CC Quantum A

CARBON FIBRE EPOXY ADHESIVE

CHARACTERISTICS

CC Quantum A Adhesive is a double component epoxy based adhesive with strong bonding and shear strength.

CC Quantum A is used to bond with Cathay's CC Quantum Laminate Plates creating a system used for structural reinforcement.

APPLICATIONS

- To be combined with CC Quantum Laminate Plates
- CC Quantum A and CC Quantum Laminate Plates system can be used to increase flexural, shear, impact resistance, axial load capacity.
- As a result of the increase in load bearing capacity, the CC Quantum strengthening system minimises damage as a result of cyclic/fatigue loading. Additionally, the system can be used to mitigate substructure crack initiation or propagation.

BENEFITS

- Good compatibility with carbon fibre laminate plates
- Double component bisphenol-A modified epoxy resin based adhesive
- Environment friendly
- Good thixotropic property, easy to apply
- Excellent long-term performance
- Excellent aging resistance and medium resistance, humidity resistance and chemical corrosion resistance
- Good physical performance after curing, strong toughness and have certain degree of elasticity

STANDARDS

- ASTM

DESCRIPTION

Form

Component	Texture	Colour
Part A: - Epoxy	Paste	Grey
Part B: - Hardener	Paste	White
Part A+B mixed	Paste	Light Grey

Technical Data

Density	1.6g/cm³ (parts A+B mixed) (at +23°C)
Mixing ratio (A: B)	2:1
Service Temperature	-40°C to +45°C
Pot life (in minutes)	110 mins at 10°C
	90 mins at 20°C
	30 mins at 35°C
Setting time	< 3 hrs. at 25°C < 4 hrs. at 40°C
Full Cure	7 Days

CC QUANTUM A CARBON FIBRE EPOXY ADHESIVE PROPERTIES

Cure Time 7 days at +23°C

PROPERTY	TEST METHOD	TYPICAL VALUE	UNITS
Adhesive Strength	ASTM D4541	3.5	MPa
Tensile Strength	ASTM D638	30.9	MPa
Static Elastic Tensile Modulus	ASTM D638	10800	GPa
Compression Strength	ASTM D695	107	MPa
Shear Strength	ASTM D732	16.5	MPa
Glass Transition (Tg)	ASTM D7028	76.4	°C
Coefficient of Thermal Expansion (CTE)	ASTM 696	7.75×10^{-5}	°C
Elongation at Break	ASTM D638	0.74	%

NOTE: All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

PRODUCT COMPOSITION

Substrate primer	CC Quantum P
Laminating Epoxy	CC Quantum A
Structural strengthening fabric	CC Quantum Plate

APPLICATION

Coverage:

Laminate Plate Width (mm)	Total Consumption of Adhesive A
50mm	0.20 to 0.35 kg/m
100mm	0.50 to 0.75 kg/m
120mm	0.70 to 0.95 kg/m
150mm	0.80 to 1.10 kg/m

For consumption quantities of laminate plate widths outside this table please consult the Cathay technical support team.

INSTRUCTIONS

Substrate Preparation

Prior to application of any CC Quantum material products, it is expected that the substrate be appropriately prepared according to the following:

- Ensure that all surfaces are cleaned, this entails the removal of a surface contaminates such as oils, grease, dust and other contaminates which could affect the bonding of the CC Quantum system.
- Specifically, for Concrete, Mortar and Stone which is still in good working condition, it is recommended to Mechanically abrade the surface with a needle gun, water blast, grit blast or grind. For small areas wire brushing (mechanical) is adequate.
- All substrate once cleaned shall sill maintain a minimum adhesive tensile strength of the substrate 1.5MPa. Onsite testing can be done to confirm this requirement is met.
- For degraded substrates, it is recommended to remove the affected area and restore allowing sufficient time to cure before applying CC Quantum System.

Mixing

Part A: part B = 2: 1 by weight

Thoroughly stir both components Part A (Resin) and Part B (Hardener) separately using a slow running stirrer with a helical paste mixer or by hand if dealing with small quantities until a uniform colour is reached.

Application

- CC Quantum A shall be applied using trowel, spatula or other similar equipment which will allow for an even and smooth application.
- The adhesive shall be applied forming a concave shape onto the CC Quantum Plate, minimum 1mm thickness at the sides, 2mm in the centre.
- Once the CC Quantum Plate which is combined with CC Quantum A are placed on the substrate it should be firmly pressed down either by hand or a firm rubber roller.
- It is vital that the laminate plate is firmly however delicately rolled so as not to damage the surface, which could lead to a reduction in overall strength.
- Ensure there is squeeze out of the adhesive on both sides of the laminate plate, which will indicate appropriate adhesive bonding.

Cleaning

Cleaning of applicator tools and surrounding surfaces can be achieved using an appropriate solvent (MEK or Acetone). Once the Adhesive has cured, the only means of removal shall be mechanically.

Important Notes

- For simplicity and accuracy related to curing times and strength, always mix a full adhesive kit.
- Avoid part mixture to ensure correct ratio of Resin and Hardener
- Always take note of pot life, ensure CC Quantum A can be completely applied within the given time for the working temperature.
- Avoid diluting the mixture as this will affect curing time and bonding strength.
- During mixing, ensure there are no trapped air bubbles as will affect curing time and bonding strength.
- Ensure there is no standing water or other liquids on the application surface.
- An increased curing temperature can accelerate curing time, refer to technical data above.

For further information, consult our Technical Experts.

Handling Precautions

- Use appropriate Personal Protective Equipment (PPE) when handling CC Quantum A mixture.
- At all times, avoid contact with the eyes and direct skin
- If mixture contacts eyes, immediately consult proceed to first aid to commence washing eye with water or specific eye bath liquid for up to 15 minutes. After which consult a doctor.
- If skin contact occurs, proceed to first aid and wash skin thoroughly.
- If mixture is swallowed, it is not recommended to induce vomiting. Rather proceed to first aid to receive medical attention.

For more information refer to Material Safety Data Sheet.

SIGNBOARD

The contents shall be clearly marked on the product package:

a) Manufacturer and address.

b) Product name, brand and standards.

c) Date of manufacture and batch number.

d) Product quantity.

e) Attention.

PACKAGING

CC Quantum A comes in a 6kg kit. Other quantities can be supplied upon request.

TRANSPORT AND STORAGE

Store in dry conditions, storage temperatures should not drop below -5°C or exceed 40 °C, avoid direct sunlight and fire. Handle with care.

SHELF LIFE

When stored at room temperature(25°C), the shelf life will be at least 12 months from the date of manufacture.

AUSTRALIA

1/196 Mahoneys Road
Thomastown. Victoria
AUSTRALIA
3074

Email: enquiries@cathaycomposites.com.au
Web: www.cathaycomposites.com

ABN: 88 629 716 927