

TIMONOX FLAME RETARDANT COATINGS

PROTECTION FOR WALLS, CEILINGS & WOOD-BASED SUBSTRATES







Part of the Hempel Group, a world-leading coatings manufacturer and supplier for the decorative, protective and marine markets, Crown Paints can trace its history back as far as 1777. It goes without saying that our highest priority still remains the production of high quality paints which meet our customers' needs.

Crown Trade is our premium quality professional paint brand, widely used by contractors, decorators and builders. It is specified for use in domestic and commercial environments by specifiers looking for quality, colour choice and market leading advice and service.

Crown Trade offers a complete range of up to date products of proven premium quality for every decorating situation, from our Covermatt emulsion for use in new build environments to our market leading Timonox Flame Retardant Coatings range, which can slow down the spread of flame, protecting buildings and lives in the event of a fire.

Crown Trade Timonox has a long, well established history of providing a first line of defence against the spread of flame, and so offers a comprehensive solution to the perceived 'Duty of Care' for building owners, facility managers or employers to protect the occupants of their properties.

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Legislation and Duty of Care dictate certain requirements

Legislation - The Regulatory Reform (Fire Safety) Order 2005 (England & Wales) and the Fire (Scotland) Act 2005 underline the potential hazard of flame spread on painted surfaces as being a factor to be considered in a fire risk assessment. Multiple layers of conventional paint coatings – whether water or solvent-borne – can make a previously non-combustible surface dangerous by their potential to burn, spreading fire rapidly and turning circulation and communal areas, or escape routes, into a mass of flames in seconds. Thus a surface with an original Class 0 fire rating can be downgraded to a Class 2 or worse.

Duty of Care - Building owners have a 'Duty of Care' to achieve and maintain conditions in buildings that reduce risk of injury, risk to life and damage to property in the event of a fire. This includes the legislation highlighted above.

See our website for some frequently asked questions, and informative answers.

Why Use Crown Trade Timonox?

Conventional paints are not formulated to slow down the spread of flame in the event of fire. It is only with the use of specially formulated flame retardant paints that the fire rating of painted surfaces can be improved.

Crown Trade Timonox offers a cost effective solution the formulation of Crown Trade Timonox products gives the range unparalleled flame retardant properties and complies with current BS and European fire test standards. ALL elements of the Crown Trade Timonox brand meet the regulations now and will continue to do so even if the British Standard tests are phased out. This means that Crown Trade Timonox can be specified for tomorrow's applications, as well as today's.

New Projects - Timonox applied to a new combustible or non-combustible surface provides excellent flame retardant properties, maintaining the fire rating of the construction. **100% Removal** - One option when upgrading is to remove all existing coatings back to a bare, non-combustible surface, especially where adhesion is poor. Crown Trade Timonox should be applied (and re-applied for future redecoration) to prevent a further cycle of fire performance degradation being started.

Upgrading existing coatings - Where existing coatings are sound, a straightforward Crown Trade Timonox flame retardant overcoating system may be adequate to achieve the required fire rating. Dependent on coating history, a higher performing Crown Trade Timonox upgrade system may be necessary. Furthermore, whilst the further use of non-flame retardant coatings would start the cycle of downgrading the fire rating, the subsequent and continued use of Crown Trade Timonox will maintain the desired rating when used in future redecorations.

Specifiers / Building Owners / Facilities Managers

Crown Trade Timonox systems offer a comprehensive flame retardant solution and provide:

- Improved flame retardancy of a surface
- Independently assessed systems on a variety of substrates (new combustible, non-combustible and previously painted new non-combustible substrates)
- Class 0, the highest rating when tested to BS476, Parts 6 & 7
- Class B, the highest rating when tested to European tests BS EN ISO 11295-2 and BS EN 13823
- Test certification of systems

- A range of decorative paint finishesAnti-graffiti options
- Extensive colour offering Equalities Act 2010
- Quality Assured BS EN ISO 9001:2000
- Site specific survey and Coating Conditions Survey
- Tailored specification based on Coating Conditions Survey

Decorators and Contractors

Crown Trade Timonox systems are painter-friendly, requiring only conventional application techniques and provide:

- Flame retardant overcoating of correctly prepared and well-adhered paint coatings to wall and ceiling surfaces without compromising on colour or decorative finish
- · Comprehensive technical and sales support
- Water-borne or solvent-free products for ease of use (therefore minimising disruption to building occupants)
- Excellent coverage
- Dependable quality

"All Crown Trade Timonox systems have been independently fire tested at EXOVA Warringtonfire."

Formerly Warrington Fire Research Centre

What can happen

Failure to maintain the level of the fire protection classification can result in disastrous consequences. An outbreak of fire in a Cheshire Hospital saw a 50 metre corridor engulfed in flames within three minutes.

Although the corridor walls were primarily constructed from Class '0' materials, forty years of paint build up had made the surface highly flammable, reducing the surface classification to a dangerous level.

The sequence of events

Alarm was raised by automatic smoke detector.

Nurse reaches the source of the alarm to discover a patient has set fire to a bed.

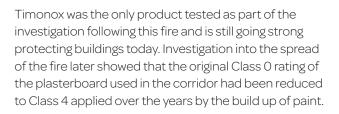
The fire has spread to nearby curtains.

The patient and nurse reach the safety of the dayroom.

Returning to check the area, the nurse closes Fire Door A and returns down the corridor.

Before reaching Fire Door B, an explosion of hot air throws the nurse to the ground and blows open Fire Door A

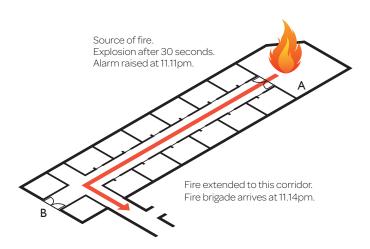
The nurse crawls to safety through Fire Door B as the multiple layers of old paint allow the fire to spread rapidly along the length of the corridor.



In subsequent tests, identically painted plasterboard samples were taken from an undamaged similar ward at this site. When overcoated with Crown Trade Timonox Eggshell, the performance of the samples was upgraded to Class 1.

Conclusions

The total number of layers at the hospital was over 18. Investigations into similar fires, (where the spread of flame has been rapid) has highlighted a particular scenario. Proprietary paint products had been used, which on their own had been tested and proven to have adequate fire spread properties. When these paints had been used over each other (possibly in the presence of dirt and grime, onto surfaces where adhesion between layers is not ideal), rapid fire spread had occurred.





What can happen

A fire started in one of the flats in Kentmere Tower, a 12 storey high-rise block, owned by Birmingham City Council. Crown Trade Timonox flame retardant systems had been applied to all of the communal areas in the tower, as part of the City Council's Decent Homes planned maintenance programme.

Whilst the fire started inside one of the flats, the flames were unable to spread further across the communal surfaces due to the application of Crown Trade Timonox. The fire caused extensive damage to the flat and the heat was such that it melted light fittings in the corridor areas immediately outside, but the Crown Trade Timonox painted areas showed little sign of damage after successfully limiting the spread of flame (see Kentmere Tower corridor below).

"We chose the Timonox systems to achieve the required level of fire safety for our residents living in high-rise flats. This followed extensive investigation, by the Morrison FS contract management team, of suitable products that complied with current legislation and achieved our requirement for a Class 0 fire rating. The fire did not spread through any communal areas, and although the lighting showed heat damage, there was no paint breakdown or evidence of flame spread."

Contract Team Manager at Birmingham City Council



Timonox products should only be used as part of fire tested systems as detailed in the Assessment & Class Ratings table on page 8.

New non-combustible substrates

These substrates are by definition Class 0. While a build-up of conventional coatings may eventually downgrade this rating, the initial and subsequent use of Timonox finishes will maintain it at Class 0.

New combustible substrates

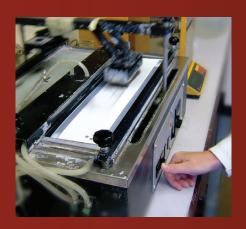
These substrates, when unpainted, are generally Class 3 or 4 (European Class C or D). This can be upgraded to Class 0 (European Class B) by the application of one coat of Timonox Upgrade Basecoat and two coats of a tested Timonox finish.

Previously decorated non-combustible substrates

Even though a bare surface may have carried a Class O rating, the application of layers of conventional paint could have reduced this to an unacceptable Class 2 or worse.

Tests have shown that two coats of a Timonox finish, applied over 10 coats of solvent-borne eggshell paint on plasterboard, achieved a Class O rating in a range of colours.

Timonox systems are also available which can upgrade the Warringtonfire 'Blue Board' from Class 4 to Class 0 (see page 9).



The Scrub Test

The Scrub Test evaluates the resistance of the coating to repeated cleaning and is measured by the following method:

A predetermined wet film thickness of the paint is applied to the test substrate and allowed to dry for 28 days.

The test panel is placed on the scrub testing machine and subjected to 200 or 40 scrub cycles (depending on paint type). After testing, the amount of paint which has been lost from the surface is calculated and expressed as a film thickness loss in microns.

The paint can then be classified according to the following categories:

Class 1 < 5 microns @ 200 scrubs

Class 3 > 20 < 70 microns @ 200 scrubs Class 4 < 70 microns @ 40 scrubs

Class 2 > 5 < 20 microns @ 200 scrubs

Class 5 > 70 microns @ 40 scrubs



Timonox Bonding Primer

An ideal foundation for Crown Trade Timonox flame retardant coatings systems. This water-borne adhesion promoting primer effectively prepares both new and old surfaces such as; plaster, cement, concrete and old paintwork. It provides good obliteration and permanently blocks common residual stains such as nicotine, graffiti & smoke stains, etc.

- Application by brush, roller or spray
- Recoatable after 15 hours under normal drying conditions
- ✓ Covers up to 12m² per litre depending on surface texture and porosity
- Film thickness: wet 80 microns, dry 25 microns @ 12m² per litre
- Available in white only



Timonox Upgrade Basecoat

Timonox Upgrade Basecoat upgrades Class 4 surfaces to Class 0 in an easy to use system. Formulated to produce a thick insulating char layer in the event of a fire thereby protecting the underlying combustible substrate.

- Application by brush, roller or airless spray
- Recoatable after 4-6 hours under normal drying conditions
- ✓ Covers up to 2.5m² per litre on smooth surfaces
- Film thickness: wet 400 microns, dry 200 microns @ 2.5m² per litre
- ✓ Available in white only

PREPARATION



ROWN

TRADE

Timonox Acrylic Eggshell

A water-borne eggshell paint formulated to inhibit spread of flame in a fire when applied to the following substrates:

New non-combustible, new combustible, non-combustible with up to 10 coats of conventional solvent-borne eggshell, Class 4 Upgrade - see page 9.

Timonox Vinyl Matt

A water-borne matt paint formulated to inhibit spread of flame in a fire, when applied to the following substrates:

New non-combustible, new combustible, non-combustible with up to 10 coats of conventional solvent-borne eggshell, Class 4 Upgrade - see page 9.

ROWN

Timonox Scrubbable Matt

A durable Class 1 ISO 11998 scrub resistant matt emulsion, formulated to allow repetitive cleaning and inhibit the spread of flame in a fire when applied to the following substrates:

New non-combustible, non combustible with up to 10 coats of conventional solvent-borne eggshell, Class 4 upgrade - see page 9.

- Application by brush, roller or airless spray
- Recoatable after 4 hours under normal drying conditions
- Covers up to 14m² per litre on smooth surfaces
- Film thickness: wet 71 microns, dry 26 microns @ 14m² per litre
- For colour availability see selection on page 10 or the Crown Trade Colour Collection Fan
- Application by brush, roller or spray
- Recoatable after 4 hours under normal drying conditions
- Covers up to 14m² per litre on smooth surfaces
- Film thickness: wet 71 microns. dry 25 microns @ 14m² per litre
- For colour availability see selection on page 10 or the Crown Trade Colour Collection Fan
- Application by brush, roller or spray
- Recoatable after 4 hours under normal drying conditions
- ✓ Covers up to 14m² per litre on smooth surfaces
- Film thickness: wet 71 microns, dry 27 microns @ 14m² per litre
- For colour availability see selection on page 10 or the Crown Trade Colour Collection Fan



Timonox Clear Top

Retardant Glaze

easily removed.

Upgrade - see page 9.

A water-borne, sacrificial glaze, providing additional protection and durability. Only for use over Timonox Acrylic Eggshell.

✓ Water-borne

- One-coat application by brush or roller
- Only for use as part of fire tested systems
- Spreading rate up to 10m² per litre
- Film thickness 1 coat: wet 100 microns, dry 20 microns @ 10m² per litre
- Dry in 4 hours under normal drying conditions

✓ Solvent free

- One-coat application
- Saves labour time
- Application by brush or roller only
- Spreading rate up to 15m² per litre
- Film thickness 1 coat: wet 67 microns, dry 67 microns @ 15m² per litre
- High eggshell finish gives excellent aesthetic results
- ✓ For use only as part of fire tested systems
- DO NOT THIN
- Non-sacrificial

For application to; New non-combustible, non-combustible with up to 10 coats of conventional solvent-borne eggshell.

Timonox Anti-Graffiti Flame

Only for use over Timonox Vinyl Matt.

Provides a flame retardant surface from

which graffiti and other soiling can be more

For application to: new non-combustible,

conventional solvent-borne eggshell, Class 4

non-combustible with up to 10 coats of

A100% solids, solvent-free, 2 pack non-sacrificial,

high eggshell, anti-graffiti flame retardant glaze.

ROW

Crown Trade Timonox has been subjected to one of the most extensive and detailed test programmes, and is constantly being reviewed and updated. Crown Trade Timonox systems have been independently assessed by Warringtonfire to evaluate all product types across the full colour offer. Below is a summary of the test results obtained at Warringtonfire over three main types of substrates.

Product / Finish	Substrate	Class	System	Spreading rate maximum m ² per coat	Warringtonfire report/ Classification No.
Vinyl Matt	New paper-faced plaster board	В	1 mist coat* Timonox Vinyl Matt 2 coats Timonox Vinyl Matt	14	186529
	Particleboard#	В	1 coat of Timonox Upgrade Basecoat 2 coats Timonox Vinyl Matt	2.5 14	186529 and Assessment Report 336111
	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats of conventional solvent-borne Eggshell	В	1 coat of Timonox Upgrade Basecoat 2 coats Timonox Vinyl Matt	5 14	186529 and Assessment Report 336111
	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats of conventional solvent-borne Eggshell	0	2 coats Timonox Vinyl Matt	14	185838/185837
Acrylic Eggshell	New paper-faced plasterboard	В	1 mist coat* Timonox Acrylic Eggshell 2 coats Timonox Acrylic Eggshell	14	186527
	Particleboard#	В	1 coat of Timonox Upgrade Basecoat 2 coats Timonox Acrylic Eggshell	2.5 14	186527 and Assessment Report 336111
	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats of conventional solvent-borne Eggshell	В	1 coat of Timonox Upgrade Basecoat 2 coats Timonox Acrylic Eggshell	5 14	186527 and Assessment Report 336111
	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats of conventional solvent-borne Eggshell	0	2 coats Timonox Acrylic Eggshell	14	185839/185840
Scrubbable Matt	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats of conventional solvent-borne Eggshell	0	2 coats Timonox Scrubbable Matt	14	176138/176139
Anti-Graffiti Flame Retardant Glaze	New paper-faced plasterboard	0	1 mist coat* Timonox Vinyl Matt 2 coats Timonox Vinyl Matt 1 coat Timonox Anti-Graffiti Flame Retardant Glaze	14 15	185841/185842
	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats conventional solvent-borne Eggshell	0	2 coats Timonox Vinyl Matt 1 coat Timonox Anti-Graffiti Flame Retardant Glaze	14 15	185843/185844
Clear Top Coat	Paper-faced plasterboard coated with 1 coat Alkali Resisting Sealer 10 coats conventional solvent-borne Eggshell	0	2 coats Timonox Acrylic Eggshell 1 coat Timonox Clear Topcoat	14 15	185845/185846

* Mist coat defined as a 40% diluted coat.

Particleboard is a standard European substrate representing a range of wood based materials. Plaster board is a standard non-combustible substrate

Copies of the test reports available upon request. The test reports relate only to the systems and substrates tested to either British or European standards.

The issue of flame retardant coatings is complex. The Crown Trade Timonox range of products has been extensively tested on new combustible, non-combustible and previously painted non-combustible substrates. Timonox will maintain or upgrade the existing fire ratings of surfaces in line with the evidence detailed in individual fire test reports.

Note: Crown Trade Timonox systems have been designed to maintain or improve the flame retardancy of a surface. They will not impart 'fire resistance' (i.e. insulate and protect elements of a building for set periods of time).

Class 4 Upgrade

Class ratings for upgrading from Class 4 to Class 0 (based on the Warringtonfire Blue Board Test - tested to BS 476: Part 7)

Product / Finish	Substrate	Class	System	Spreading rate maximum m ² per coat	Warringtonfire report/ Classification No.
Class 4 Upgrade	Warringtonfire Blue Board	0	1 coat of Timonox Upgrade Basecoat with: 2 coats Timonox Vinyl Matt, or	2.5 14	185847/185848 and Assessment Report 336111
			1 coat of Timonox Upgrade Basecoat with: 2 coats Timonox Vinyl Matt and 1 coat Timonox Anti-Graffiti Flame Retardant Glaze, or	2.5 14 15	185849/185850 and Assessment Report 336111
			1 coat of Timonox Upgrade Basecoat with: 2 coats Timonox Acrylic Eggshell	2.5 14	185851/185852 and Assessment Report 336111
			1 coat of Timonox Upgrade Basecoat with: 2 coats Timonox Scrubbable Matt	2.5 14	260390/183431 and Assessment Report 336111

Blue Board



Ignition

after 10 minutes

Blue Board protected with Timonox Class 4 Upgrade system



Ignition

after 10 seconds

after 30 seconds

after 1 minute

after 10 minutes

In older buildings, where it is hard to judge how many coats of paint may have been applied to a substrate over a number of years, it can be potentially difficult to establish with any certainty the correct remedial action to restore the required level of fire safety. However, thanks to special upgrade systems, involving Timonox Upgrade Basecoat and a choice of Timonox finishing coats, even those surfaces with many layers of sound existing paint can be restored to Class 0 condition.

The scenario is a surprisingly common one, especially where housing stock pre-dates, say, the 1970's. Yet, there is no formal standard covering the situation, or any specific reference in legislation to the treatment of previously painted surfaces.

In response, Warringtonfire, a leading fire research establishment within the United Kingdom, in association with the paint industry, has developed a 'worst case scenario' to evaluate the performance of paint upgrade systems. Commonly referred to as the 'Warringtonfire Blue Board Test', it features a multi-layer cocktail of 10 coats of paint applied to a plasterboard substrate. When tested to BS 476: Part 7, a Class 4 rating results. The aim of the Class 4 Upgrade, therefore, is to provide a system which will upgrade a rating from Class 4 to Class 0.

Warringtonfire prepares the boards so that they are of a consistent quality and then monitors the preparation and coating by the manufacturer. Testing is carried out in a reproducible manner to ensure the highest level of consistency. The pictures show the rig used to perform the Part 7 test.

This approach enables building owners to be confident in specifying upgrade systems for properties where a high fire risk is identified.

Note: Whilst a Timonox Upgrade system can be applied to ANY SOUND build up of existing paint as an alternative to 100% removal, it is NOT an alternative to the stripping of paint in poor condition.

Our colour experts are continually looking forward, to assess and influence colour trends and to produce palettes of colour that excite, stimulate and refresh the built environment. Equally important, is the way in which colour can be reviewed, assessed, manipulated, tested and selected, which is why we have created a range of services and colour systems to help with colour choice.

With our interior and exterior portfolio and an almost infinite range of colours, the Crown Paints Colour Service, can help specifiers get the best aesthetic and performance solution for their project.



Crown Paints' 5 Options colour service



Option 1 Colour cards for customer choice



Option 2 Generic colour schemes



Option 3 Bespoke colour schemes



Option 4 Interior schemes by computer aided design



Option 5 Face-to-face consultations

Choosing colour for Timonox

Crown Trade Timonox emulsions are available in a wide choice of colours. For more information, please refer to the following colour literature.



The Crown Paints Colour Collection fan has a choice of over 700 Timonox colours presented in colour families for easier selection. Individual pages are also available from Crown Trade stockists.



The Crown Trade Product and Colour Guide and Crown Trade Historic and Classic card demonstrate a selection of our most popular colour ranges across the brand. If you require colour scheming advice, including guidance on how to comply with current Equality Act legislation, if you wish to order literature or if you need a larger sample of a colour chosen for a project, please contact the Crown Trade Customer Relations Team:

Telephone: 0330 024 0297 Email: info@crowntrade.co.uk Website: www.crowntrade.co.uk

Sustainability is at the heart of everything we do

Earthbalance[®], which was launched in 2008, sets out the company's commitment to being more sustainable and less wasteful as well as helping customers and staff make responsible decisions. The Earthbalance[®] scheme touches on all aspects of Crown's business from manufacturing to packaging and applies to all staff and operations at Crown's two UK manufacturing plants in Darwen and Hull as well as its network of more than 140 Crown Decorating Centres in the UK.

We set ourselves challenging targets to reduce our environmental impact, in areas such as energy and waste. One of our key objectives, is our Hempel Group target to reduce CO2 intensity (from energy consumption in manufacturing) by 12% by 2020 from a 2015 baseline. Every year we report our progress through our Sustainability Report, which can be found via our website.

Our Award Success

Over the past few years our Earthbalance[®] programme has been recognised with a number of awards.

2013

Green Apple Awards – Environmental Best Practice European Business Awards – National Champion Lancashire Business Environment Awards – Community Contribution for Large Companies Manufacturer of the Year Awards – Green Manufacturer of the Year

2014

International CSR Awards – Environmental Endeavour: Sustainability & Overall Gold Scorer BCF Awards – Coatings Care Award for our Hull site

2015

EEF Manufacturing Awards – Environmental Efficiency (North West) **National Business Awards** – Sustainable Business of the Year

Code of practice



Crown Paints adheres to the Code of Practice – Refurbishment of Communal Buildings and the Fire Risk of Multi Layer Paints. This provides guidance for the painting of surfaces in multi-occupancy buildings that have previously been decorated with surface coating products in order to maintain or achieve the required fire performance characteristic of surfaces in that end use.

A representative from Crown Paints sat on the editorial committee of this Code of Practice.

Health & Safety

Crown Trade paints are made to be safe for you to use, but before using or storing any of our products, you should refer to the relevant Safety Data Sheet. These are available from the Customer Relations Team on **0330 024 0297**, by emailing **info@crowntrade.co.uk** or on our website **www.crowntrade.co.uk**

Let us provide you with a comprehensive solution

Contact us for:

- Coatings Condition Survey
- Tailored specification based on coatings condition survey
- Test certification of systems
- Colour scheming advice including guidance on current Equalities Act legislation
- We are able to offer a CPD on 'Burning Issues the fire hazard of painted wall & ceiling surfaces'
- Find us on RIBA product selector, NBS plus and National BIM library

Contact us on 0330 024 0310 Email info@crownpaintspec.co.uk



We care about our environment and community

- Sustainability
- Charity & Community
- Education, Skills & Apprenticeships
- The Hempel Foundation

For more information please visit the **Corporate** section of **crownpaint.co.uk**

The photographs and images in this brochure are included for presentation purposes only and are not intended to be representative of any of the colours and finishes of any of our products.





Use the Crown Paints PaintSpec Finder® at crownpaintspec.co.uk







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