

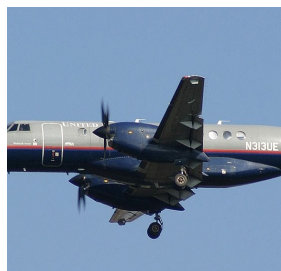
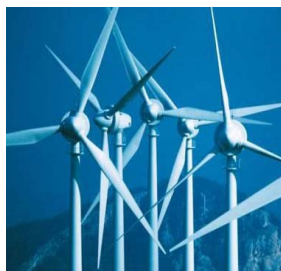
RESOLTECH 1200

Hardeners 1204 - 1206 - 1208



Structural epoxy laminating system

- Adjustable working time from 14min to 8h45min
- Excellent wetting out with all type of reinforcements
- Similar mix viscosity with the 3 hardeners
- Manufacturing of small part to very large composite structures
- T_G from 85°C to 130°C after post cure



RESOLTECH 1200 / 1204 - 1206 - 1208 is a state of the art chemistry laminating epoxy system, formulated without reactive diluents (primary cause of allergies) thus improving the H&S working conditions. It allows to manufacture **small parts** as well as **large composite structures & tools** with all the existing fibres.

RESOLTECH 1200 / 1204 - 1206 - 1208 does not crystallize, these systems do not contain any CMR component and meet the latest requirements of European regulation & REACH.

With its **adapted viscosity** and its **large range of reactivity**, the system enables application by wet lay up, vacuum bagging and filament winding. A thixotropic version 1200T is available for applications such as vertical & overhanging laminates.

The hardeners 1204, 1206 and 1208 of this system have a mixing ratio of 35 parts for 100 parts of resin 1200 by weight. They are compatible and may be mixed together in order to adjust the reactivity needed.

After curing at room temperature the system **1200 / 1204 - 1206 - 1208** can be release at room temperature of 23°C. In order to accelerate the release after initial curing, a post cure at 40°C is possible. To obtain the optimum thermo mechanical properties a post cure at 60-80°C will be required.

Hardeners 1205HT and 1206HT will enable to obtain T_G 's of 130°C after postcure making the 1200 a choice system for pre-preg tools.

The system **RESOLTECH 1200** offers great flexibility of use with the available hardeners and will enable to reduce stocks of product while allowing production of tools & parts of all sizes

Resin 1200

Hardeners 1204 - 1206 - 1208

MIXING RATIO

Systems	1200 / 1204	1200 / 1206	1200 / 1208	1200 / 1205HT	1200 / 1206HT
Mixing ratio by weight	100 / 35				100 / 25

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 in a thin film.

APPLICATION

It is recommended to use the products at a **temperature close to 18-25°C** in order to facilitate the mix and wetting out of reinforcements.

A lower temperature will increase the viscosity of the mix and the gel time.

On the opposite, a higher temperature will lower the viscosity of the mix and shorten the gel time.

It is recommended to put a small amount of fast hardener 1208 with slow hardener 1204 (5%+95%) when laminating vertical areas, specially in winter.

PHYSICAL CHARACTERISTICS

Visual aspect

1200	:	Opalescent colourless liquid
1204 / 1206 / 1208	:	Clear to yellow liquid
Mix	:	Colourless to yellow opalescent liquid

Density

References	1200	1204	1206	1208
Density at 23°C	1.16	0.91	0.95	0.98
Liquid mix density at 23°C	-	1.10	1.11	1.12
Polimerized mix density at 23°C	-	1.18	-	1.20

ISO 1675, ±0.05 tolerance
 ISO 2811-1

Resin 1200

Hardeners 1204 - 1206 - 1208

Viscosity

References	1200	1204	1206	1208
Viscosity at 23°C (mPa.s)	6500	18	45	84
Mix viscosity at 23°C (mPa.s)	-	235	610	1130

ISO 2555, ±15% tolerance

REACTIVITIES

Systems	1200 1204	1200 1204-1208	1200 1206	1200 1204-1208	1200 1208
Mix ratio 1204/1208 (%)	100 / 0	80 / 20	40 / 60	20 / 80	0 / 100
Geltime on 70mL at 23°C (thickness: 4cm)	8h45min	4h25min	43min	26min	14min
Time at exothermic peak 70mL at 23°C	NR	3h40min	44min	28min	14min
Temperature of peak on 70mL at 23°C	NR	43°C	205°C	214°C	225°C
Geltime on 2mm thick- ness at 23°C	9h45min	6h08min	3h12min	2h18min	1h30min

Reactivity measurements are made on Rheotech®

NR: Non Representative

CURING & POST-CURING

To obtain a material with its maximum thermal and mechanical properties as T_G max, it is necessary to respect the recommended curing cycle.

You will find in the spreadsheet below the temperature of T_G & HDT in relation to the curing cycle.

Systems	1200 / 1204	1200 / 1206	1200 / 1208
Curing cycles	16h at 60°C		
T_G	71°C	69°C	78°C
T_G max	86°C	-	94°C
HDT	66°C	-	69°C

T_G made on Kinetech®
 HDT according to ISO 75-2

Resin 1200

Hardeners 1204 - 1206 - 1208

MECHANICAL PROPERTIES

Systems	1200 / 1204	1200 / 1206	1200 / 1208
Curing cycles	24h at 23°C + 16h at 60°C		
Flexion			
Modulus	3.09 GPa	3.34 GPa	3.37 GPa
Max. strength	116 MPa	124 MPa	133 MPa
Strength at break	84 MPa	-	99 MPa
Traction			
Modulus	3.42 GPa	-	3.59 GPa
Max. strength	67.6 MPa	-	80.7 MPa
Strength at break	3.3%	-	3.7%
Shore D Hardness	87	88	87
Water absorption after 24h	0.09%	-	0.08%
Water absorption after 168h	0.19%	-	0.15%

Tests realized on pure resin samples according to :

Flexion : ISO 178 / Traction : ISO 527-2 / Hardness : ISO 868 / Water absorption : ISO 175

HIGH TEMPERATURE HARDENERS

In order to produce tools or parts needing higher temperature resistance, it is possible to use the **1205HT** et **1206HT** hardeners.

Systems	1200 / 1205HT	1200 / 1206HT
Gel time on 70mL at 23°C (thickness: 4cm)	7h10min	2h45min
Time at exothermic peak 70mL at 23°C	7h43min	2h54min
Temperature of peak on 70mL at 23°C	35°C	144°C
T_G after 4h at 40°C + 4h at 60°C + 8h at 120°C	126°C	128°C

Reactivity measurements are made on Rheotech®

T_G realized on Kinetech®

Resin 1200

Hardeners 1204 - 1206 - 1208

PACKAGING

Kits 1200 / 1204, 1206, 1208 & 1205HT :

- 1.35kg (1+0.35)kg
- 6.75kg (5+1.75)kg
- 37.8kg (28+9.8)kg
- 270kg (200+3x23.33)kg
- 1350kg (1t+2x175)kg

Kits 1200 / 1206HT :

- 1.25kg (1+0.25)kg
- 6.25kg (5+1.25)kg
- 35kg (28+7)kg
- 250kg (200+2x25)kg

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 stated 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 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 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.