

RESOLTECH 1040

Technical Datasheet - 22/01/2008

Hardeners 1045N & 1048N

High Performance Epoxy Laminating System

- Adjustable pot life from 20min to 3h20
- Ambient temperature cure & mould release
- Final TG up to 97°C



RESOLTECH 1040 - (1045N~1048N)

Advanced epoxy laminating system formulated to manufacture high performance lightweight structures with glass, carbon, aramid and basalt fibers with or without post-curing.

This new generation system, optimized with a low reactivity, low viscosity and excellent air release properties, is suitable for the manufacture of large structures and composite parts by contact, infusion and injection moulding while guaranteeing low toxicity working conditions to the user and ease of use thanks to its high wetting properties.

It features an **adjustable working time from 20mn to 3 hours and 20 minutes** with two hardeners that can be pre-blended together to precisely adjust the pot life thanks to their identical mixing ratio of 100:30 and perfect compatibility.

It is possible to **release the parts from the mould without post-curing**.

The maximum thermo-mechanical properties of the laminate will be obtained after a post-curing cycle to obtain a **final TG of 92°C to 97°C**. Nevertheless, a post cure is not mandatory depending on the final use of the parts.

The resulting structures will have high mechanical and interlaminar properties. The system is also suitable for casting and filament winding applications.

The greatest quality of the RESOLTECH 1040 - (1045N~1048N) relies in its flexibility of use thanks to the fast and slow hardeners while obtaining a high TG of over 90°C.

Resin 1040

Hardeners 1045N & 1048N

Structural laminating epoxy system

- Adjustable pot life from 20min to 3h20
- Ambient temperature cure & mould release
- Final TG up to 97°C

MIXING RATIO

	by weight
Resin 1040	100
hardeners 1045N-1048N	30



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 1040/1045N/1048N 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 its 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

Visual Aspect

1040 : Opalescent neutral liquid
1045N ~ 1048N : Neutral to transparent yellow liquid.
Mix : Neutral to transparent yellow liquid.

Densities

REFERENCES	1040	1045N	1048N
Density	1.17	0.98	1.00
Mix density	-	1.12	1.11

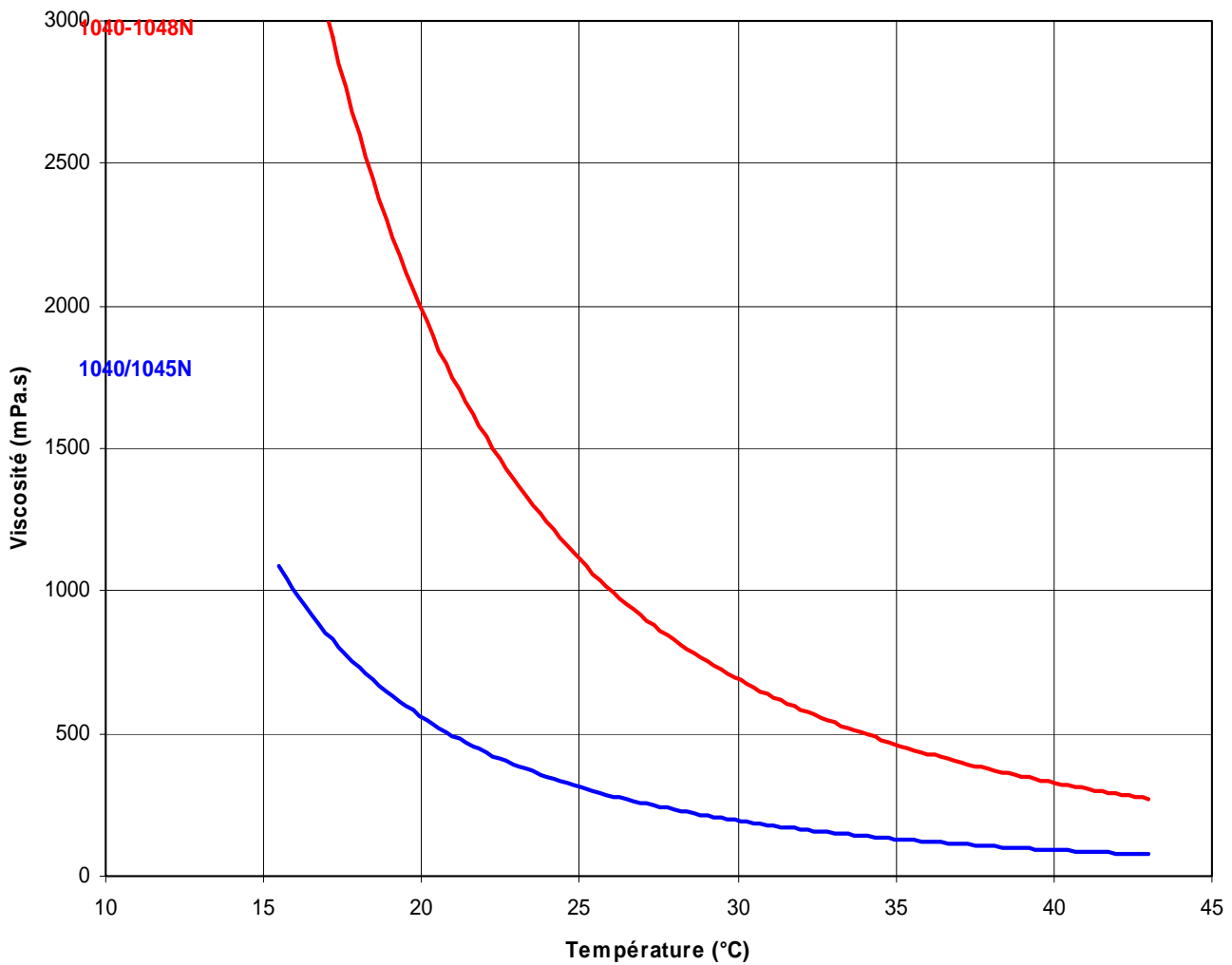
Resine 1040

Hardeners 1045N & 1048N

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

Viscosity (mPa.s)

REFERENCES	1040	1045N	1048N
Viscosity	2800	30	250
Mix viscosity	-	300	1103



Resin 1040

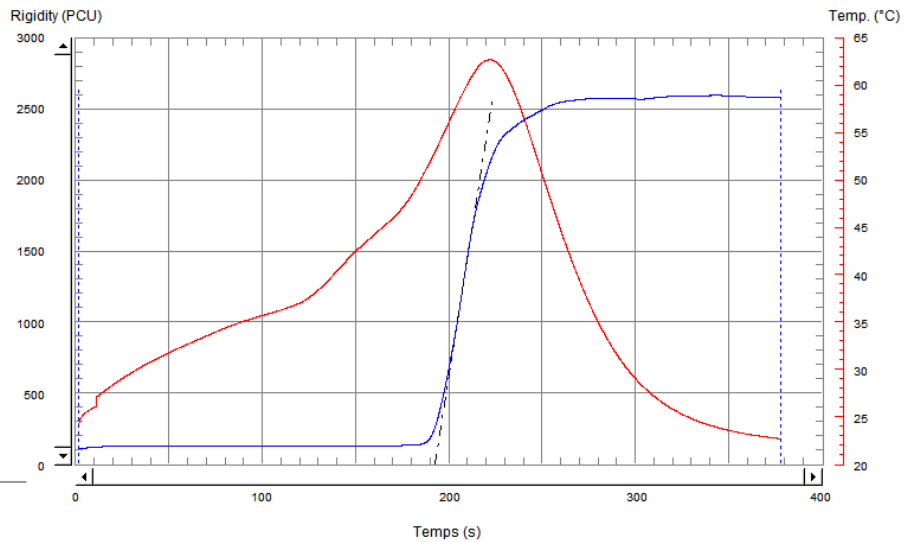
Hardeners 1045N & 1048N

REACTIVITY @ 23°C (continued...)

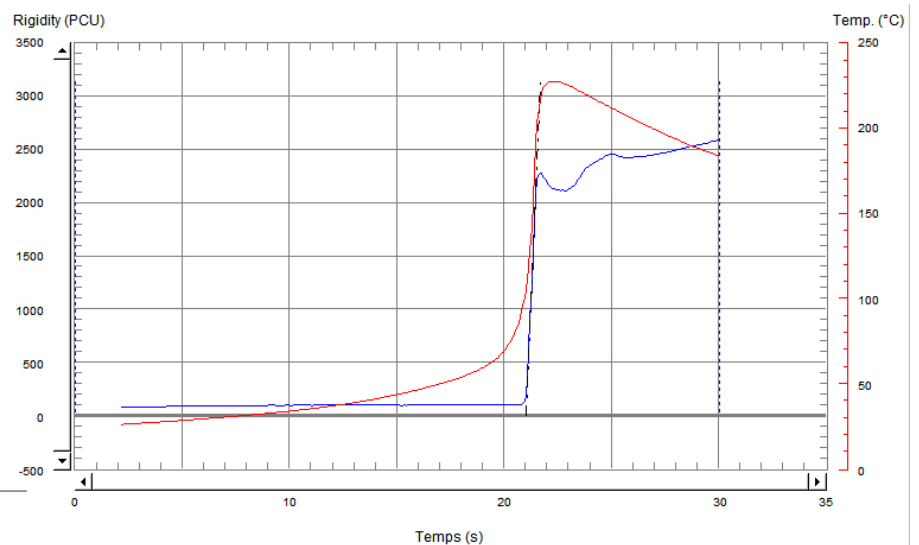
Reactivity measures realized on Trombotech®

Hardeners	1045N	1048N
Gel time on 70g	3h20	20min
Time at exothermic peak on 70g	3h30	20min
Temperature at exothermic peak on 70g	64°C	240°C

1040 - 1045N



1040 - 1048N



Resin 1040

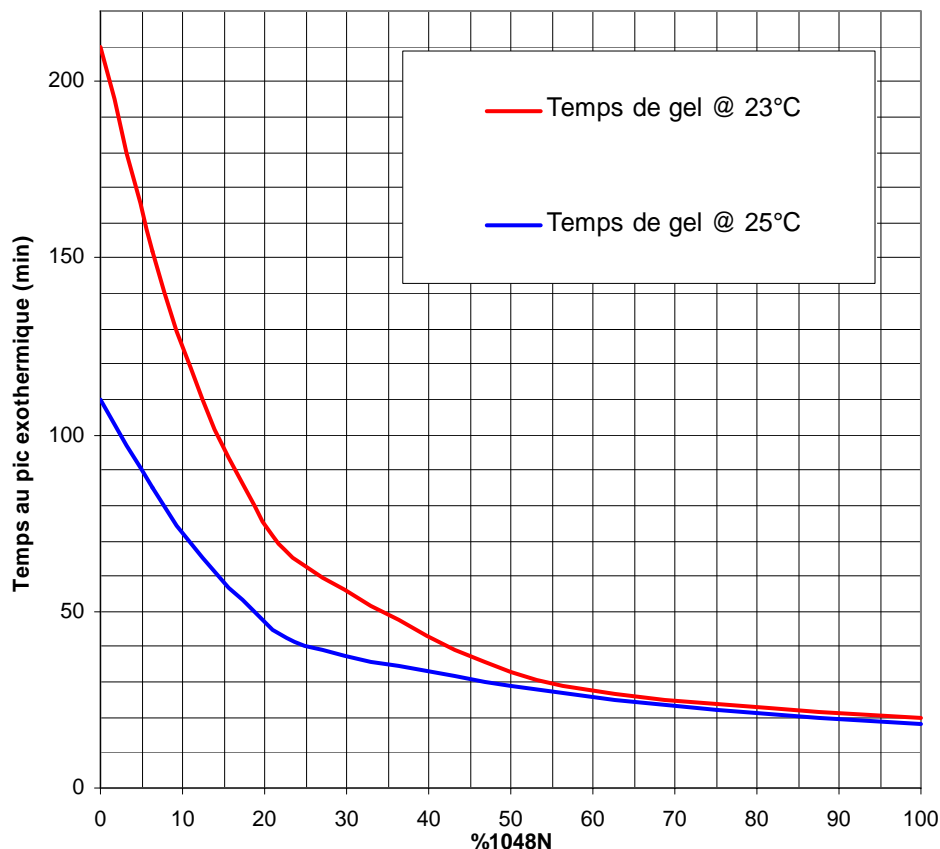
Hardeners 1045N & 1048N

REACTIVITY @ 23°C (continued...)

The two hardeners can be pre-blended together to obtain an intermediate pot life between slow and fast thanks to their identical mixing ratio of 100:30 and perfect compatibility as illustrated hereunder:

1045N ratio	1048N ratio	Time at exothermic peak @ 23°C	Time at exothermic peak @ 25°C
100%	0%	3h30	1h50
93.75%	6.25%	2h30	1h25
87.5%	12.5%	1h50	65min
83.25%	16.75%	1h20	50min
75%	25%	63min	40min
50%	50%	33min	30min
25%	75%	24min	22min
0%	100%	20min	18min

Reactivity according to % of 1048N



Resin 1040

Hardeners 1045N & 1048N

CURING & POST CURING

While a postcure is not mandatory, In order to obtain a material at the maximum of its mechanical properties with a TG of 92°C to 97°C, it is necessary to postcure with a cycle of : 24h at ambient temperature (20-25°C) + 15h at 60°C

You can find hereunder the TG's according to the curing and post-curing cycles.

TG	1040 - 1045N 24h @23°C	1040 - 1048N 24h @23°C	1040 - 1045N + 15h @60°C	1040 - 1048N + 15h @60°C
Initial TG _i	45	40	78	83
Median TG _m	50	45	85	90
Final TG _f	57	53	92	97

MECHANICAL 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

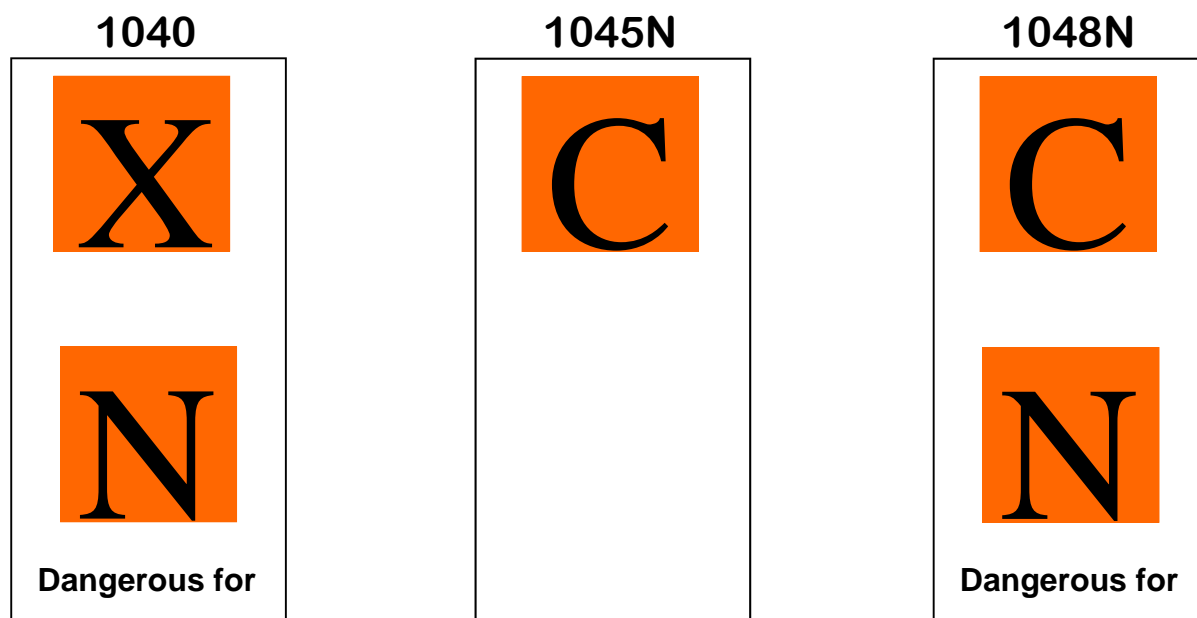
HARDENESS SHORE D

N/A

Resin 1040

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LABELLING



PACKAGING

- 1.3 kg kit (1 kg + 0.30 kg)
- 6.5 kg kit (5 kg + 1.50 kg)
- 39 kg kit (30 kg + 9 kg)
- 260 kg kit (200 kg + 60 kg)

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.

Nota The data provided in this document is the result of tests and is believed to be accurate. We do not accept any responsibility over the mishandling of these products and our liability is limited strictly to the value of the products we manufacture and supply.



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