

resoltech 3350

Hardeners 3357T & 3358T

High performance structural epoxy adhesive



- Rubber toughened high strength epoxy
- High shear and peeling resistances
- Excellent applicability (universal grease-like consistency)
- All weather applicability even in high humidity conditions
- Available in cans or cartridge - 2:1 ratio for machine dispensing

INTRODUCTION

RESOLTECH 3350 / 3357T or 3358T high performance unfilled adhesive offers high tenacity and toughness. Its good elongation ratio enables to bond most materials, even if they have a large CTE difference. The system rheology is close to a universal grease, making the mixing and application very easy with a spatula or even with a brush.

The 3350 with 3357T (standard) or 3358T (fast) has a vertical sagging limit of 10mm on vertical applications & 15mm on horizontal applications. It will enable to bond bulkheads with 20 mm diameter fillet joints. Other versions available are:

- 3350L with 3357T (standard) or 3358T (fast): low viscosity for brush application for secondary lamination as adhesion promotion layer
- 3350 XT with 3356 XT (slow) or 3357 XT (standard): extra thixotropic for very large application
- 3350 HP with 3356 HP (slow) or 3358 HP (fast): 0,7 density light version
- 3350 NOIR pigmented for cosmetic appearance of carbon composite bond lines

Particularly resistant to the propagation of micro-cracking, this system is well adapted to bondings subject to important cycles of fatigue. The areas of application of the 3350 are very varied: structural composite and metallic bonding, adhesion promotion layer on secondary lamination specially on cured prepregs...

3350 / 3358T adhesive could be applied at low temperatures ($<10^{\circ}\text{C}$) and is not affected by high humidity environment during application or hardening.

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.

Systems	3350 / 3357T	3350 / 3358T
Mixing ratio by weight	100/45	100/42
Mixing ratio by volume	2/1	

APPLICATION

- The surface should be clean, dust-free and degreased. Prepare all surfaces by abrading with medium grit paper or other suitable abrasive, remove dust then wipe with acetone, MEK or similar solvents. Metals such as aluminum & stainless steel usually require a chemical pre-treatment & mechanical abrasion to create the best bond.
- Ensure that polyester or vinylester laminates are fully cured before bonding, then prepare as above.
- When bonding epoxy laminates, the use of a suitable peel ply as the last stage in their manufacture is recommended, otherwise prepare as above. Trials may be required to test peel ply suitability.
- The adhesive can be applied with a notched trowel, spatula, putty knife or self mixing/dispensing machine in various thicknesses up to 10mm without sagging on vertical surfaces. It is recommended to use notched spreaders in order to apply even thicknesses of adhesive on the surface to be bonded.

1. Assemble and maintain parts in contact during hardening with clamps, vacuum or masking tape.
2. Cleaning of the materials should be done before polymerization with acetone, methylethylcetone (MEK) or equivalent.
3. Brush application is possible thanks to the low viscosity but high thixotropy of the system.

PHYSICAL CHARACTERISTICS

1 Visual aspect

3350 :

Opalescent gel

3357T & 3358T :

Slightly yellow gel

Mix :

Pale yellow opaque gel

2 Density

References	3350	3357T	3358T
Density at 23°C	1.00	1.03	1.01
Mix density at 23°C	-	1.01	1.00

ISO 1675, ± 0.05 tolerance

3 Viscosity

References	3350		3350L
Hardeners	3357T	3358T	3358
Resin viscosity at 23°C (mPa.s)	23 900		6 330
Hardener viscosity at 23°C (mPa.s)	34 100	36 280	15 680
Mix viscosity at 23°C (mPa.s)	25 530	32 810	10 570

Measured on rheometer, 20s-1, 2 min, gap 1mm, ± 15% tolerance

REACTIVITIES

Systems	3350 / 3357T	3350 / 3358T
Gel time on 70mL at 23°C (4cm high)	1h34min	25min
Time at exothermic peak on 70mL at 23°C	57°C	166°C
Temperature at exothermic peak on 70mL at 23°C	3h20min	1h
Clamp time at 23°C	12h	8h

Reactivity measurements realized with Rheotech*

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 (DSC) according to different curing cycles.

Systems		3350 / 3357T	3350 / 3358T
16h at 60°C	T _g	42.5 °C	45.9 °C
	Shore D Hardness	82	85

T_g 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		3350 / 3358T
16h at 60°C	FLEXION Modulus	2.02 GPa
	Maximum strength	63.5 MPa
	Elongation at max strength	4.9%
	Elongation at break	>15%

Flexion properties on pure resin according to ISO 178

System		3350 / 3358T
Resistance to crack propagation		10.51 kN
Resistance to failure in interlaminar mode - MBT		0,453 ± 0.071 kJ/m ²
Resistance to failure in interlaminar mode - CC		0,482 ± 0.142 kJ/m ²
Resistance to failure in interlaminar mode - MCC		0,494 ± 0.149 kJ/m ²
Shear resistance on steel		30,49 MPa
Shear resistance conservation in wet environment		98,70 %

PACKAGING

3350 / 3357T :

- Metal box kit of 0.5kg + 0.225kg
- Metal box kit of 1kg + 0.45kg
- Metal bucket of 5kg + 2.25kg
- Metal bucket of 2x25 + 22.5kg

3350 / 3358T :

- Metal box kit of 0.5kg + 0.21kg
- Metal box kit of 1kg + 0.42kg
- Metal bucket of 5kg + 2.1kg
- Metal bucket of 25kg + 10.5kg
- Metal bucket of 2x25 + 21kg
- 250 mL cartridge for universal dispensing gun + static mixer



- 400 mL cartridge + static mixer



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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