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Intercrete 4840 Application Guidelines

Prepared by: M&PC Technical Operations

International Paint Ltd.
www.international-pc.com

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Applicators must make direct contact with International Protective Coatings to discuss any training requirements for the application of the Intercrete product range PRIOR to any commencement of a project.

The information in this guideline is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this guideline without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this guideline or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. THEREFORE, UNLESS WE SPECIFICALLY AGREE IN WRITING TO DO SO, WE DO NOT ACCEPT ANY LIABILITY AT ALL FOR THE PERFORMANCE OF THE PRODUCT OR FOR (SUBJECT TO THE MAXIMUM EXTENT PERMITTED BY LAW) ANY LOSS OR DAMAGE ARISING OUT OF THE USE OF THE PRODUCT. WE HEREBY DISCLAIM ANY WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this guideline is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local International Paint representative that this guideline is current prior to using the product.

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SCOPE AND PURPOSE

The International Paint Application Guidelines have been produced and revised in line with the Worldwide Protective Coatings Product Range. The purpose of the guidelines is to ensure that a coating system, as applied, provides adequate protection.

Successful in-service performance of a lining system depends upon both the correct choice of coating and the adoption of the correct guidelines for surface preparation and product application.

The responsibilities for achieving the specific standards outlined, and for carrying out surface preparation and product application, rest with the Contracting Company. Under no circumstances do these responsibilities rest with International Paint. We will generally provide for the presence of a Technical Service Representative at key stages during the performance of the contract. The role of the International Paint Technical Service Representative is advisory only unless otherwise specified in the terms and conditions of the contract. The information contained herein presents guidelines for the application of Intercrete 4840 to both new and existing concrete substrates and steel

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1. Specification

This document provides general guidance on the use of Intercrete 4840. Specific project requirements will be dependent upon the substrate type, substrate condition, service end use and environmental conditions. Always consult International Protective Coatings to confirm that Intercrete 4840 is suitable for the intended end use. The detailed project specification provided by International Protective Coatings must be followed at all times.

Intercrete 4840 is typically specified as a two coat system at 1000µm (40mils) dry film thickness per coat. On floors or decks a single coat at 2000µm (80 mils) dry film thickness is typically specified.

2. Surface Preparation

In common with most cementitious coatings schemes, the performance level of Intercrete 4840 is ultimately determined by degree of surface preparation. The higher the degree of surface preparation achieved, the greater the long-term performance.

2.1 Concrete

All surfaces should be clean and free from laitance, curing compounds, release agents, efflorescence, grease, oil, dirt, old coatings and loose or disintegrating concrete. The preferred methods of surface preparation are wet grit or water blasting techniques. All smooth surfaces must be roughened.

Any defects such as blow holes, small and large voids etc. revealed by the surface preparation process must be treated using the appropriate Intercrete products. Examples are given below.

- Stop any water infiltration using **Intercrete 4802** repair mortar. Ensure the concrete substrate is free from water back pressure.
- Fill any surface cavities and honeycombing with **Intercrete 4820** pore filler & screed.
- Fill any larger voids with a suitable Intercrete mortar such as **Intercrete 4802** or **Intercrete 4801**

Thoroughly soak the substrate with clean water until fully saturated. Remove excess water prior to application of Intercrete 4840.

All concrete floors, decks and highly porous substrates should be appropriately sealed using **Intercrete 4850** primer. Allow the **Intercrete 4850** to become transparent prior to proceeding.

2.2 Steel

All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:2000. Oil or grease should be removed in accordance with SSPC-SP1 solvent cleaning. Abrasive blast clean to Sa2½ (ISO 8501-1:1988) or SSPC-SP6. Surface defects revealed by the blast cleaning process, should be ground, filled, or treated in the appropriate manner. An angular surface profile of 75-100 microns (3-4 mils) is recommended.

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3. Environmental conditions

3.1 Low Temperature (<10°C (50°F))

The following are general guidelines for the usage of Intercrete products in low temperature environments

- **DO NOT** store or subject Intercrete products to temperatures below 5°C (41°F).
- **Do not use any Part A material which has frozen**
- Application of cement based mortars or coatings should **NOT** be carried out when the air temperature is 5°C (41°F) or less on a falling thermometer.
- Cement based mortars or coatings **MAY** be applied at an air temperature above 2°C (36°F) on a rising thermometer, providing the following precautions are taken:
 - The temperature of the materials at the time of placing is at least 5°C (41°F).
 - The substrate concrete must be free from snow, ice and frost and be at a temperature of at least 5°C (41°F). Concrete temperatures are to be measured at the surface at the most unfavourable position.
 - Cementitious materials will have set and have started to gain strength and before being subjected to freezing temperatures.
- Use insulation materials where appropriate. Bubble wrap, polystyrene sheet, etc, are suitable and should be placed immediately after the repair has been completed for maximum protection.
- Saturate the concrete substrate with warm water
- Drying times and overcoating times are extended at low temperatures

3.2 High Temperature (>35°C (95°F))

The following are general guidelines for the usage of Intercrete products in high temperature environments

- Thoroughly soak concrete substrates with clean cold water until fully saturated. Remove excess water.
- In extreme conditions continuous rewetting of the surface may be required to stop absorption.
- On floor areas flood the surface with clean water the night before application.
- Avoid working in direct sunlight. Construct temporary shelter or work during the cooler parts of the day (early morning, evening or overnight under flood lights).
- Store the products at a cool temperature well in advance of use, to extend working life when mixed.
- Keep mixing and application equipment in shade, away from heat.
- Use mixed materials without delay. Mix only sufficient material that can be placed within the working life of the material. Avoid mixing large quantities. High application temperatures can greatly reduce the working life of cementitious products.
- Where applicable apply **Intercrete 4870 curing membrane** liberally to the surface immediately after the application of the cement based mortar or cementitious coating. In extreme conditions apply a second coat.

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4. Mixing

Intercrete 4840 is supplied in two parts; a liquid binder component (Part A) and a powder component (Part B).
MIX FULL UNITS ONLY.

Shake Part A thoroughly and pour into a suitable mixing container, then slowly add Part B whilst stirring with a mechanical agitator. Mix for 5 minutes with regular scraping of the container sides to prevent lumps from forming.

For spray application, material should be filtered through a 4mm sieve. Once the unit has been mixed it should be used within the working pot life specified on the Technical Datasheet.

5. Application

For application over small areas, Intercrete 4840 is best applied by brush or trowel, taking care to ensure that air is not entrapped into the surface.

For application over larger areas, Airless spray / air assisted pumping techniques are recommended.

See **Appendix 1** for further guidance on Airless spray application techniques

See **Appendix 2** for further guidance on Air Assisted pumping techniques

Where a high degree of movement is anticipated over expansion joints, large cracks etc, apply a 1000µm (40 mils) DFT stripe coat of Intercrete 4840 by brush or trowel and immediately embed **Intercrete 4872** tape. When embedding the tape, press the fabric into a freshly applied 1000µm (40 mil) coat of Intercrete 4840 and leave to stabilise.

Apply the first coat approximately 1000µm (40 mils) DFT onto the prepared concrete substrate ensuring any reinforcement is fully embedded.. To ensure complete protection, a second coat of 1000µm (40 mils) DFT should be applied in the same way after approximately 4-6 hours depending upon temperature. The first coat should be stable, but not fully hard dry.

On floors or decks, apply as a single coat at 2000µm (80 mils), spreading with a skid leveller or notched trowel and immediately use a spiked roller to release any entrapped air.

Regularly check coating thickness during application using a wet film thickness gauge.

Upon completion, check for any pinholes and spot treat as required.

It is important that the surface of Intercrete 4840 is protected from strong sunlight and drying winds via the immediate application of **Intercrete 4870** curing membrane. Note: two coats of Intercrete 4870 may be required in extreme high temperature environmental conditions – see section 3.2 and below.

Note: On floor and deck applications, suitably sized silica sand may be immediately broadcast onto the freshly applied surface of Intercrete 4840 to aid curing, and, provide a suitable surface for subsequent overcoating with coatings. Allow to cure before removing excess sand.

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Application of Intercrete 4870 curing membrane

- Intercrete 4870 is designed to retain approximately 85% of the water within the Intercrete 4840 within the first 72 hours.
- Intercrete 4870 is supplied as a single component bottle, (5 litres), which must be shaken thoroughly prior to application
- Apply to the surface of the newly placed Intercrete 4840 coating using a suitable conventional pressure sprayer as soon as possible. This should be typically within 15 minutes after any residual surface water has evaporated. The coverage rate is approximately 5 to 7m² per litre.
- Best results are achieved by holding the nozzle approximately 0.5 to 1m away from the surface whilst spraying backwards and forwards over small areas (typically 1 to 5m²)
- For maximum curing efficiency, if the surface is subject to strong sunlight or drying winds, a second coat should be applied as per described above once the first coat has dried and the membrane film has formed. This is normally within 15 minutes whilst the first coat is still tacky to touch, but can vary depending upon local environmental conditions.

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Appendix 1 – Airless Spray Guide for Intercrete 4840

Recommended Equipment

- Recommended Airless Spray equipment includes, but not limited to,
 - GRACO KING 45:1/60:1 Ratio
 - GRACO NXT 45:1/60:1 Ratio
 - GRACO G-MAX II 7900
- **Note: Always Consult relevant manufacturer's Operator's Guide before Use**

Preparation

Ensure that the pump, lines, gun and nozzles are all clean and blockage free. Seals and balls should be clean and form a tight seal.

- Where applicable, the compressor must be capable of delivering a continuous supply of air to the nozzle at 70psi. Remove all in-line filters both in the pump and in the gun.
- Use 3/8 inch reinforced high pressure hose fitted with a swivel tip
- Carefully connect fittings ensuring all are securely tightened.
- **Remove filters from both the pump and the spray gun**

Mixing

- Mix the material thoroughly for the specified time (5 minutes). After 2 minutes of mixing, scrape the sides of the mixing vessel to mix in any remaining dry powder. Sieve mixed material via 4mm mesh to remove large agglomerates before spraying.
- Use a clean mixing paddle and vessel.
- Ensure the mixed material is free from all lumps.
- Use without delay.
- Mixed material should not be left in the machine during breaks/stoppages. The working life of the material, particularly in hot weather, should be carefully observed.

Spray Application

- Place siphon in a bucket of clean water.
- Switch on air feed to spray machine and increase pressure until sprayer starts.

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- Keep gun triggered into a water pail for 1 minute. Release trigger
- Refer to Product Technical Datasheet regarding recommended tip size and pressure at tip. Place mixed material under the siphon tube. Increase pressure and pump the material down the line allowing a little to be pumped into a spare container to remove any water and debris in the line. Release trigger and insert a reversible tip. Trigger gun to test spray pattern and adjust pressure to eliminate heavy edges. It is good working practice to carry out some small scale trial work onto a disposable substrate (e.g. wooden boards) to achieve the optimum pressure.
- Hold gun a minimum of 300mm (12in) from substrate, spray back and forth overlapping strokes by 50%.
- Eliminate heavy application by starting movement before triggering gun and releasing trigger before stopping.

Clean up / Work Stoppages

- It is necessary to clean the gun and tip regularly to prevent build up of dry material and blockages at the nozzle. Check tip for wear and replace if spray pattern is lost.
- Depending upon the application conditions, it will also be necessary to clean down the pump and lines during the working day, especially before any breaks in application. For longer stoppages, and, if there is material in the machine which is approaching the end of its working pot life, the pump lines and spray gun should be emptied of all material and thoroughly cleaned.
- In very warm conditions cleaning will need to be done more regularly.
- All parts of the pump, lines, gun and nozzles should be thoroughly cleaned with plenty of clean water to prevent future blockages.
- The external surfaces of the pump may be coated with a mould release agent to facilitate ease of cleaning.

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Appendix 2 – Air Assisted Spray Guide for Intercrete 4840

Recommended Equipment

- Recommended Air assisted spray equipment includes, but not limited to:-
 - Powerspray PS1000
 - Powerspray PS2000

Note: Always Consult relevant manufacturer's Operator's Guide before Using

Preparation

- The compressor must be capable of delivering a continuous supply of air to the nozzle at 70psi.
- Connect all lines and fittings, ensuring that jubilee clips are thoroughly tightened.
- Ensure spray gun and lines (air and material) are free from blockages.
- Fill hopper half full with clean water.
- Ensure material feed is turned off
- Turn key switch on control box to 'HAND', and switch on motor.
- Leave to warm up for 4-5 minutes.
- Slowly turn on material feed to pump water through to lubricate the internal of the line and spray gun.
- Empty all water from the hopper and drain water from the line and disconnect spray gun.

Spraying

- Mix the cementitious coating and place in the hopper.
- Slowly turn on material feed and pump the cementitious coating down the line. Pump the material into a bucket for 4 or 5 seconds.
- Switch off the pump. Clean the end of the material line and attach the spray gun.
- Turn the key switch to 'SPRAY', the pump will now switch on when the valve is opened on the spray gun.
- Open the valve on the spray gun and continue pumping the cementitious coating.
- When the material has reached the end of the tip, adjust the material flow, typically 1.5-2.0 turns, and increase air pressure to achieve the desired finish. The general rule is, the greater the material flow the more air you need to atomise, and the more air you have the better the finish.
- Spray onto substrate surface keeping the nozzle moving at a steady speed in a circular motion. If the gun is left in one position, the air will disrupt the surface of the coating.
- Adjust the distance from the surface – Too close and the material will ripple due to the air movement. Too far and the cementitious coating will dry up in the air and cause over-spray. Usually, 0.5-0.6 metres is about right.

Important Notes

- Regularly change the nozzle to clean when the material starts to build up around the end.
- Always have plenty of water and cleaning brushes nearby for cleaning spray guns and nozzles.
- Avoid direct sunlight – keep the pump in the shade and/or cover with a damp, white sheet.
- Regularly flush the material line through with a damp sponge to avoid build up inside the lines. If the line is in direct sunlight, this may need to be done more often.
- Keep the inside and outside of the hopper clean and cool by regularly wiping with a damp sponge or cloth.
- Thoroughly clean down the pump, lines and spray gun during the working day

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- Never leave mixed material in the hopper for more than a few minutes. If stoppage occurs, remove and clean the spray gun, place the end of the material line inside the hopper and re-circulate the material.
- Never run the pump when the hopper is empty.

Cleaning

THOROUGHLY CLEAN THE INSIDE AND OUTSIDE OF THE PUMP, LINES AND SPRAY GUN.

- Regularly change the nozzle to clean when the material starts to build up around the end.
- Remove the spray gun and dismantle.
- Clean all areas of the spray gun, including the air holes.
- Pump the cementitious coating into buckets.
- Thoroughly clean the inside of the hopper using water jets until the water is clean. Fill the hopper with clean water.
- Place a wet sponge down the material line several times until clean water exits the line immediately before the sponge.
- Turn the material feed off ready for next use.
- Drain the water from the line.
- Remove 'L' bend, rotor and stator from the pump and give final flush with water.
- Lightly grease the moving parts of the spray gun and reassemble.
- The external surfaces of the pump may be coated with a mould release agent to facilitate ease of cleaning.

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