

resoltech 1020(T)

Hardeners 1023S to 1029S

Multipurpose Epoxy Laminating System



- Adjustable pot life from 11mn to 9h20min
- Good elongation to break characteristics
- Wide choice of reactivities (7 hardeners)
- Little sensitivity to humidity during application
- Available in thixotropic version (1020T)

INTRODUCTION

RESOLTECH 1020 is a room temperature epoxy **laminating system** for wood-epoxy, concrete reinforcement and metal constructions that are inherently **moving structures**.

In boat building, it may be used for: all woods types lamination, coating, scarfing, strip planking, as well as bonding in form of fillet joints applications when filled with wood flour and silica.

Thanks to its **low viscosity** and a wide range of hardeners (11 min to 9h20min), it allows applications in both traditional wet layup, vacuum bagging or under press. **A thixotropic version , the 1020T** is available for vertical or overhanging applications prone to dripping.

The mixing ratio for all hardeners of this system is 100:30 by weight. **All hardeners are compatible** and can be mixed to obtain intermediate reactivities.

The 1020 **exceptional wettability** makes hand lamination easier to the workers while guaranteeing a safer work place due to the low toxicity of this system, it contains **no CMR components** and complies to the latest 2015 REACH European regulation.

The 1020 resin system is also widely used in civil engineering applications on glass and carbon laminates where its little sensitivity to humidity during its application and good curing properties at ambient temperature are appreciated.

The 1020 system is often used together with:

- 1010: Water based epoxy primer for porous supports
- 2040G: Fillet joint adhesive paste
- 8050: Epoxy filler

MIXING RATIO

The mixing ratio must be respected neither excess nor default.
The mixture should be homogeneous and intimate with the use.

Systems	1020/1023S	1020/1024S	1020/1025S	1020/1026S	1020/1028S	1020/1029S
Mixing ratio by weight	100/30					
Mixing ratio by volume	100/35	100/34	100/34	100/34	100/33	100/33

APPLICATION

- It is recommended to use products at a temperature close to 18-25°C in order to facilitate the mixing and the reinforcements impregnation.
- Lower temperatures will increase the viscosity of the mixture and the gel time, but the resin will not crystallize at low temperatures.
- On the contrary, a higher temperature will reduce the viscosity of the mixture as well as the pot life.

PHYSICAL CHARACTERISTICS

1 Visual aspect

1020 :

Opalescent liquid

1023S to 1029S :

Neutral to limpid liquid

Mix :

Neutral to yellow opalescent liquid

2 Density

References	1020	1023S	1024S	1025S	1026S	1028S	1029S
Density at 23°C	1.10	0.94	0.95	0.96	0.97	0.98	1.00
Mix density at 23°C	-	1.06	1.07	1.07	1.07	1.07	1.08

ISO 1675, ± 0.05 tolerance

3 Viscosity

References	1020	1023S	1024S	1025S	1026S	1028S	1029S
Viscosity at 23°C (mPa.s)	1250	13	22	31	43	72	165
Mix viscosity at 23°C (mPa.s)	-	340	460	550	610	760	940

ISO 12058.2, ± 15% tolerance

REACTIVITIES

Systems	1020/1023S	1020/1024S	1020/1025S	1020/1026S	1020/1028S	1020/1029S
Gel time on 70mL at 23°C (4cm high)	9h20min	3h10min	1h15min	40min	22min	11min
Time at exothermic peak on 70mL at 23°C	-	-	1h32min	42min	24min	12min
Temperature at exothermic peak on 70mL at 23°C	30°C	40°C	123°C	180°C	166°C	187°C
Gel time on 2mm film at 23°C	13h40min	7h25min	4h45min	3h45min	2h15min	1h

Reactivity measurements realized with Trombotech®

RETICULATION & POST-CURING

90% of the thermo-mechanical properties are obtained after 7 days at room temperature (25°C). To obtain a material at its highest thermo-mechanical properties with a T_g of up to 60°C, it is necessary to post-cure the laminate.

Systems		1020/1023S	1020/1024S	1020/1025S	1020/1026S	1020/1028S	1020/1029S
14 days at 23°C	T_g	43.2°C	45.2°C	46.1°C	46.1°C	47.9°C	48.5°C
	Shore D Hardness	85	86	86	86	86	87
16h at 60°C	T_g	51.0°C	50.0°C	52.2°C	54.0°C	55.2°C	60.3°C
	Shore D Hardness	86	86	86	86	86	87

T_g measured with Kinetech® (DMA type)
Hardness : ISO 868

The following data is an indication of the curing time at room temperature (23 °C) in order to release from moulds and obtain a hard and sandable laminate.

References	1020/1023S	1020/1024S	1020/1025S	1020/1026S	1020/1028S	1020/1029S
Release time at 23°C	40h	30h	20h	16h	8h	3h

MECHANICAL PROPERTIES

Systems		1020/1023S	1020/1024S	1020/1025S	1020/1026S	1020/1028S	1020/1029S
14 days at 23°C	FLEXION Modulus	2.60 GPa	2.76 GPa	2.71 GPa	2.65 GPa	3.00 GPa	2.87 GPa
	Maximum strength	76.2 MPa	84.9 MPa	84.4 MPa	86.3 MPa	97.0 MPa	95.0 MPa
	Elongation at max strength	4.2%	4.4%	4.5%	4.6%	4.7%	4.0%
16h at 60°C	FLEXION Modulus	2.66 GPa	2.86 GPa	2.78 GPa	2.75 GPa	3.07 GPa	2.94 GPa
	Maximum strength	81.0 MPa	90.2 MPa	87.8 MPa	89.3 MPa	100.8 MPa	100.8 MPa
	Elongation at max strength	4.4%	4.6%	4.7%	4.8%	4.9%	5.1%

Flexural properties on pure resin according to ISO 178

PACKAGING

- Plastic jerrycan kit of 1kg + 0.3kg
- Plastic jerrycan kit of 5kg + 1.5kg
- Plastic drum kit of 25kg + 7.5kg
- Drum kit of 200kg + 2 x 30kg
or 3 x 200kg + 180kg

1020T version is packaged in drums, stir before each use.

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.



249, Avenue Gaston Imbert
13790 ROUSSET
FRANCE

Tel. : +33 (0)4 42 95 01 95
Fax : +33 (0)4 42 95 01 98
export@resoltech.com