

RESOLTECH 1020

Hardeners 1023S to 1029S

Multipurpose Epoxy Laminating System

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



The new version (2015) of 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:

- **RESOLCOAT 1010:** Water based epoxy primer for porous supports
- **RESOLTECH 2040G:** Fillet joint adhesive paste
- **RESOLTECH 8020:** Epoxy filler

Resin 1020

Hardeners 1023S, 1024S, 1025S, 1026S, 1028S, 1029S

MIXING RATIO

System	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

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

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

Visual aspect

1020 :	Opalescent neutral liquid
1023S to 1029S :	Neutral to transparent yellow liquid
Mixture aspect :	Neutral to transparent yellow liquid

Densities (ISO 1675, ±0.05)

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

Viscosities (ISO 12058.2, ±15%)

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 (mPa.s)	-	340	460	550	610	760	940

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REACTIVITIES

Systems	Gel time on 70mL @ 23°C (4cm high)	Time at exothermic peak on 70mL @ 23°C	Temperature at exothermic peak on 70mL @ 23°C	Gel time on 2mm film @ 23°C
1020 / 1023S	9 h 20 min	NR	30°C	13 h 40 min
1020 / 1024S	3 h 10 min	NR	40°C	7 h 25 min
1020 / 1025S	1 h 15 min	1 h 32 min	123°C	4 h 45 min
1020 / 1026S	40 min	42 min	180°C	3 h 45 min
1020 / 1028S	22 min	24 min	166°C	2 h 15 min
1020 / 1029S	11 min	12 min	187°C	1 h

Reactivity measurements realized with Trombotech®
NR : Not Representative

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.

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

1020+1023S : 40h 1020+1025S : 20h 1020+1028S : 8h
1020+1024S : 30h 1020+1026S : 16h 1020+1029S : 3h

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MECHANICAL PROPERTIES

Flexural properties on non reinforced resin according to ISO 178

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

PACKAGING

- Plastic jerrycan 1kg + 0.3kg
- Plastic jerrycan 5kg + 1.5kg
- Plastic jerrycan 10kg + 3kg
- Plastic drum 25kg + 7,5kg
- Steel drum 200kg + 2x30kg
- Steel drum 3x200kg + 180kg

TRANSPORT & STORAGE

Keep containers sealed and away from heat and cold preferably between 10°C and 30°C in a well ventilated area. Shelf life is minimum one year in sealed containers as provided.

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 or hardener 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.

Nota : The data provided in this document are provided good-faith and are based on the test in laboratory and our practical experience and is believed to be accurate. Considering the application of our products gets away from our control, 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.