HC1 TOUGH
PRODUCT DATA SHEET

Product Overview

Single component, water-based, elastomeric, high build hygiene coating for walls and ceilings.

Description

HC1 Tough is a vapour permeable, resin-rich biostatic membrane that incorporates the latest encapsulated protectant technology in combination with silver ions to give completely safe use. The unique in-film chemistry allows for the ultra-slow, controlled release of active ingredients into the coating film throughout a long service life, even where harsh cleaning regimes are followed.

It is designed for use on walls and ceilings in hygiene sensitive areas such as hospitals, food preparation areas, pharmaceutical facilities, brewing & beverage industries, swimming pools, steam rooms and kitchens or bathrooms. It can be reinforced to impart increased tensile strength for crazed surfaces or to resist mechanical damage. Experience has shown that wall and ceiling surfaces treated with **HC1** are less likely to exhibit growth of mould/bacteria.

Uses

Suitable for surface protection systems principles 2.2, 8.2 as defined in BS EN 1504-2.

Formulated for use by experienced professionals.

Advantages

- Unique dual action in-film protection combined with silver chloride technology.
- Independently tested against a wide range of micro-organisms.
- Vapour permeable to allow substrate moisture to escape.
- High build, low sheen/velvet coating with very high tensile elongation.
- Permanently elastomeric and ideally suited for overall reinforcement.
- Safe, water-based, low odour, minimal VOC.
- Durable, low maintenance coating, easy to maintain and refurbish.

Compliance

- UKCA & CE marked in accordance with EN 1504-2.

Application Instructions

Preparation

The areas to be treated must be clean and free from all unsound material, i.e. dust, oil, grease, mould release agents, corrosion by-products and organic growth. Use approved techniques to achieve the required degree of preparation. If treating concrete, mechanically remove surface laitance to leave a sound substrate. Seal surface defects using **a** structural repair mortar. Concrete Repair Mortars must be allowed to cure for a minimum of 24 hours.

Substrates contaminated by mould, algae, mildew, bacteria, etc., require pre-treatment with **HC1 WASH**. Remove visible areas of growth and associated underlying loose paint or substrate by mechanical means prior to applying **HC1 WASH**.

Substrate Priming

Ensure substrate is dry, maximum 20% on Protimeter WME scale. Sound painted surfaces do not require priming. Porous substrates should be sealed with a coat of **HC1 Tough** diluted 25% with clean water. Concrete should be primed with **HC1 PRIME** at a rate of up to 5m²/litre. Sealer or primer coats are applied by brush, roller or airless spray. Ensure complete coverage. Rough or porous surfaces will increase consumption. For further information, please refer to the relevant Product Data Sheet and Priming Guide.

Treating Cracks and Joints

A suitable crack bridging filler is used to fill minor cracks. Sand to a smooth finish when cured. Larger static cracks may be filled with a suitable structural repair mortar. If required, reinforce over live cracks, construction joints and joints between dissimilar materials with **Butyl Tape** to provide strategic strengthening. Apply a local embedment coat of **a suitable crack bridge filler** into which the reinforcement is placed whilst the coating is still wet. Allow to dry and sand to remove any prominent edges before overcoating the whole area with two coats of **HC1**.

Overall reinforcement with **100 CSM** or **225 CSM** random weave glass fibre matting is also available. Please contact our Technical Department for further information.

Coating Application

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Apply **HC1 Tough** over the prepared, dry surface by brush, roller or airless spray at the maximum coverage rate given below. Allow to dry for a minimum of 1-4 hours until touch dry before applying a second coat as above.

Coat	Coverage Rate		
	m²/l	WFT (µm)	DFT (µm)
1st	4	250	
2nd	4	250	
Overall			245

Coverage rates are for smooth, non-absorbent surfaces. Make allowances for uneven or absorbent surfaces.

Storage Recommendations

All tools should be cleaned with water immediately after use.

Shelf-life is 2 years for unopened containers stored in dry, frost-free conditions away from heat.

Packaging and Coverage

- **HC1** is supplied in 10L or 15L plastic buckets.
- 10L will cover approximately 20m².
- 15L will cover approximately 30m².

Safety & Handling

Please refer to the relevant Safety Data Sheet (SDS) prior to handling or use. Use materials in strict accordance with published recommendations. Dispose of waste materials in accordance with local regulations.

Technical Assistance

For further information, please contact Tuff Technical Services on 01977 680250. More information can also be found at www.tuffstuff.co.uk

Application Top Tips

1. Avoid using different batch numbers on the same surface. Alternatively, inter-mix batches to ensure continuity of colour.
2. For brush application use wide, soft nylon or bristle brushes.
3. For roller application use medium pile (¾" or 1") synthetic. Avoid roller gliding on smooth surfaces.
4. Most 1500-3000psi airless spray machines are suitable, tip size range of 17-23 thou. Always finish off in one direction.
5. An optimal spray finish is achieved with a Graco Ultra Max II 490 or 495 electric unit operating at 2700psi with a 21 thou tip.
6. To assist in achieving coverage during application, the base coat may be applied in a similar contrasting colour to the top coat.
7. Use a wet film thickness gauge to regularly check coating thickness during application.
8. Clean brushes and rollers occasionally during use.
9. Regularly clean spray nozzles to avoid blockages.
10. Curing/drying time is temperature dependent. As a guide the coating will be touch dry in approximately 1 hour in hot conditions (>30ºC), 80 minutes at 20ºC and 4½ hours at lower temperatures (<10ºC).
11. High humidity (>75%) will extend drying time. To assist with correct curing, use ensure ventilation and good air circulation.
12. Service temperature range is -20ºC to +80ºC
13. Spray equipment must be emptied and flushed at the end of the working day.
14. Avoid prolonged storage at high temperatures (≥35°C).

Version: 1.4
Revised: 08/06/2026

Technical Data

Property	Standard	EN 1504-2 Requirement	Typical Result
Adhesive Bond	EN 1542	≥ 0.8 MPa Crack bridging or flexible systems	≥ 3.5 MPa
Water Vapour Permeability (Equivalent Air Layer Thickness)	EN ISO 7783	Class I (Permeable) S_D< 5m	S_D =1.64m
Liquid Water Transmission Rate (Capillary Absorption and Permeability to Liquid water)	EN 1062-3	Class III (Low) W< 0.1 kg/(m^2.$h^{0.5}$)	W = 0.04 kg/(m^2.$h^{0.5}$)
Elongation at Break	BS 903 Part A2	-	360% @ 245µm DFT
Tensile Strength	BS 903 Part A2	-	≥ 3 MPa @ 245µm DFT
Accelerated Weathering	EN 1062-11	-	No blistering, cracking or flaking after 20,000 hours QUV-B weathering
Gloss Value	EN ISO 2813	-	8.9% @ 85° Low Sheen/Velvet: (American Master Painters Institute Classification)
Minimum Service Temperature		-	-20ºC.
Maximum Service Temperature		-	+80ºC
Solids Content		-	60% (weight) 47% (volume)
Specific Gravity		-	1.39
VOC Content	BCF Minimal VOC	-	White 0.07% Colours ≤ 0.28% (All Minimal VOC)
Minimum Application Temperature		-	3ºC
Reaction to Fire	EN 13501-1	-	B-s1, d0

The properties given above are obtained from laboratory tests: results obtained from on-site testing may vary according to site conditions

Resistance to Micro-Organisms

Test Method ISO 22196: No growth on **HC1** of the following:

Bacteria	*Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa*
Mould / Fungi	*Alternaria alternate, Phoma violacea, Aspergillus versicolour, Rhodotorula rubra, Aureobasidium pullulans, Sporobolomyces roseus, Cladosporium cladosporoides, Stachyboytrys chartarum, Penicillium purpurogenum, Ulocladium atrum*
Algae	*Chlorella emersonii, Gloeocapsa sp., Nostoc commune, Pleurococcus sp., Stichococcus bacillaris, Stigeoclonium tenue, Trentepohilia auerea, Trentepohlia odorata*