RESOLTECH 1080S

Hardeners 1082, 1084, 1086

Highest Performance Epoxy Laminating & Infusion System

- **Highest modulus & rigidity epoxy system**
- **Adjustable pot life from 20min to 8h45min**
- **Room temperature mould release**
- **Final T_G up to 114ºC**



RESOLTECH 1080S is the highest modulus epoxy system formulated by RESOLTECH to manufacture high performance, rigid, lightweight structures with glass, carbon, aramid and basalt fibres with or without post-curing.

Using this novolac based epoxy resin will enable to reduce the amount of reinforcement fibre used, resulting in lighter, more rigid but also cheaper parts in spite of its higher price compared to more common Bisphenol A & F based resins.

This new generation system, optimized with a low reactivity, low viscosity and excellent air release properties, is suitable for the manufacture any size structures and composite parts by hand layup, 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 20min to 8h45min** with its range of hardeners.

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 T_G of 114ºC.** Nevertheless, a post cure is not mandatory depending on the final use of the parts.

The resulting structures will result in very rigid with high mechanical and the best interlaminar properties.

RESOLTECH 1080S is recommended for the production of marine foils, secondary laminations of chain plates, production of lightweight & rigid skiffs or high performance kayaks & outriggers where the weight/rigidity is key.
The 1080S is used on many Dakar wining rally cars, all types of RC models but also for the production of helicopter, gyrocopter & airplane propellers.

Low temperature pre-preg users will appreciate this system as it will enable them (with the 1084 hardener) to produce moulds on “cheap” models that do not resist dimensionally to temperature, release from the model the day after laminating and start using the tool right away, co-curing the first prepreg part and the mould at the same time.

Resin 1080S

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MIXING RATIO BY WEIGHT

Resin	**1080S**	100
Hardeners	**1082**	37
	1084	33
	1086	36

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 1080S 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 its pot life. On the contrary, a higher temperature will reduce the viscosity and the pot life of the mix.

PHYSICAL CHARACTERISTICS

Visuel aspect

1080S : Opalescent liquid
1082 / 1084 / 1086 : Transparent to yellow liquid
Mix : Colourless to slightly yellow opalescent liquid

Densities according to ISO 1675 (±0.05)

References	**1080S**	**1082**	**1084**	**1086**
Density at 23°C	1.13	0.94	0.95	0.99
Mixed density at 23°C	-	1.07	1.08	1.09

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VISCOSITIES

References	1080S	1082	1084	1086
Viscosity at 23°C (mPa.s)	1100	115	65	225
Mixed viscosity at 23°C (mPa.s)	-	650	500	760

According to ISO 12058.2 (±15%)

REACTIVITIES

Systems	1080S / 1082	1080S / 1084	1080S / 1086
Pot life on 70mL (~4cm thickness) at 23°C	8h45min	2h30min	23min
Time at exothermic peak on 70mL at 23°C	6h26min	2h35min	24min
Temperature at exothermic peak on 70mL at 23°C	32°C	180°C	210°C
Pot life in 2mm film at 23°C	10h	6h10min	1h51min

Measurements realized on Rheotech®

CURING & POST CURING

Thanks to its excellent room temperature cross linking properties, **curing before mould releasing is not mandatory**, contrarily to all other T_G>100ºC resins. You can find hereunder the T_G's according to the post-curing cycles.

Systems	1080S / 1082	1080S / 1084	1080S / 1086
T_G after 14 days at 23°C	56°C	57°C	54°C
T_G after 16h at 60°C	80°C	79°C	70°C
T_G max	114°C	100°C	84°C

Measurements realized on Kinetech® (DMA type)

MECHANICAL PROPERTIES AT 23°C

TRACTION referring to ISO 527-2 after post-curing 16h at 60°C

Systems	1080S / 1082	1080S / 1084	1080S / 1086
Modulus (GPa)	2.78	3.45	2.94
Max. strength (MPa)	59.9	68.8	72.0
Elongation at Max. strength (%)	4.4	5.0	4.5

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MECHANICAL PROPERTIES AT 23°C

FLEXION referring to ISO 178

Systems	1080S / 1082	1080S / 1084	1080S / 1086
Curing cycle	14 days at 23°C		
Modulus (GPa)	2.86	3.03	2.97
Max strength (MPa)	87.8	99.7	86.6
Elongation at max strength (%)	3.0	3.5	3.1
Curing cycle	16h at 60°C		
Modulus (GPa)	2.38	2.63	2.61
Max strength (MPa)	91.4	102.9	106.0
Elongation at max strength (%)	6.2	6.5	5.8

PACKAGING

Available kits :

■ **1080S / 1082**

- 1+0.37kg
- 5+1.85kg
- 27+10kg
- 200+3x24.67kg

■ **1080S / 1084**

- 1+0.33kg
- 5+1.65kg
- 27+8.91kg
- 200+3x22kg

■ **1080S / 1086**

- 1+0.36kg
- 5+1.8kg
- 27+9.72kg
- 200+3x24kg

TRANSPORT & STORAGE

Our products are guaranteed in their original packaging (see expiry date stated on the label). 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 & gloves. Please read our Material Safety DataSheet (MSDS) for more information. In case of eye contamination, wash with water and seek medical advice.

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ADVANCED TECHNOLOGY RESINS

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