

# resoltech 1070 ECO

Hardeners 1074 ECO

Biobased colorless epoxy system



- 42% biobased on resin part\*
- Room temperature cure & mould release
- $T_g$  up to 73°C
- Excellent wetting properties on all reinforcements
- For structural laminates and top-coats

\*according to ASTM D6866-12

## INTRODUCTION

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**RESOLTECH 1070 ECO** is a high end crystal clear epoxy laminating system formulated to produce clear laminates and high gloss clear coatings with good UV stability and high mechanical properties.

The 1070 ECO system is a state of the art formulation using two key elements in it **bio composition** : a partially bio sourced epoxy resin with an plant based reactive diluent, obtaining the highest available bio content **without compromising the mechanical characteristics** of a structural epoxy system.

**The resulting laminates will be absolutely clear** on carbon fibre and even transparent if applied on special Hexcel Sillionne E-glass fabrics with TF970 treatment.

The viscosity is adapted for squeegee, brush or roller application, and enables to make perfect bubble free surface due to its surface tension properties.

The 1070 ECO system has been formulated in order to leave virtually **no free amines** on the laminate. This even enables the use of any quality polyester finish coat for quick sanding on top of the laminate without inhibition of the polyester.

## MIXING RATIO

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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	1070 ECO / 1074 ECO
Mixing ratio by weight	100/35
Mixing ratio by volume	100/43

## APPLICATION

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- The 1070 ECO system can be applied by squeegee, brush or roller.
- 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.
- 1070 ECO resin can, under certain conditions, crystallize. 10h at 60°C in an oven will make the resin liquid again without consequence.

# BIOBASED CARBON CONTENT

References	1070 ECO	1070 ECO / 1074 ECO
Biobased carbon mass content	42%	31%

\*according to ASTM D6866-12

## PHYSICAL CHARACTERISTICS

### 1 Visual aspect

**1070 ECO :**

Transparent purple liquid

**1074 ECO :**

Transparent liquid

**Mix :**

Transparent purple liquid

### 2 Density

References	1070 ECO	1074 ECO
Density at 23°C	1.18	0.96
Mix density at 23°C	-	1.11

ISO 1675, ± 0.05 tolerance

### 3 Viscosity

References	1070 ECO	1074 ECO
Viscosity at 23°C (mPa.s)	1750	50
Mix viscosity at 23°C (mPa.s)	-	700

ISO 12058.2, ± 15% tolerance

## REACTIVITIES

System	1070 ECO / 1074 ECO
Gel time on 70mL at 23°C (4cm high)	28min
Time at exothermic peak on 70mL at 23°C	31min
Temperature at exothermic peak on 70mL at 23°C	185°C
Gel time on 2mm film at 23°C	2h50min

Gel time measurements realized with Trombotech\*

## RETICULATION & POST-CURING

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.

System		1070 ECO / 1074 ECO
14 days at 23°C	T <sub>g</sub>	55.9 °C
	Shore D Hardness	86
16h at 60°C	T <sub>g</sub>	77.7 °C
	Shore D Hardness	88
T <sub>g</sub> max		88.1 °C

T<sub>g</sub> measured on Kinetech®  
Shore D hardness measured at 23°C according to ISO 868

Post-curing cycles previously presented were chosen in order to reach the maximum potential of each systems. Depending on piece size, oven performance and hardener used, shorter post-curing cycles could lead to fully cured parts.

Please contact our laboratory service for any help on post-curing cycles.

## MECHANICAL PROPERTIES

System		1070 ECO / 1074 ECO
14 days at 23°C	FLEXION Modulus Maximum strength Elongation at max strength	3.55 GPa 89.8 MPa 2.7 %
16h at 60°C	FLEXION Modulus Maximum strength Elongation at max strength	3.24 GPa 110.6 MPa 5.3%

Flexion properties on pure resin according to ISO 178

## WATER ABSORPTION

System	1070 ECO / 1074 ECO
Water absorption after 24h immersion in water at 23°C	0.36 %

Absorption properties on pure resin according to ISO 62

## PACKAGING

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- Plastic jerrycan kit of 1kg + 0.35kg
- Plastic jerrycan kit of 2kg + 0.7kg
- Plastic jerrycan kit of 5kg + 1.75kg
- Plastic drum kit of 25kg + 8.75kg
- Metal drum kit of 200kg + 3x 23.33kg
- IBC kit of 1T + 2x 175kg

## TRANSPORT & STORAGE

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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

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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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