



Sioo:x
Wood Protection Manual

V1 Aug 21

Carefully Crafted Timber



Why Use Sioo:x

The Sioo:x Wood Protection System (pronounced 'Cee Oh') is a 'reactive' coating system that creates a unique protective barrier to timber. It is designed to minimise the frequency of maintenance when compared to other semi-transparent coatings and over time it will weather to a silver-grey tone. Unlike any other coating system, it will weather evenly across all areas of a project regardless of exposure to the sun. This will avoid the problem of an inconsistent and patchy look where some faces fade due to UV exposure and other faces don't.

The result is a timber with a beautiful and uniform grey-driftwood appearance, long life protection and less maintenance overall.

Advantages:

- Strengthens and protects the surface of the timber.
- For exterior vertical and horizontal surfaces.
- Beautiful, driftwood look that is uniform across all faces of a building.
- Protects against damaging UV radiation, helps prevent mildew, mould and mild rot.
- Water repellent and vapor-permeable (the timber breathes).
- Less maintenance costs in the long term compared to other semi-transparent coatings.
- Safe for people and the environment – based on natural mineral and plant-derived ingredients that are emission free.
- Free from Red List chemicals as required by the Living Building Challenge.
- Water-based for easy maintenance and wash-up – no solvents.
- Sioo:x coated timber is easily recycled or disposed of at end-of-life.

Abodo Display Cabin, Cardrona: Vulcan battens after nine months of weathering.



How It Works

Sioo:x uses a patented 2-part silicon-potassium technology.

Sioo:x Wood Protection (Panel or Deck) – Part 1 is a water-based potassium silicate solution that penetrates the fibres of the timber to form a flexible network of crystals. This creates a barrier to strengthen and protect the timber. Re-application of Part 1 may be up to 10-12 years for cladding and 8-10 years for decking.

Sioo:x Surface Protection PRO UV (Panel or Deck) – Part 2 containing silicone in the form of a water-based emulsion, is applied to bond with Part 1 and effectively seal the surface of the timber, creating a breathable water repellent layer. Re-application of Part 2 will vary depending on the maintenance circumstance of your project however may be up to 7 years for cladding and 1-2 years for decking.

The products are formulated differently for vertical wall applications (Panel) versus horizontal decking applications (Deck).

Colour – at this stage there is one non-pigmented colour available, light silver-grey, however in future there will be a range of grey and neutral colours.



Omaha House: With the ocean on three sides, the Sioo:x on Vulcan Cladding WB12 has weathered to a dark patina, as expected after three years.

The Weathering Process and What to Expect

Sioo:x reacts with moisture and carbon dioxide to cure over 1-3 years depending on the project application, timber species and weather conditions. The curing process does not rely on UV radiation from the sun.

As curing progresses there will be a gradual change of colour with the timber initially brightening to a light whitewash tone, usually within six months, then gradually darkening to mid-grey 'weathered' tones.

Refer chart and images adjacent.

Traditional coating products fade with exposure to UV from the sun resulting in the problem of uneven weathering to different faces of a building. For example, upper sections of an exterior wall with an eave will not be exposed to UV and will keep its initial colour, compared to the base of the same wall that will fade and grey off due to exposure to UV.

Sioo:x solves this problem. As Sioo:x cures it maintains a uniform tone across all faces of the building regardless of exposure to UV. More protected areas such as under eaves may take a little longer to cure however over time the colour tone will be even and uniform throughout.



Waimarama Surf Lifesaving Club: Sioo:x on Vulcan Screening after five years, within 100m of the ocean.

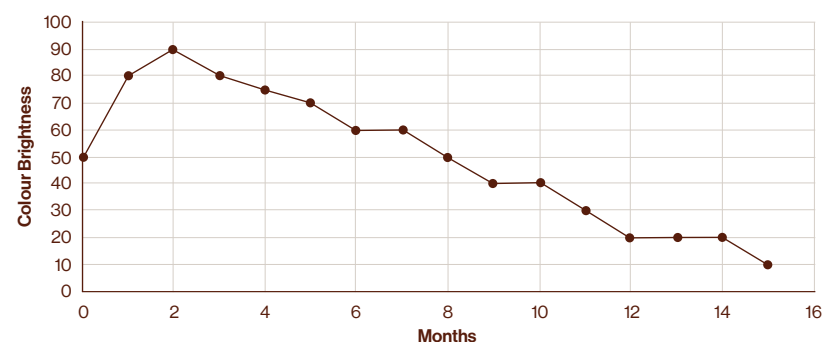


Vulcan Sioo:x / 1 Day

Vulcan Sioo:x / 2 Months

Vulcan Sioo:x / 4 Months

Vulcan Sioo:x / 6 Months



Colour brightness vs time (months).



Where to Use

Sioo:x products are specifically designed for exterior applications and work best on fine band sawn timber surfaces. The long term performance of Sioo:x is reduced when applied to smooth dressed timber. Exposed horizontal applications such as decking are more severe than vertical applications and will require more regular maintenance.

Typical vertical applications: wall cladding, screening, battens, fences, façade blades, pergolas.

Typical horizontal applications: decking, soffits/eaves, furniture, pergolas.

It is important to adhere to cladding and screening design and installation guides with particular attention to avoiding unwanted accumulation of water, especially at the end grain where moisture will be drawn into the timber.

Sioo:x is NOT recommended for the exterior of window and door frames that do not have good eaves protection. For exposed windows/doors with no eave protection a solid paint finish is recommended or otherwise refer to the window supplier's recommendations. For windows/doors that are semi-protected, the use of semi-transparent coating systems may be possible. Please refer to window manufacturer or to an Abodo Distributor or Reseller.

Sioo:x is NOT RECOMMENDED FOR INTERIOR APPLICATIONS as it relies on moisture and weather to cure and it won't be able to develop a mid-grey weathered tone.

Often designers will specify Sioo:x for the exteriors of a building and would like to run the same aesthetic to interior walls or ceilings. Similar weathered tones can be achieved by using white pigment interior stains. Contact Abodo or our Distributors for advice on matching interior and exterior coatings.

Culbara: Located on the Sunshine Coast in Australia, Vulcan Screening Sioo:x, this was photographed six months after completion.

Suitable Timber Types

The performance of Sioo:x coatings will vary from one timber species to another and will not be suitable for some species at all.

It is important to select an exterior timber with Class 1 or 2 durability and low movement properties. Low shrinkage and stable species will ensure greater longevity and performance of Sioo:x, or any other coating system.

Any timber species intended to be coated with Sioo:x should be tested and approved by Sioo:x, Abodo Wood or a Distributor for adequate performance of the coating on that particular species. Proven application on projects is also beneficial.

Medium density timbers

Sioo:x is particularly suitable for timbers such as: thermally modified pine, acetylated pine, spruce, larch and cedar. Abodo Vulcan (thermally modified pine) is recommended by Sioo:x as an ideal timber to maximise the performance and longevity of their coating systems.

High density timbers

Some hardwoods or high leaching timbers may not absorb Sioo:x well so should be approached with caution.

These can be subject to initial reactive yellow or black staining, though this will normally fade away with exposure to the weather. It is recommended that all species be tested prior to full application.

Hardwoods that have been tested and previously used on projects coated with Sioo:x are: Spotted Gum, Silvertop Ash and Blackbutt. Other species may have been tested by Abodo's Distributors.

It is recommended that a **band sawn** textured finish be applied to all timber species for better absorption of the coating. A band sawn or brushed surface will result in better coating penetration and performance compared to smooth dressed timber. If smooth dressed timber is to be used, then sanding with 80 grit sandpaper is required.

Old or weathered timber will require thorough cleaning prior to application of Sioo:x. Existing coatings must be removed so that raw timber is present and then sand the surface with 80 grit. See section 'Method of Application'.

It is important to seek advice from Abodo or a Distributor in case there are specific application procedures that are advised for a given species.



Blackbutt (Eucalyptus Pilularis)
hardwood showing leaching of tannins.

Te Hononga Hundertwasser: Vulcan Cladding WB10 145x20 Sioo:x photographed six months after completion, the large eaves haven't prevented the timber weathering evenly.



Products

Sioo:x Wood Protection Panel – Part 1

- For vertical surfaces.
- Required 2 coats.
- Re-application 10-12 years.
- No protective clothing is required during application however avoid eyes.
- Coverage 1st coat
 - Softwood 4-6 m² / L
 - Hardwood 6-8 m² / L.
- Coverage 2nd coat
 - Softwood 8-10 m² / L
 - Hardwood 10-12 m² / L.
- Band sawn finish will result in the lowest coverages and smooth dressed / sanded finish will give the highest. Coating coverage on brushed finish will be in between.
- Available in 1L, 5L and 20L containers.

Sioo:x Surface Protection Panel PRO UV – Part 2

- For vertical surfaces.
- Required 1 coat.
- Re-application up to 7 years depending on maintenance circumstances.
- No protective clothing is required during application however avoid eyes.
- Surface Pro UV contains a UV tolerant fungicide to assist with mould prevention.
- Coverage 1 coat
 - Softwood 8-10 m² / L
 - Hardwood 10-12 m² / L.
- Available in 1L, 5L and 20L containers.

Sioo:x Wood Protection Deck – Part 1

- For horizontal surfaces.
- Required 2 coats.
- Re-application 8-10 years.
- No protective clothing is required during application however avoid eyes.
- Coverage as per Sioo:x Wood Protection Panel – Part 1.
- Available in 1L, 5L and 20L containers.

Sioo:x Surface Protection Deck PRO UV – Part 2

- For horizontal surfaces.
- Required 1 coat.
- Re-application 1-2 years.
- No protective clothing is required during application however avoid eyes.
- Surface Pro UV contains a UV tolerant fungicide to assist with mould prevention.
- Coverage as per Sioo:x Wood Protection Panel – Part 2.
- Available in 1L, 5L and 20L containers.

Sioo:x End Grain Sealer – Part 1 and Part 2

- For sealing exposed end grain surfaces e.g. bottom exposed edge of wall cladding top and bottom ends of exposed batten screening or end grain of decking.
- Apply 1 coat of Part 1, wait until touch dry, then apply 1 coat of Part 2.
- For sealing non-exposed end grain e.g. under flashings or joinery, apply 1 coat of Sioo:x End Grain Sealer – Part 2 only.
- Available in 1L containers.

Sioo:x Maintenance Wash

- For maintenance cleaning of timber that has Sioo:x products already applied to it.
- Dilute with water 1:50 (or 1:25 for heavily soiled surfaces).
- Apply with soft brush, leave on for 20 minutes, scrub with a soft brush, rinse well with water.
- Contains 5-15% anionic and non-ionic surfactants.
- Avoid contact with skin and eyes.
- Available in 1L concentrate (approx diluted coverage 1:50 250m² / 1:25 125m²).

Sioo:x Prewash

- For heavier cleaning surfaces already with Sioo:x and with high level of dirt, oil or mould growth. Also to dissolve and remove previously applied Sioo:x Surface Protection – Part 2 prior to its re-application.
- Dilute with water 1:8 for normal cleaning (or 1:4 for heavy cleaning).
- Wet face, apply with soft brush or sponge, leave on for 10 minutes, scrub with a soft brush, rinse well with water.
- This is an Alkaline product so protect furniture, glass or aluminium to avoid stains.
- Contains potassium silicate and surfactants.
- Avoid contact with skin and eyes.
- Available in 1L concentrate (approx diluted coverage 1:8 40m² / 1:4 20m²).

Application, Equipment and Safety

Sioo:x products can be hand applied with a paint brush, airless spray equipment or speed brush applicator pad. However usually for new timber, however usually for new timber, machine application is used in a quality-controlled factory environment. Under factory conditions important factors can be controlled such as: proper preparation of the timber, degree of saturation, application on all sides of the timber, drying time between coats and keeping the coating clean as it dries.

Application of Sioo:x Part 1 and Part 2 products do not require protective clothing during application however contact with eyes should be avoided.

Application of Sioo:x Maintenance Wash and Sioo:x Prewash requires avoidance of contact with the skin and eyes.

Sioo:x is high pH (alkaline) so contact with glass/windows must be avoided during application.

Cutting timber that has been pre-coated with Sioo:x products does not require specialist breathing equipment to protect against airborne particles however as a general recommendation, a face mask should be worn during cutting to protect against inhalation of dust and particles.





Method of Application – Cladding and Screening

- Ensure the timber is dry <16% MC and preferably with a sawn or brushed finish. Smooth dressed timber must be sanded with 80 grit sandpaper.
 - For new timber, it is recommended to be applied by an accredited applicator in controlled factory conditions.
 - For new hardwood timber to be coated on site, cleaning with Sioo:x Prewash is recommended to open up the cells of the timber, then sand with 80 grit if the timber is smooth dressed. Prewash may not be required for softwoods.
 - Old or weathered timber will require thorough cleaning prior to application of Sioo:x. Existing coatings must be removed so that raw timber is present. Sioo:x Prewash is recommended to help break up previously applied penetrating oils. Sand smooth dressed timber with 80 grit prior to coating.
 - For coating of new or existing hardwood refer to section 'Suitable Timber Types' for preparation advice.
 - Avoid application in strong sunlight, rainy conditions or below 5 degC.
 - Stir products thoroughly before and during application.
 - Wipe spills immediately with a wet rag.
 - Cover glass, aluminium and objects exposed to splashes – the products are slightly alkaline and can stain.
 - Apply Sioo:x Wood Protection Panel – Part 1 adequately to ensure penetration into the timber. Apply only to exposed faces e.g. front face and sides of cladding boards. For batten screening apply to all 4 sides.
 - Allow minimum 2 hours dry time or until touch dry.
 - Apply second coat of Sioo:x Wood Protection Panel – Part 1.
 - Allow minimum 4 hours dry time or until fully dry.
 - Apply Sioo:x Surface Protection Panel PRO UV – Part 2, 1 coat to all 4 sides if possible (front, sides and back) to seal the board.
 - Allow minimum 1 hour dry time prior to exposure to rain.
 - During timber installation, weather exposed end-grain of timber will require application of Sioo:x End Grain Sealer – Part 1 and Part 2, 1 coat of each, allowing 2 hours dry time between coats.
 - End-to-end joins of cladding boards or ends not exposed to the weather e.g. protected by flashings will require application of Sioo:x End Grain Sealer – Part 2 only, 1 coat.
- NOTE: If adhesive sealant such as Sikaflex 11FC or equivalent is used in the join then Sioo:x End Grain Sealer – Part 2 will not be required.

Maintenance – Cladding and Screening

It is important to inspect Sioo:x treated surfaces regularly and avoid dirt or mould build up that could lead to a reduction of coating life or appearance.

Sioo:x treated surfaces are easy to keep clean due to the toughened surface and regular cleaning will enhance the life of the coating.

Following is a range of maintenance circumstances. The time periods shown are indicative and are based on Sioo:x performance on Abodo Vulcan timber. These times may vary for other timber species.

NOTE: Do not use a high pressure washer.

Light superficial dirt

- Brush surface of dry timber gently with a dry soft bristle brush or wash with a hose as required.
- Care should be taken to not brush off the Sioo:x Surface Protection Panel – Part 2 however if this is removed then apply Sioo:x Surface Protection Panel – Part 2, 1 coat.

Dirt build-up, light surface mould or discolouration

- Clean with Sioo:x Maintenance Wash.
- If heavy brushing is required, consider the application of Sioo:x Surface Protection Panel – Part 2, 1 coat, to reseal the surface.

Heavy dirt, persistent mould, stubborn stains or graffiti

- Clean with Sioo:x Prewash.
- Apply Sioo:x Surface Protection Panel – Part 2, 1 coat, to re-seal the surface.

Repair of minor surface damage, wear and tear, scuffing and scratching

- Clean the surface with Sioo:x Maintenance Wash.
- Apply Sioo:x Surface Protection Panel – Part 2, 1 coat to the affected area.

Repair of exposed raw timber that has been cut

- Apply the full treatment of Sioo:x Wood Protection Panel – Part 1, 2 coats and Sioo:x Surface Protection Panel – Part 2, 1 coat to the untreated area.

5 – 7 years since the first application of Sioo:x Surface Protection Panel PRO UV – Part 2

- To freshen-up the timber or make the surface more robust or lighten the colour.
- Clean with Sioo:x Maintenance Wash.
- Apply Sioo:x Surface Protection Panel PRO UV – Part 2, 1 coat, to re-seal the surface.

10 – 12 years since the first application of the full Sioo:x system – Parts 1 and 2

- Clean with Sioo:x Prewash.
- Apply full system treatment Sioo:x Wood Protection Panel – Part 1, 2 coats and Sioo:x Surface Protection Panel PRO UV – Part 2, 1 coat.

The Grounds: Sioo:x is the perfect low maintenance solution for multi-residential apartments. Photographed after nine months of weathering.



Method of Application – Decking

- For new timber, recommended to be applied in controlled factory conditions.
- Old or weathered timber will require thorough cleaning prior to application of Sioo:x. Existing coatings must be removed so that raw timber is present.
- Ensure the timber is dry <15% MC and preferably with a sawn or brushed finish or sanded with 80 grit sandpaper.
- For application to hardwood refer 'Suitable Timber Types' for preparation advice.
- Avoid application in strong sunlight, rainy conditions or below 5 degC.
- Stir products thoroughly before and during application.
- Wipe spills immediately with a wet rag.
- Cover glass, aluminium and objects exposed to splashes – the products are slightly alkaline and can stains.
- Apply Sioo:x Wood Protection Deck – Part 1 adequately to ensure penetration into the timber. Preferably apply to all faces (upper, bottom and sides) or otherwise apply only to exposed faces (upper and sides).
- Allow minimum 2 hours dry time or until touch dry.
- Apply a second coat of Sioo:x Wood Protection Deck – Part 1.
- Allow minimum 4 hours dry time or until fully dry.
- Apply Sioo:x Surface Protection Deck PRO UV – Part 2, 1 coat. Apply to sides coated with Part 1, if possible apply to all 4 sides (front, sides and back) to completely seal the board.
- Allow minimum 2 hour dry time prior to exposure to rain.
- During timber installation, weather exposed end-grain of timber require application of Sioo:x End Grain Sealer – Part 1 and Part 2, 1 coat of each, allowing 2 hours dry time between coats.
- Non weather exposed ends of decking boards e.g. under flashings require application of Sioo:x End Grain Sealer – Part 2 only.

Coastal Banks Peninsula: Photographed six months after completion, Sioo:x on Vulcan Cladding is the perfect material for an outdoor shower.



Maintenance – Decking

It is important to inspect Sioo:x treated surfaces regularly and avoid dirt or mould build up that could lead to a reduction of coating life or appearance.

Sioo:x treated surfaces are easy to keep clean due to the toughened surface and regular cleaning will enhance the life of the coating.

Following is a range of maintenance circumstances. The time periods shown are indicative and are based on Sioo:x performance on Abodo Vulcan timber. These time may vary for other timber species.

NOTE: Do not use a high pressure washer.

Light superficial dirt

- Brush surface of dry timber gently with a dry soft bristle brush or wash with a hose as required.
- Care should be taken to not brush off the Sioo:x Surface Protection Deck – Part 2 however if this is removed then apply Sioo:x Surface Protection Deck – Part 2, 1 coat.

Dirt build-up or light surface mould or discolouration

- Clean with Sioo:x Maintenance Wash.
- If heavy brushing is required, consider the application of Sioo:x Surface Protection Deck – Part 2, 1 coat, to reseal the surface.

1 – 2 years since the first application of Sioo:x Surface Protection Deck – Part 2

- Clean with Sioo:x Maintenance Wash.
- Apply Sioo:x Surface Protection Deck – Part 2, 1 coat, to reseal the surface.

Heavy dirt, persistent mould, stubborn stains or graffiti

- Clean with Sioo:x Prewash.
- Apply Sioo:x Surface Protection Deck – Part 2, 1 coat, to re-seal the surface.

Repair of minor surface damage, wear and tear, scuffing and scratching

- Clean the surface with Sioo:x Maintenance Wash.
- Apply Sioo:x Surface Protection Deck – Part 2, 1 coat to the affected area.

Repair of exposed raw timber that has been cut

- Apply the full treatment of Sioo:x Wood Protection Deck – Part 1, 2 coats and Sioo:x Surface Protection Deck – Part 2, 1 coat to the untreated area.

8 – 10 years since the first application of the full Sioo:x system – Parts 1 and 2

- Clean with Sioo:x Prewash.
- Apply full system treatment Sioo:x Wood Protection Deck – Part 1, 2 coats and Sioo:x Surface Protection Deck – Part 2, 1 coat.

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