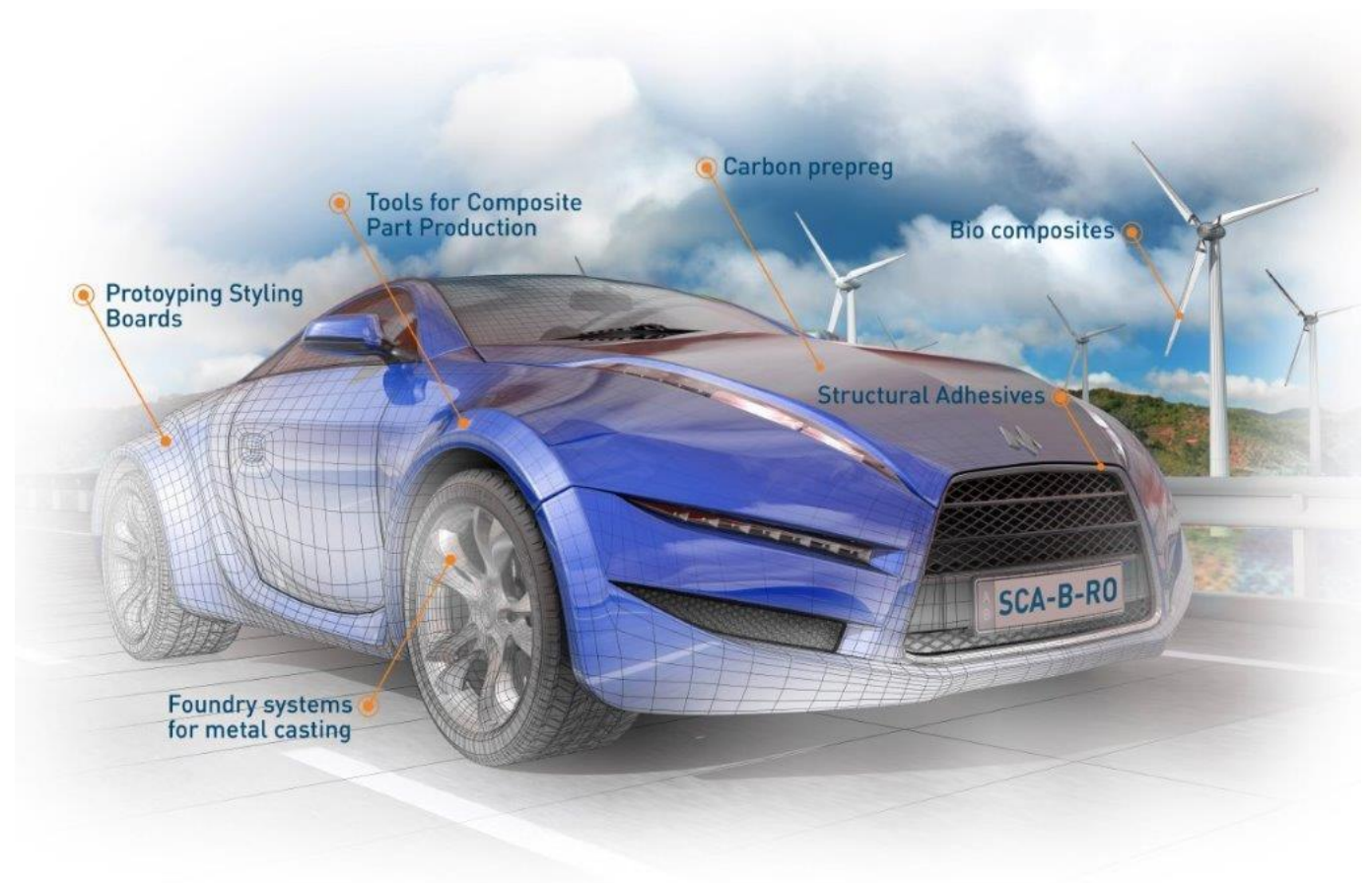


TECHNICAL DATASHEET

RESOLTECH 1800 ECO
1804 ECO



MALLENBOUW | COMPOSITEN | LIJMEN

resoltech 1800 ECO

Hardener 1804 ECO

Biobased infusion epoxy system



- 33% biobased on the mix
- Very low viscosity and high wetting properties
- T_g up to 94°C
- Cures at room temperature
- 2h of pot life on a 500g mix

INTRODUCTION

RESOLTECH 1800 ECO/1804 ECO is an advanced infusion and injection epoxy resin system, it is 34% biobased on the mix. It is suitable to manufacture structural composite parts **with any kind of reinforcements** : flax, hemp, glass, carbon, aramid...

The **constant low viscosity** and the excellent wetting properties make the 1800 ECO/ 1804 ECO a premium choice for RTM applications : infusion, injection...

Thanks to its outstanding adhesion properties, the resulting composites will show **excellent fatigue resistances**.

This system has excellent cross linking properties and enables to **release parts from plugs even after a low post curing at 40°C**. Final thermo-mechanical properties will be obtained after a suitable curing cycle.

Thanks to its high T_g (94°C), 1800 ECO/ 1804 ECO is suitable for both **tooling and parts manufacturing**. Tools can be used with a service temperature up to 75°C.

With its low coloration, 1800 ECO/1804 ECO is suitable to manufacture decorative parts.

It is **solvent free, does not contain any CMR components** and follows the latest EU regulation (CE) n° 453/2010.

MIXING RATIO

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.

System	1800 ECO/1804 ECO
Mixing ratio by weight	100/26
Mixing ratio by volume	100/32

APPLICATION

- Thermosetting products generate heat when curing. The amount of heat generated varies with the hardener used, the temperature and the quantity of resin mixed. 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 as the mixture will heat up more in a mass than in a film. Automatic mixing and dispensing devices solve the exothermy problem by mixing at the required speed for the infusion.

RESOLTECH 1800 ECO/1804 ECO system is formulated for infusion and injection applications. It is recommended to infuse with a resin transfer medium onto the laminate or through the core when prepared with a special grooving for infusion. Controlling the resin temperature, workshop temperature and humidity is important. The reinforcements should not present any excessive moisture content as it may modify the infusion progress through the fibers.

PHYSICAL CHARACTERISTICS

1 Visual aspect

1800 ECO :

Opalescent neutral liquid

1804 ECO :

Limpid colorless liquid

Mix :

Opalescent neutral liquid

2 Density

References	1800 ECO	1804 ECO
Density at 23°C	1.15	0.94
Mixed density at 23°C	-	1.19

ISO 1675, ± 0.05 tolerance

3 Viscosity

References	1800 ECO	1804 ECO
Viscosity at 23°C (mPa.s)	915	15
Mixed viscosity at 23°C (mPa.s)	-	258

ISO 12058.2, ± 15% tolerance

REACTIVITIES

System	1800 ECO/1804 ECO
Gel time on 70mL at 23°C (4cm high mix)	4h53min
Time at exothermic peak on 70 mL at 23°C	3h25min
Temperature at exothermic peak on 70mL at 23°C	42°C
Gel time on 2mm thick film at 23°C	8h24min
Gel time on 500mL at 23°C	1h55min

Reactivity measurements realized on Trombotech®

CURING AND POST-CURING

To avoid residual stress in the composite and possible shrinkage. The 1800 ECO/1804 ECO epoxy system should not be used at a temperature above 50°C.

In order to obtain the maximum thermo-mechanical properties, it is necessary to respect the recommended curing cycle. The table below shows the glass transition temperatures (DMA) according to different curing cycles.

Systems	1800 ECO/1804 ECO					
Curing cycles	14 days at 23°C	8h at 40°C	8h at 50°C	6h at 60°C	16h at 60°C	3h at 50°C +3h at 100°C + 3h at 150°C
T _g	50°C	56°C	62°C	69°C	75°C	94°C
Shore D Hardness	88	88	-	-	90	-

T_g measured on Kinetech®
Hardness : ISO 868

MECHANICAL PROPERTIES

System	1800 ECO/1804 ECO	
14 days at 23°C	FLEXION Modulus Maximum strength Elongation at break	3.10 GPa 51.4 MPa 1.61%
8h at 40°C	FLEXION Modulus Maximum strength Elongation at break	2.91 GPa 70.0 MPa 2.70%
16h at 60°C	FLEXION Modulus Maximum strength Elongation at break	3.22 GPa 93.6 MPa 3.14%
Water absorption		0.15%

Measurements on pure resin according to the following standard : ISO 178
Water absorption : ISO 62

PACKAGING

1800 ECO/1804 ECO :

- Plastic jerrycan kit of 1kg + 0.26kg
- Plastic jerrycan kit of 5kg + 1.3kg
- Plastic drum kit of 25kg + 7.8kg
- Drum kit of 200kg + 2 x 26kg

TRANSPORT & STORAGE

Keep containers sealed and away from heat and cold preferably between 10°C and 30°C in a well ventilated area. Our products are guaranteed in their original packaging (check expiry date on the label).

HEALTH & SAFETY

Skin contact must be avoided by wearing protective nitrile gloves & overalls or other protective clothing.

Eye protection should be worn to avoid risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eye with water for 15 minutes, holding the eyelid open, and seek medical attention.

Ensure adequate ventilation in work areas. Respiratory protection should be worn with ABEKP coded filters.

Resoltech issues full Material Safety Data Sheet for all hazardous products. Please ensure that you have the correct MSDS to hand for the materials you are using before commencing work.



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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