

## Epoxy Topcoat Systems E25D / E25DM / E40D

- Surface and fine layer resins, Gelcoats / Topcoats -



The mentioned epoxy-systems are unfilled combinations of resin and hardener with short to medium working times and low to middle viscosity for several applications.

### Properties and field of application:

#### As laminating and covering resins:

- high resistance to UV radiation, non-yellowing
- good wet-out of reinforcement fibres
- create bright, non-gluey (tacky-free) surfaces and casts; suitable for carbon-look laminates (observe Tg MAX)
- cold-hardening, applicable from 10°C

#### E25D:

- epoxy-topcoat, for transparent coatings, low-viscous

#### E25DM:

- base for epoxy-gelcoats, first (fine) resin layer in negative moulds, therefore medium-viscosity. The necessary thixotropy can be achieved by adding 3-4% by weight of PK22.

#### E40D:

- Transparent coatings or castings up to 10mm layer-thickness  
- Suitable for creating indoor stone carpets

For maximum UV-stability, we recommend an additional coating with a clear varnish (e.g. HP-PUR). Also the long term UV-resistance can be improved by adding HP-BEL91 (in epoxy and in varnish) distinctly! All Gelcoats and Topcoats can be coloured with dry pigments and colour pastes. As an alternative HP-Textiles also offers coloured epoxy-topcoats!

Note: The hardener of E25D and E25DM are the same.  
Also, both resin components can be mixed among themselves.

### Product Properties:

		E25D	E25DM	E40D
Colouring		colourless / clear		
Mix ratio (resin : hardener)	[by weight]	100:60		100:50
	[by volume]	100:64	100:66	100:57
Mixing viscosity (at 20°)	[mPa s]	700 - 1100 (low viscosity)	7000 – 9500 (medium viscosity)	700 - 1100 (low viscosity)
Mixing viscosity (at 25°)	[mPa s]	500 - 700 (low viscosity)	1800 - 2200 (medium viscosity)	300 - 500 (low viscosity)
Working time / pot life (at 20°C)	[minutes]	25	25	40
walkable (shore D40 after)	[h]	12	8	15
Processing temperature (optimum)	[°C]	15-25	15-25	15-25
Processing temperature (minimum)	[°C]	10	10	10

## Product Specifications:

E25D		RESIN	HARDENER	
Viscosity (at 25°C)	[mPa s]	700 - 1100	400 - 700	HP.07.0003
Density (at 20°C)	[g/cm³]	1,10 - 1,12	1,05 - 1,06	HM.07.0002
(NH)-Equivalent	[g/EQ]		113 - 117	HM.07.0014
Epoxy-Equivalent	[g/EQ]	185 - 195		HM.07.0013

E25DM		RESIN	HARDENER	
Viscosity (at 25°C)	[mPa s]	7000 - 9500	400 - 700	HP.07.0003
Density (at 20°C)	[g/cm³]	1,15 - 1,17	1,05 - 1,06	HM.07.0002
(NH)-Equivalent	[g/EQ]		113 - 117	HM.07.0014
Epoxy-Equivalent	[g/EQ]	185 - 195		HM.07.0013

E40D		RESIN	HARDENER	
Viscosity (at 25°C)	[mPa s]	700 - 1100	50 - 150	HP.07.0003
Density (at 20°C)	[g/cm³]	1,10 - 1,12	1,02 - 1,03	HM.07.0002
(NH)-Equivalent	[g/EQ]		93 - 97	HM.07.0014
Epoxy-Equivalent	[g/EQ]	185 - 200		HM.07.0013

## Moulding properties -without reinforcing material-:

		E25D	E25DM	E40D	
Tensile strength	[N/mm²]	55	65	43	HM.07.0004
Elongation	[%]	7	5	4	HM.07.0004
Flexural strength	[MPa]	75	90	75	HM.07.0005
E-Modulus	[GPa]	3	3	3	HM.07.0004
Hardness	[Shore D]	82	84	85	HP04.07
Glass trans. temperature T <sub>g</sub> MAX <sup>1</sup>	[°C]	47	67	50	HP04.08

Specifications with unreinforced resin after curing for 24h at 23°C + 15h at 80°C

<sup>1</sup>For carbon design surfaces, it is alternatively possible to use HP-E200GL. This epoxy-system achieves a particularly high T<sub>g</sub> MAX of 107°C.

## Curing and exothermic progress:

In this case, resin and hardener will be tempered at 23°C and 100g mixed. The sensing element is placed on the bottom of the cup (aluminum bowl).

Higher temperature or larger amounts will cause a reduction of the processing time (pot life).

### Temperature peaks:

	E25D	E25DM	E40D
t up to T <sub>max</sub> [h:mm]	Approx. 0:50	Approx. 0:45	Approx. 0:53
T <sub>max</sub> [°C]	90	100	90

### Curing and hardness Shore:

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According to HP04.04. Resin and hardener are mixed and amounts of 10g will be placed in cups and the hardness (Shore) will be measured regularly under isothermal conditions.

#### Hardness:

at 20°C	E25D	E25DM	E40D
Hardness Shore D 40	12h	8h	15h
Hardness Shore D 60	16h	12h	21h

#### Hardness:

at 40°C	E25D	E25DM	E40D
Shore D 40	6h	4h	7h
Shore D 60	7h	5h	8h

### E40D as binding agent for stone carpets:

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Depending on the grain size, amounts of 5-8% (by weight) are usual.

In areas with higher air-humidity (bathrooms, pools, ...) a sealing of the porosities in the surface is recommended.

For external applications, an additional sealing with a suitable PUR coat including UV stabilizer is necessary.

### Safety instructions:

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The safety instructions are to be taken from the respective containers. Do not allow children to handle. Prevent inhalation of the fumes and contact with bare skin. Wear suitable protective gloves and safety goggles. Do not eat, drink or smoke while using. During the hardening process, energy can be released in the form of heat, hence a cooling/heat exchanging should be provided in order to prevent hot spots. Only mix the components in the recommended proportions in accordance with the instructions.

Higher resistance against crystallization.

However, at very low temperatures, a crystallization of the hardener may occur. The process is reversible e.g. by heating it in a water bath to 40-60°C. A complete melting is important. Storage and processing with air admission may lead to carbamate formation (white coloration).

### Application Instructions:

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We recommend tests be performed for trials and suitability for the particular type of application. The system should only be used in the mentioned temperature conditions. The relative air humidity should not be above 70%. In respect of the safety instructions the epoxy and hardener should be mixed in a suitable mixing vessel in accordance with characteristics given in the data sheet. Deviating from the mixing recommendations can lead to incomplete hardening and through that to a loss of performance.

Ensure that the edges are well mixed using a stirring stick or a propeller type mixer. Streaks indicate insufficient stirring and mixing of the components. Larger amounts (more than 100g) and higher temperatures (higher than 20°C) reduce the pot life.

Mixtures which rise to over 40°C in the mixing vessel should not be used any further since processing is associated with property losses. Increases in temperature can be reduced by pouring the mixture into flat painting trays.

Generally for epoxy: Full cure (strength) after 7 days at 20°C (literature value).

Higher temperatures will decrease this time.

Improved heat resistance and better mechanical properties can be achieved by tempering (post-curing).

Tempering cycles: 24h at 23°C + 5h at 60°C

### Colouring and transparency:

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All raw materials are subject to constant quality inspection. Caused by minimum differences in reaction processes colour deviations are possible. All products are obtained in accordance with the requirements of the specifications. According to the Beer-Lambert law, the subjective colouring depends on the layer thickness. Because of this, the epoxy in the container may seem yellowish. In thin layers, this is usually uncritical.

### Cleaning work tools:

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Unhardened product remains can be removed from tools by means of acetone or Thinner XB. Tools should be given a good airing after being cleaned with these solvents, in order to prevent the solvent from being retained until the tool is used again. Hardened remains can only be removed by mechanical means, e.g. by sanding.

### Storage:

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Threaded container tops should be kept free of material remains. Do not exchange tops/lids. Close opened containers tightly. Store cool and dry. With optimal storage conditions, shelf-life should be beyond 12 months.

### Deliverable quantities:

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Plastic containers with safety fastening in several quantities.

Larger containers (e.g. barrel goods) can be obtained upon request.

### Disposal:

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Do not allow to enter drains, waterways or soil. Uncured product residues are hazardous waste. The cured system is construction site waste / household waste.

### Further Information:

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Further application information can be obtained from our website by selecting *Product Info*. Please do not hesitate to contact us by telephone if you have further queries.

Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us. We recommend tests be performed for trials and suitability for the particular type of application.

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