



## DATA SHEET

# CHAR 21



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Waterbased intumescent coating for  
fire protection of concrete structures.

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### WHAT IS CHAR 21

CHAR 21 is a very low VOC, waterborne, high performance intumescent coating providing a very effective fire barrier thanks to high active solids content, char strength and the use of nanofillers. Rapid development of a stable, insulating char provides effective and long-term protection to flammable and non-flammable substrates.

CHAR 21 can be used for fire protection of pre-stressed concrete and reinforced concrete structures, concrete and masonry partitioning walls and other non-structural elements. In structural resistance-to-fire applications it provides protection for up to 3 hours.

CHAR 21 has superior environmental accreditation, assessed by EN 16000 tests for indoor emissions, ISO 89011-2 tests for VOC content and carries approval from LEED, BREEAM, CAM, French VOC and more.

### RECOMMENDED PRIMERS AND TOPCOATS

Proper substrate preparation is required depending on conditions including cleaning, degreasing and removal of loose particles. Concrete surfaces can be cleaned with suitable strength water spray to remove contaminants.

Painted or coated surfaces should be treated with Wall Primer 3500 to ensure proper adhesion. WP 3500 is thinned with 2L of water per 1L of primer to achieve an ultrafine solution with an application rate of 10m<sup>2</sup> per L. Pre-thinning rate of 30m<sup>2</sup> per L. No film should appear on the surface after drying.

CHAR 21 does not require a topcoat for C1, internal warm dry environments, though can be top coated for decorative purposes with product approval from our Sales & Technical department. An approved topcoat is required for environments C2 and above.

### USE AND APPLICATION

Suggested equipment is an airless spray piston pump with a minimum compression rate of 40:1, minimum pressure 150 bar (e.g. GRACO MARK V or WAGNER ProSpray PS34), Reverse-A-Clean self-cleaning tips, nozzle diameter 19/21/23 mils, flexible feeding pipe 3/8" of maximum length 30m.

Typically, application of 1mm WFT is achieved with 2KG/m<sup>2</sup>. This may vary with different equipment, always check WFT with a gauge as you apply. Actual application thickness should be in accordance with your report and Spec. Contact [sales@fireproofpaint.co.uk](mailto:sales@fireproofpaint.co.uk) for a specification.

Average volumetric flow rate in common airless spray applications ranges from 3 to 6 L/min. Gun, line, and feed filters should be removed.

Product may be thinned with 5% water, if necessary, though not generally required. Mechanical/paddle mix prior to application for smooth and consistent flow.

Application can also be done by brush or roller with long single strokes, avoiding overworking the paint. Application by brush/roller requires more coats than airless spray. Proper environmental conditions must be kept during application and drying.

### CERTIFICATIONS & APPROVALS

CHAR 21 comes with European certification and numerous type approvals in Europe and other countries. Performance for fire protection of reinforced concrete and pre-stressed reinforced concrete structures, test and assessment reports are available according to EN 13381-3 both for beams/columns and for slabs/walls up to R 120.

Application for compartment walls is supported by classification according to EN 13501-2 (fire tests according to EN 1364-1) for: Masonry bricks with rendering (EI 120) Concrete blocks without rendering (up to EI 180) Drywall (EI 60)

**DISCLAIMER:** Though based on the results of long-term testing and experience, the information given here is informative only. We cannot accept any liability for the use of this information, and the product uses a proper check based on the specific application, verified by the end-user. Accurate preliminary testing and definition of an application protocol and system is highly advisable to obtain full advantage of this product.

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## PROPERTIES

**DENSITY:** 1.3 ± 0.05 kg/dm<sup>3</sup> at 20°C.**SOLIDS CONTENT:**

- 78% ±5% w/w
- 67% ±5% v/v

**COLOUR:** White**STANDARD PACKING:** 15L, 5L, 1L paint tins.**SHELF LIFE:** 12 months in original packing and proper environment.**SPREADING RATE:** 200ml per m<sup>2</sup>. 1L = 5m<sup>2</sup>. (theoretical)**APPLICATION:** Can be applied by brush, roller or spray.**THINNING:** Not recommended (if necessary, with water max 5%).**DRYING TIME (\*):**

- 8 hours - touch
- 24 hours - complete

(\*) @ +20°C and 60% RH. Drying time depends on thickness applied, temperature, and relative humidity.

**MIN APPLICATION TEMPERATURE:** +5°C**MAX APPLICATION TEMPERATURE:** +45°CTEST, ASSESSMENT AND  
CLASSIFICATION REPORTS INCLUDE:

- PR-01-02-093 – PAVUS
- PV-08-02-088 – PAVUS
- 1953709 – AFITI LICOF
- 26959/A – TECNALIA
- 0119526 – HBRC EGYPT
- 282296917.001 – TUV RHEINLAND
- 28229694-28229693 – TUV RHEINLAND
- CSI 2123 FR – CSI
- CSI 2140 FR – CSI
- CSI 2124 FR – CSI
- CSI 2140 FR – CSI
- CSI 2121FR – CSI
- CSI 2127FR – CSI
- U0201 – Tomas Bell-Wright
- CSI 2124FR – CSI
- CSI 2127FR – CSI
- 1032204 – GFC Chimica



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