FIRESHELL® F1E
IGNITION BARRIER COATING

Exterior water based intumescent coating

TECHNICAL DATA SHEET & PRODUCT INFORMATION

Residential bushfire compliance and risk reduction solutions

TDS F1E_RBM_8.21

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EXFIRE®

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PRODUCT DESCRIPTION

FIRESHELL® F1E is an exterior, waterborne, non hazardous, self-priming, flexible intumescent coating. It provides an ignition and flame spread barrier on external combustible surfaces. It is used to achieve both code compliance and risk reduction / asset protection solutions.

FIRESHELL® F1E meets the requirements for bushfire resisting timber on a number of timber species specified in AS 3959:2018 Construction of Buildings in Bushfire Prone Areas Appendix F. This includes the accelerated weathering component. It is utilised to reclassify non compliant timbers to allow their use in BAL12.5, BAL19 and BAL29 applications where bushfire resisting timber is required.

PRODUCT FEATURES

- Allows the use of pine and other non compliant timbers in BAL12.5, BAL19 and BAL 29 applications.
- Simple application to joists posts and bearers
- Self priming to most surfaces
- Extreme exterior performance, does not need topcoats to protect it
- Provides a logical, tested and efficient solution to protecting exposed timbers from bushfire attack
- Trusted nationwide for residential, commercial, GOV and large infrastructure projects where a high performance durable exterior intumescent coating solution is required.

APPLICATIONS

All external timber applications, subfloors and decking posts, pergolas, base boards, fascia, weatherboards, retaining walls, fences, bridges, utility poles, timber structures, underfloor applications, roof cavity solutions and any application where a bushfire resisting timber and ignition barrier qualities are required.

CONDITIONS OF USE

Consult with your certifying body that the **FIRESHELL® F1E** system meets your project requirements prior to purchase. It is the responsibility of the purchaser to ensure that any product purchased from **EXFIRE** and its distributors will suit the purpose and/or will meet the requirements of the building code you are required to comply with.

EXFIRE recommends that application should be performed by a qualified painter and any airless spray application be done by an **EXFIRE** recognised applicator. Contact **EXFIRE** for more information.

LIMITATIONS

For AS3959 and ISO 5660 compliant solutions **FIRESHELL® F1E** must be applied to bare timber surfaces. Any pre-primed surfaces are required to be sanded back to bare timber.

For AS3959: 2018 bush fire resisting timber application, coatings can not be used on trafficable surfaces.

FIRESHELL® F1E is not a stain blocker. Any high bleed timber surfaces should be confirmed as suitable prior to application. **FIRESHELL® F1E** is applied at a higher film build than regular acrylics. The system has a slight grain in the texture of the dried finish. Due to these characteristics it is not recommended for detailed window or door joinery where a high quality smooth finish is required. It is recommended that the finish be confirmed as suitable by the client prior to application. Contact Exfire for detailed images of the finish as well as Exfire or local distributors for examples of finish.

TECHNICAL DATA

WATER BASED, NON HAZARDOUS

EXTERIOR GRADE

LOW VOC: >20g/L

THINNER/ADDITIVES: Max 5% water.

VISCOSITY: high viscosity

COLOURS: Dark Brown, Light Grey

PRIMERS: Not required, for instances where a primer may be used contact EXFIRE for more information.

TOP COAT: Can be top-coated for colour purposes with an approved water based acrylic. **EXFIRE** recommends minimum of 21 days from final application of **FIRESHELL® F1E** to top coating with an approved water based acrylic.

SHEEN/FINISH: Flat with slight texture

DRUM SIZE: 5L and 15L plastic pails.

STORAGE CONDITIONS: Secure dry indoor area, between 10°C and 35°C, protect from freezing, and extreme heat

SHELF LIFE: 24 Months from manufacture in original sealed containers under recommended storage conditions

SAFETY: Ensure Appropriate use of protective clothing and compliance with local occupational health and safety regulations. See product SDS for more information.

Keep out of reach of children

APPROVALS - TIMBER

AS3959: 2018: Bushfire resisting timber compliant

Reclassifies non-compliant species as bush fire resisting timber. Direct testing on Pine, WR Cedar. Assessment reports covering all other species with a density of 450kgm3 and greater.

ISO 5660: external timber cladding compliance

WR cedar: Mean HRR 25.0 kW/m2 Peak HRR 39.2 kW/m2

AS3837 Group 1 performance: WR Cedar

ASTM E 84-5: Class A

Accelerated Weathering: ASTM D 2898 Method B as specified by Appendix F F2(b) of AS 3959.2009/2018

Ignition barrier testing is also available for a variety of other substrates. All test reports, certificates available to the certifying body direct on request.

SURFACE PREPARATION

All surfaces must be clean, dry and sound. FIRESHELL® F1E is water based so will not adhere to oil based coatings stains or waxes. For AS3959 and ISO 5660 compliant systems FIRESHELL® F1E must be applied to the bare timber surface. Pre-primed boards must be sanded back to bare timber. Surfaces should have a moisture content of 12% or below.

FIRESHELL onto Treated pine: LOSP DAR: Ensure surfaces are not oily to the touch and treatment has fully cured prior to application. Allow new LOSP to weather for at least 2 weeks. Allow tannin rich species to weather for 4-6 weeks prior to coating. **EXFIRE** recommend a water droplet test to see if water beads or absorbs. If water is beading on the surface **EXFIRE** recommend an Oxalic acid wash as a good prep method to remove any residues. Compatibility with any previously applied product should be checked before application of this product. Contact **EXFIRE** or **F1E distributors** for more information.

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SHORT FORM SPECIFICATION: AS3959:2018 AND ISO 5660 COMPLIANCE

AS 3959 COMPLIANT | ACCELERATED WEATHERING | ISO 5660 COMPLIANT | GROUP 1 COATING | WATER BASED LOW VOC

System brush/roll	Product	Theoretical spread rate	WFT
1st Coat	FIRESHELL® F1E	4.2m2/L	250 microns
2nd Coat	FIRESHELL® F1E	4.2m2/L	250 microns
3rd Coat	FIRESHELL® F1E	4.2m2/L	250 microns
4th/5th Coat*	Approved water based acrylic topcoat if required	As per manufactures recommendations	N/A

System airless spray	Product	Theoretical spread rate	WFT
1st Coat	FIRESHELL® F1E	2.8m2/L	375 microns
2nd Coat	FIRESHELL® F1E	2.8m2/L	375 microns
3rd/4th Coat*	Approved water based acrylic topcoat if required	As per manufactures recommendations	N/A

* if required for colour purposes

AS3959: 2018 compliance with bushfire resisting timber requirements Suitable for BAL12.5, BAL19 and BAL29 applications for both exposed and non exposed areas on bare timber surfaces only. Confirm with your certifying body that the proposed system will meet the performance requirements for your project.

For further information, product specifications and advice contact

EXFIRE 1800 684 001

For general Risk Reduction, Asset Protection, Heritage and Fire Engineered solutions whereby the system is not required to comply with AS3959 or ISO 5660, FIRESHELL can be applied over existing water based surfaces subject to adhesion tests and suitable preparation of existing surfaces. Contact EXFIRE or FIRESHELL licensed distributors for more information.

APPLICATION

MIXING: Mix coating for a minimum of 3-4 minutes with a powered mixer prior to application, insuring to get the bottom and and all sides of the drum until product is uniform in colour and consistency

EQUIPMENT: FIRESHELL® F1E can be applied by brush, roller or airless spray.

BRUSH: Use top quality polyester/nylon blend brush-ware or similar.

ROLLER: 20mm polyester blend long nap roller recommended, subject to the type of substrate surface. Laying off a rolled surface immediately with a brush is recommended for finish purposes.

SPRAY: EXFIRE recognised applicators only; Contact EXFIRE for more information on spray application.

PRODUCT: EXFIRE recommends a maximum thickness of 500microns WFT per coat. During application, the Wet Film Thickness (WFT) must be checked using a WFT gauge. A WFT gauge will be included with your shipment. To use the gauge insert the teeth into the wet coating. The WFT is between the last tooth to be coated and the first tooth not coated. Correct use of a WFT gauge is important to ensure the required Dry Film Thickness (DFT) on the specific assembly is achieved. See WFT instruction page. For more information on using a WFT gauge visit www.exfire.com.au or contact EXFIRE on 1800 684 001

CLEAN UP: Thoroughly rinse application tools with water before paint is cured. Flush airless spray equipment out with water as soon as work ceases to ensure effective cleaning.

TEMPERATURE RE-COAT AND DRY TIMES

Do not apply if temperature is below 10°C or likely to fall below 10°C within 2 hours of application. Do not apply if relative humidity is above 85%

Recoat time is 4 hours in ideal drying conditions of 24°C with sufficient air flow and a relative humidity below 50%. Lower temperatures and/or higher humidity will increase dry time.

Application should not take place in conditions which are deteriorating quickly , e.g. the temperature is falling or there is a risk of condensation forming.

MAINTENANCE

REPAIR OF INSTALLED F1E SYSTEM

Damaged areas exposing the uncoated timber should be repaired immediately. Repair any damage to the substrate if required prior to re application of damaged area. Apply FIRESHELL® F1E to the damaged area at the originally specified thickness and as per the application requirements. Re apply approved topcoats if required.

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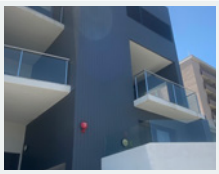
FIRESHELL® F1E	Solution	Benefits	System & Coverage	Compliance	Checklist
	Decking subfloor and pergola framing. Joists posts bearers.	Utilise treated pine in BAL29 areas, and leave subfloor exposed.	**Brush and roll:** Coat1 F1E / 4.2m2/L Coat2 F1E / 4.2m2/L Coat3 F1E / 4.2m2/L Coat4/5: Approved topcoat if required.	**AS3959:** BAL12.5 BAL 19 BAL29 ASTM D 2898 Method B	Certifier approval. Bare timber. Timber moisture below 12%. 21 days prior to application of any approved topcoat.
	Application of joists, post and bearers prior to construction	Efficient simple process. Cost effective compared to alternatives of hardwood, steel	**Brush and roll:** Coat1 F1E 4.2m2/L Coat2 F1E 4.2m2/L Coat3 F1E 4.2m2/L Coat4/5: Approved topcoat if required	**AS3959:** BAL12.5 BAL 19 BAL29 ASTM D 2898 Method B	Certifier approval. Bare timber. Timber moisture below 12%. 21 days prior to application of any approved topcoat.
	Utilise weather-boards 400mm from ground or deck surface. BAL29 applications for weather-board and timber cladding	Match existing timber cladding. Utilise pine and cedar weatherboards	**Brush and roll:** Coat1 F1E / 4.2m2/L Coat2 F1E / 4.2m2/L Coat3 F1E / 4.2m2/L Coat4/5: Approved topcoat if required.	**AS3959:** BAL12.5 BAL 19 BAL29 ASTM D 2898 Method B	Certifier approval. Bare timber. Timber moisture below 12%. 21 days prior to application of any approved topcoat.
	Stair stringers, beams, exposed rafters, retaining walls and fences	Utilise treated pine in BAL12.5, BAL19 and BAL 29 applications Logical efficient solution to meet code compliance	**Brush and roll:** Coat1 F1E / 4.2m2/L Coat2 F1E / 4.2m2/L Coat3 F1E / 4.2m2/L Coat4/5: Approved topcoat if required.	**AS3959:** BAL12.5 BAL 19 BAL29 ASTM D 2898 Method B	Certifier approval. Bare timber. Timber moisture below 12%. 21 days prior to application of any approved topcoat.
	**General Risk Reduction Solutions** for new and existing timber surfaces and heritage applications	Treat new and existing timber surfaces to reduce risk of ignition and flame spread	**Brush and roll:** Coat1 F1E 4.2m2/L Coat2 F1E 4.2m2/L Coat3 F1E 4.2m2/L Coat4/5: Approved topcoat if required	**AS3959:** BAL12.5 BAL 19 BAL29 Fire Engineerd solutions for BAL40 and FZ	For non code compliance and heritage can go over suitably prepared existing water based coatings. AS3959 compliance - Bare timber only
	ISO 5660 external timber cladding compliance and alternate solution for proximity to boundary and combustibility requirements	Logical solution for ignition and flame spread risk of timber cladding. Retain existing substrates. Utilise timber	**Brush and roll:** Coat1 F1E / 4.2m2/L Coat2 F1E / 4.2m2/L Coat3 F1E / 4.2m2/L Coat4/5: Approved topcoat if required.	**AS3959:** BAL12.5 BAL 19 BAL29 ASTM D 2898 Method B	Certifier approval. Bare timber. Timber moisture below 12%. 21 days prior to application of any approved topcoat.

For any code compliance solutions always confirm with the certifying body prior that the **FIRESHELL® F1E** will meet their performance requirements. It is the responsibility of the purchaser to ensure the system is fit for purpose. **EXFIRE** can provide test reports, assessments to the certifying body and provide advice on the suitability of the system for your project. It is the responsibility of the applicator to ensure all application guidelines are adhered to.

Airless spray applications are by **EXFIRE** recognised applicators only. Contact **EXFIRE** for Airless spray application requirements, becoming recognised or to find your closest recognised applicator. **FIRESHELL® F1E** is also utilised on Government and large infrastructure applications as well as a wide range of PU foams, plastics and composite materials to reduce risk of ignition and flame spread. Contact **EXFIRE** to discuss any specific substrate protection or project requirements.

APPLICATOR CHECKLIST

- Read the TDS in full. Ensure that you understand all aspects. Contact **EXFIRE** with questions prior to application.
- For AS3959, ISO 5660 and any Building Code Compliance ensure certifier approval of the system prior to application.
- Ensure all surfaces are clean, dry (below 12% moisture) and sound before application.
- Temperature and humidity are within recommended guidelines and the ambient temperature will not fall below 10°C for at least 2 hours after application.
- Mix coating for a minim of 3-4 minutes with powered mixer until product is uniform in colour and consistency.
- Ensure application equipment meets the minimum requirements.
- Ensure sufficient airflow to aid dry time
- Do not re-coat unless coating is completely dry.
- Allow 21 days prior to top coating **FIRESHELL** with approved water based acrylics.
- If you are unsure with this checklist do not proceed, contact **EXFIRE** or your **FIRESHELL** distributor.

DISTRIBUTOR

See the contacts page of the **EXFIRE** website for your closest **FIRESHELL® F1E** distributor.
www.exfire.com.au/contact/

For compliance projects always confirm the suitability of the system with the certifying body prior to order and application.

For more information, test reports, specifications and advice contact the **EXFIRE** team to discuss your project.