RESOLTECH 1040 (T)

Hardeners 1041 SL, 1041 HT, 1042HT

High Performance Epoxy Laminating System

- **High temperature resistance laminating system**
- **For pre-preg tooling or high temperature parts**
- **TG max up to 130º C**




RESOLTECH 1040 - 1040T

Advanced epoxy laminating system formulated to manufacture high performance lightweight structures with glass, carbon, aramid and basalt fibres with post-curing.

This excellent wetout system, optimized with a low reactivity, low viscosity and excellent air release properties, is recommended for the manufacture of tools and composite parts that require to resist to temperatures under load up to 130ºC .

This system is optimized for wet-layup but may be used by filament winding or casting when mixed with appropriate fillers & charges.

Typically, this system is used for the manufacture of 120ºC curing prepreg tooling or parts exposed to high temperatures such as composite motorbike or race car exhausts.

The 1040 resin may be ordered in it´s **thixotropic version, the 1040T** for parts or moulds with vertical or overhanging surfaces. It is also recommended as first coat for carbon laminates to avoid air entrapment at the warp and weft intersections of the fabric

It is recommended to cure the part or tool laminated at 60ºC in order to release from the mould or plug, but it is also possible to cure at temperatures as low as 40ºC with a longer curing time

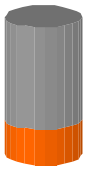
The resulting structures will have high mechanical and interlaminar properties.

Resin 1040 (T)

Hardeners 1041 SL & HT 1042HT

MIXING RATIO

	by weight
Resin 1040 (T)	100
Hardener 1041 SL	35
Hardener 1041 HT	30
Hardener 1042 HT	25



WARNING: The mixing ratio must be accurately followed. It is not possible to change the ratio,it would result in lower mechanical properties.
The mixture should be thoroughly stirred to ensure full homogeneity.
It is important to note that epoxy systems tend to heat up much faster in a pot than as a thin film. It is therefore necessary to only mix the necessary amount usable within the given pot life. Keeping the mixture in flat open containers reduces the risks of exothermic reaction.

APPLICATION

The standard procedure of working with epoxy systems applies this system. The 1040 system can be applied by brush, roller, infused or injected. In case of laminating over a cured surface without peel ply, it is required to deglaze, clean and degrease the support prior to laminating.

It is recommended to have workshop temperature conditions between **18-25°C** in order to facilitate the mixing and the reinforcement fibers impregnation. A lower temperature will increase the viscosity of the mix as well as it's pot life. On the contrary, a higher temperature will reduce the viscosity and the pot life of the mix.

For more information, please refer to the applications technical bulletins (TechNotes), available on request.

PHYSICAL CHARACTERISTICS @ 23°C

Visuel Aspect

1040 (T) :	Opalescent neutral liquid
1041 SL & HT - 1042 HT :	Neutral to transparent yellow liquid.
Mix :	Neutral to transparent yellow liquid.

Densities

REFERENCES	1040	1041 SL	1041 HT	1042HT
Density	1.15 ± 0.03	0.94 ± 0.03	0.95 ± 0.03	0.92 ± 0.03
Mix density	-	1.10 ± 0.03	1.10 ± 0.03	1.10 ± 0.03

Resine 1040 (T)

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PHYSICAL CHARACTERISTICS @ 23°C (continued...)

Viscosity (mPa.s)

REFERENCES	1040	1041SL	1041HT	1042HT
Viscosity	2600 ± 500	100 ± 25	80 ± 25	25 ± 15
Mix viscosity	-	1130 ± 150	980 ± 150	800 ± 150

REACTIVITY @ 23°C (continued...)

Reactivity measures realized on Trombotech[@]

Hardeners	1041SL	1041 HT	1042 HT
Gel time on 70g	6h20	2h45	2h20
Time at exothermic peak on 70g	7h15	2h50	2h20
Temperature at exothermique peak on 70g	36,9ºC	135ºC	115ºC
Gel time on a 2mm thick laminate	8h	4h25	4h20

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CURING & POST CURING

Curing prior to mould release is mandatory. The lowest admissible cure is 12h @ 40ºC or preferably 8h @60ºC.
Postcuring is mandatory in order to obtain a material at the maximum of its mechanical properties with a TG of up to 130ºC
Posrcuring cycle and temperature will depend on the thickness of the laminate as it has been observed that every 7,5 mm of thickness, temperature drops in the laminate due to the high heat insulation properties of the epoxy resins. In case of doubt, contact us.
As general reference, postcuring should be done with a cycle of : *24h at room temperature (20-25°C) + 8h at 60°C + 2 h @ 80ºC + 2h @ 120ºC with ramps of 0,5 ºC /minute*
Slow cooling down after postcuring is recommended like for all composite laminates to avoid stress & tensions due to uneven cooling down of all surfaces
You can find hereunder the TG's according to the curing and post-curing cycles.

TG	1040 - 1041 SL	1040 - 1041 HT	1040 - 10142 HT
24h25°C+8h60°C+2h80°C+2h120°C	110ºC	115ºC	123ºC
24h25°C+3h50°C+3h100°C+3h150°C	***130ºC***	***127ºC***	***130ºC***

MECANICAL CHARACTERISTICS

TRACTION

Module :	3500 MPa
Maximum resistance :	68 MPa
Resistance until breaking :	65 MPa
% elongation :	4 %

FLEXION

Module :	3400 MPa
Resistance :	108 MPa
% elongation :	5 %

COMPRESSION

N/A

CHOC

N/A

HARDENESS SHORE D

N/A

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PACKAGING

1040+1041 SL

- 1.35 kg kit (1 kg + 0.35 kg)
- 6.75 kg kit (5 kg + 1.75kg)

- 39 kg kit (30 kg + 9 kg)
- 260 kg kit (200 kg + 60 kg)

1040+1041 HT

- 1.3 kg kit (1 kg + 0.30 kg)
- 6.5 kg kit (5 kg + 1.5kg)

1040+ 1042 HT

- 1.25 kg kit (1 kg + 0.25 kg)
- 6.25 kg kit (5 kg + 1.25kg)

TRANSPORT & STORAGE

Shelf life is one year in sealed containers as provided. Keep containers sealed and away from heat and cold preferably between 10°C and 30°C in a well ventilated area.

HEALTH & SAFETY

It is advised to follow basic rules such as avoiding skin contact, wear masks when producing dust. Please read our standard health and safety sheet for more information.

In case of eye contamination, wash with water and seek medical advice.

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