation

- Fast curing in 4 hours
Post-curing: 1 hour at 175 °C followed by 16 hours at 230 °C

Durapot™ 865 – Thermal conductive resin

Properties

- Max. operating temperature: 260 °C
Cures at room temperature

Applications

- In electronic components to dissipate heat

Implementation

- Curing: 24 hours at room temperature
- Post-curing: 1 hour at 120 °C followed by 1 hour at 175 °C

Durapot™ 868-High temperature and flexible

Properties

- Resistant to thermal shocks
- Excellent electrical insulation
- Max. operating temperature: 260 °C

Implementation

- Fast curing: in 2 to 4 hours
- Post-curing: 2 hours at 150 °C

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Flexible Resins

Durapot™ 864-Flexible, cures at room temperature

Properties

- Similar to Durapot™ 863
- Better elasticity
- Better resistance to thermal variations and shocks

Max. operating temperature: 230 °C

Implementation

- Curing: 24 hours at room temperature
- Fast curing in 2 hours

Durapot™ 868-High temperature and flexible

Properties

- Resistant to thermal shocks
- Excellent electrical insulation
- Max. operating temperature: 260 °C
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Implementation

- Fast curing: in 2 to 4 hours
- Post-curing: 2 hours at 150 °C

Technical Data

Property	Unit	861	862	863	864	865	868
Max. Operating Temperature	°C	260	315	315	230	260	260
Colour		amber	amber	amber	brown	grey	amber
Components		2	2	2	2	2	2
Viscosity	cps	3,600	1,600	2,000	17,200	30,000	800
Density	g/cm ³	1.2	1.2	1.2	1.1	1.9	1.1
Filler		-	-	-	-	-	-
Hardness	Shore D	80-D	80-D	90-D	60-80-A	95-D	60-80-A
Thermal Conductivity	W.m ⁻¹ .K ⁻¹	0.22	0.25	1.3	1	2.9	0.58
Thermal Expansion	10 ⁻⁶ .K ⁻¹	54	54	34	68	38	52
Dielectric Strength	kV/mm	17.6	19.5	21.5	17.6	27.3	19.5
Resistivity	Ω.m	10 ¹¹	10 ¹²	10 ¹²	10 ¹²	10 ¹³	10 ¹²
Dielectric Constant		4.15	4.15	3.5	3.5	3.5	4.1
Loss Factor		0.015	0.015	0.01	0.01	0.01	0.015
Chemical Resistance		Excellent	Excellent	Excellent	Good	Excellent	Excellent
Solvent Resistance		Excellent	Excellent	Excellent	Good	Excellent	Excellent
Pot Life	h	0.5	4	8	1	1	2-4
Mix Ratio	Resin - Hardener	100-17	100-80	100-71	100-120	100-5	100-40
Cure at Room Temperature		16 to 24 hrs	-	-	24 hrs	16 to 24 hrs	-
Fast Cure		-	4 hrs at 120 °C	4 hrs at 120 °C	-	-	2 to 4 hrs at 120 °C
Post Cure		1 h at 120 °C + 1 h at 175 °C	1 h at 175 °C + 16 hrs at 230 °C	1 h at 175 °C + 16 hrs at 230 °C	-	1 h at 120 °C + 1 h at 175 °C	2 hrs at 150 °C

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