

CC Quantum[®] S

CARBON FIBRE SATURANT RESIN

CHARACTERISTICS

CC Quantum S is a two-part, thixotropic epoxy based impregnating resin. CC Quantum S Saturant when combined with the CC Quantum Fabric creates a high strength and high-performance composite.

APPLICATIONS

- CC Quantum S Saturant is used to saturate/impregnate the CC Quantum Fabric sheets to create a composite material suitable for strengthening applications.
- CC Quantum strengthening system can be used to increase load capacity on a structure. This is specifically related to increase in axial, flexural, and shear 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

- Application is easily applied by means of a trowel and roller which is used to impregnate a dry fabric on the substructure.
- The resin can be applied by either manual or automation process, thus allowing for applicator flexibility.
- Once the two parts are appropriately combined, viscosity levels are appropriate enough to allow for excellent application behaviour to vertical and overhead surfaces. Whilst still allowing for easy penetration of the fabric.
- Good adhesion to various substructures. Consult Cathay material specialists for guidance on which substructures are best suited for this product and system.
- High mechanical properties
- Low VOC and non-shrink
- Low cure temperatures

STANDARDS

- ASTM

DESCRIPTION

Form

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

Technical Data

Chemical Base	Epoxy resin.
Density	1.30 kg/l (at +23°C)
Mixing ratio (A: B)	4:1
Service Temperature	-40°C to +45°C
Pot life (in minutes)	90 mins at 10°C 60 mins at 23°C 30 mins at 40°C
Setting time	< 6 hrs. at 10°C Full Cure 7 days < 2 hrs. at 25°C Full Cure 7 days < 4 hrs. at 40°C Full Cure 7 days
Full Cure	7 Days

CC QUANTUM S CARBON FIBRE FABRIC IMPREGNATING RESIN PROPERTIES

Cure Time 7 days at +23°C

PROPERTY	TEST METHOD	TYPICAL VALUE	UNITS
Adhesive Strength	ASTM D4541	3.9	MPa
Tensile Strength	ASTM D638	30.1	MPa
Tensile Modulus	ASTM D638	4.55	GPa
Flexural Strength	ASTM D790	106	MPa
Flexural Modulus	ASTM D790	3.53	GPa
Compression Strength	ASTM D695	98	MPa
Compress Modulus	ASTM D695	4.00	GPa
Elongation at Break	ASTM D638	0.90	%

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
Impregnating / laminating resin	CC Quantum S
Structural strengthening fabric	CC Quantum Fabric

APPLICATION

Coverage:

100 ~ 300 gsm fabric	0.5 to 0.6 kg/m ²
300 ~ 400 gsm fabric	0.6 to 0.8 kg/m ²
400 ~ 500 gsm fabric	0.8 to 1.0 kg/m ²
500 ~ 600 gsm fabric	1.0 to 1.2 kg/m ²

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.
- For degraded substrates, it is recommended to remove the affected area and restore allowing sufficient time to cure before applying CC Quantum System.

Additional information can also be found in the relevant Method Statement document.

Mixing

Part A: part B = 4: 1

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.

Priming

- Once the substrate has been adequately prepared a layer of CC Quantum P Primer can be applied.
- CC Quantum S Saturant is to be applied to a tacky CC Quantum P Primer.
- Apply a mixed CC Quantum P Primer using a roller or brush.
- Ensure that either the roller or brush is free from foreign objects such as dirt, rocks or dust.
- Ambient temperature should be greater than 5°C prior to application.
- A secondary coat can be applied if initial coat is unsatisfactory.

Sheet preparation

Cathay Fabric:

- CC Quantum Fabric must be cut to a suitable size such that it can be applied to the substrate ensuring no air or wrinkling occurs.
- Only sharp scissors or similar cutters shall be used to cut the fabric, ensuring no fraying of the dry fibres and no pull out of fibres which will affect fibre volume count and in turn mechanical properties.
- CC Quantum Fabric cannot be used if partially cut as this will prevent load transfer and create a stress concentration in the composite.

Application of Cathay Impregnating Resin

- Once CC Quantum P primer has been applied to the substrate and is tacky, apply the first coat CC Quantum S Saturant using either a clean brush or roller.
- Once the substrate is completely coated with CC Quantum S the pre-cut CC Quantum Fabric can be applied ensuring the void of wrinkles.
- Once CC Quantum Fabric is applied use a roller to press Fabric into the CC Quantum S Saturant until there are no visible dry zones on the Fabric.
- Should there be a need to join or overlap splice two CC Quantum Fabric pieces then ensure an overlap or more than 10cm is present. This will ensure a continuation of load transfer. Once again ensure the overlap zone is fully impregnated with resin.
- Once CC Quantum Fabric has been rolled and is fully impregnated into the first coat of CC Quantum S Saturant apply a secondary coat.

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.

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

Cathay Impregnating Resin comes in a 5, 10 and 20 kg kit

TRANSPORT AND STORAGE

Store in dry conditions, storage temperatures should not drop below 5°C or exceed 25 °C, avoid direct sunlight and fire. Handle with care.

SHELF LIFE

24 months, providing the storage requirement are adhere

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Important notice

The data and information provided in this datasheet represent the typical properties that can be obtained from these products when properly processed in a controlled environment. The user should make their own assessment of the suitability of these products for the purpose required by conducting appropriate testing under conditions as close as possible to the proposed manufacturing conditions. Any advice or recommendation is given in good faith and no further duty or responsibility is accepted by the company. All such advice and every sale is subject to Cathay Composite's standard terms and conditions. The company reserves the right to change specifications without notice and customers should satisfy themselves that they are using the current version of the Technical Data Sheet.