THIS METHOD STATEMENT COVERS THE SURFACE PREPARATION, MIXING & APPLICATION OF **UCRETE CS (4mm – 6mm - 9mm)**

METHOD STATEMENT: **UCRETE CS 10 / 20 / 30**

1. PREPARATION:

1.1. At the time of installation of the **UCRETE CS** the substrate concrete should have a minimum tensile strength of 1.5 MPa, be more than 7 days old and the surface should be dry.

1.2. Surface Laitance must be removed by mechanical action; suitable equipment includes recycled shot blasting equipment (e.g. Blastrac), concrete planers (e.g. Von-arx) and diamond grinding (for edge work only).

1.3. Anchor / Termination grooves (see below) to be cut into the substrate where not already present.

2. DETAILING:

2.1. Anchor / Termination grooves must be present in the surface of the concrete within 75 mm of all “free edges” and are typically cut into the surface with a suitable concrete groove cutter (double blade -Hilti). “Free Edges” includes all joints, column bases, perimeter walls, drainage channels, door thresholds etc. **and every 4m across the floor in both directions.**

2.2. Joints are also required wherever movement is expected including adjacent to stainless steel channels, machine bases, around columns and at any construction joint in the substrate.

2.3. Anchor / Termination grooves are nominally square in section for the Ucrete systems and should be twice the thickness of the floor in both width and depth.

4mm Ucrete CS	**8 x 8mm**
6mm Ucrete CS	**12 x 12mm**
9mm Ucrete CS	**18 x 18mm**

2.4. Anchor / Termination grooves should be included either side of all day joints in the substrate in preparation for a joint, should movement subsequently occur.

2.5. At soft joints subject to traffic and at channels, the grooves should abut the joint, to provide extra protection to the arris against impact and to prevent the ingress of liquids under the floor in the event of sealant failure.

2.6. **NB: Refer to Master Builders Solutions Detailed Sketches for Anchor and Termination Grooves.**

3. PRIOR TO INSTALLATION:

3.1. Storage

Materials should be stored under cover, out of direct sunlight**. Parts 3 and 5** must be raised off the floor and kept dry. **Part 1, Part 2** and **Part 4** must be protected from temperature extremes.

Ideal storage temperature is 15°C - 22°C.

The substrate concrete should be installed to the tolerances required of the finished floor. Any repairs to the substrate or correction of levels etc. should be done in good time prior to the installation of the **UCRETE CS.**

4. INSTALLATION OF THE UCRETE CS:

4.1. **Ideal ambient application temperatures are 15°C to 25°C (MAX). Relative Humidity levels affect the curing rate of the Ucrete system and ideally should be above 50% during application.**

4.2. **The mixed UCRETE CS should be within 15°C to 20°C range during installation.** Once laid **UCRETE** will cure very effectively even at low temperatures.

Applications should not proceed if the temperature is expected to be less than 3ºC below the dew point at any time during the operation.

4.3. **Summary of Storage, Mixing and Application Temperatures.**

Item		Temperature
Material Storage Area		**15°C to 20°C**
Mixed Material		**15°C to 20°C**
Application area (Ambient)		**15°C to 25°C**
Substrate Surface		**15°C to 25°C**

NB: UCRETE should not be applied in direct sunlight or to very hot substrate surfaces.

5. UCRETE CS applications do NOT normally require the use of a primer unless the surface to which it is being applied is extremely porous. IF this is the case follow the detail below:

OPTIONAL: UCRETE PRIMER FS – (Scratch Coat 1 mm)
(Fast Setting - Heavy Duty Fast Slurry Primer)

UCRETE PRIMER FS should not be applied on to:

Damp substrates - Concrete and other cementitious substrates must be visibly dry.
Weak substrates - the average pull-off strength shall be 1.5 N/mm^2.

Application to substrates of lower strength may affect the long-term performance of the applied flooring. This is particularly relevant in areas subject to heavy use be it thermal or mechanical.

5.1. **Mixing:**

5.2. Pour the contents of the **Part 1 (Red Cap – 2.83 kg)** and the **Part 2 (Blue Cap – 2.86 kg)** into a 20 L heavy-duty plastic mixing bucket and mix using a suitable slow speed handheld mixer with a **Collomix KR** type mixing head for 20 seconds.

5.3. Add the **Part 3** bag **(7 kg)** and continue mixing for a further 2 minutes or until the mix becomes homogeneous. **DO NOT overmix.**

5.4. The working life is approximately 10 minutes. Multiple units may be mixed, but **Do Not** mix more material than can be applied in 10 minutes.

5.5. **Application of UCRETE PRIMER FS (Optional)**

The **UCRETE PRIMER FS** is applied by Squeegee or Steel Trowel from:

(a) 0.6 kg / m² (0.38 mm) to 1.6 kg / m² (1 mm)

5.6. Above coverage rate will depend on substrate profile and does not include any wastage.

5.7. **Mixed material should be poured out immediately onto the floor otherwise it will Exotherm very quickly and set. Do NOT leave mixed material in the bucket.**

5.8. Anchor grooves 8 mm x 8 mm **(Maximum)** can be filled out with the **UCRETE PRIMER FS.** Larger anchor grooves must be brushed out and filled with the subsequent **UCRETE System.**

5.9. The subsequent over-coating / application can be carried out when the **UCRETE PRIMER FS is tack free** typically as follows.

(1) 8 Hours at 10°C-15°C
(2) 6 Hours at 20°C
(3) 4 Hours at 30°C

The above timings are dependent upon both temperature and humidity. If the humidity is <50% a delay in setting / curing of the UCRETE PRIMER FS can be expected and overlayment times would need to be extended.

The surface MUST be dry to the touch before overlaying. Premature application of the Ucrete CS overlayment can lead to bubbles in the surface (out-gassing). Ideally the primer should be left overnight (12 hours).

5.10. Ensure that **UCRETE PRIMER FS (If used)** has been correctly applied and cured.

5.11. **NB:** Should the primer coat be left for more than 48 hours; mechanical surface preparation will be required to produce a suitable surface for the application of the body coat. This will necessitate re-priming.

6. APPLICATION OF UCRETE CS (4 mm / 6 mm / 9 mm)

The length of the application bay should be such as to produce a strip of material along the whole length of the bay from a single or double mix to allow for efficient trowelling and maintaining a wet joint for finishing.

Recommended Maximum length of any application bay is as follows:

Thickness	Bay Size Width (Max)		Bay Size Width (Max)
4 mm	**7.5 m long (1 mix)**		**15 m long – (Double Mix)**
6 mm	**5.5 m long (1 mix)**		**11 m long – (Double Mix)**
9 mm	**4 m long (1 mix)**		**8 m long – (Double Mix)**

6.1. **UCRETE CS** is a broadcast system that provides three surface textures which can be installed on to a basecoat to produce a floor 4 mm, 6 mm or 9 mm thick.

UCRETE CS is produced by broadcasting the relevant **Filler** into the **UCRETE BASECOAT.**

Ucrete CS10: For a 4mm floor use **UCRETE BASECOAT BC4** & **Filler F5** For a 6mm floor use **UCRETE BASECOAT BC6** & **Filler F5** For a 9mm floor use **UCRETE BASECOAT BC9** & **Filler F5**
Ucrete CS20: For a 4mm floor use **UCRETE BASECOAT BC4** & **Filler F20** For a 6mm floor use **UCRETE BASECOAT BC6** & **Filler F20** For a 9mm floor use **UCRETE BASECOAT BC9** & **Filler F20**
Ucrete CS30: For a 4mm floor use **UCRETE BASECOAT BC4** & **Filler F25** For a 6mm floor use **UCRETE BASECOAT BC6** & **Filler F25** For a 9mm floor use **UCRETE BASECOAT BC9** & **Filler F25**

6.2. Packaging

(a) Basecoats

Pigmented Basecoats	Part 1	Part 2	Part 3	Part 4	Part 5
UCRETE Basecoat BC4: 18.88 kg unit	2.52 kg	2.86 kg	13.00 kg	0.5 kg	None
UCRETE Basecoat BC6: 23.18 kg unit	2.52 kg	2.86 kg	17.30 kg	0.5 kg	None
UCRETE Basecoat BC9: 26.88/30.88* kg unit	2.52 kg	2.86 kg	21.00 kg	0.5 kg	4.0 kg

Note: Basecoat BC9 Part 5 is only added when applied at high temperatures and the floor area has steep falls.

(b) Fillers

UCRETE Filler F5	25 kg
UCRETE Filler F20	25 kg
UCRETE Filler F25	25 kg

(c) Topcoats

UCRETE TCCS - Pigmented	**Part A**	**Part B**	**Part C**
UCRETE TCCS - 10.39 kg unit	10.00 kg	0.23 kg	0.16 kg

7. Scratch Coat – Optional if required:

(NB: UCRETE PRIMER FS is not required with the Scratch Coat)

7.1. On rough substrates, especially with thinner grades, it is recommended that a scratch coat is applied first (using the **UCRETE Basecoat BC4**) to produce a smooth substrate for the application of the **UCRETE CS10** so ensuring the best aesthetic results.

7.2. **UCRETE Basecoat BC4 : to be mixed as per item 8 below:**

(a) UCRETE Basecoat BC4: Approx. 2 kg/m^2 depending on porosity of substrate.

NB: Above coverage rate will depend on substrate profile and does not include any wastage.

8. APPLICATION OF UCRETE BASECOAT:

Mix the **UCRETE Basecoat** components **Part 1 (Yellow Cap)** and **Part 2 (Blue Cap)** and the **Part 4** together for 1 minute with a heavy-duty handheld mixer (Collomix Xo6 + Collomix KR type mixing head) or a forced action mixer to create a uniform dispersion.

The mixed material should then be transferred into a suitable mixing container and then gradually add the relevant **Part 3** aggregates whilst mixing continues for **typically 3 – 4 minutes** with the same mixing equipment.

Only whole units are to be mixed. Nothing is to be added or left out. DO NOT OVERMIX.

8.1. Transport and discharge the mixed material on to the substrate as quickly as possible.

8.2. **NB: UCRETE Basecoat BC9 has been designed with an additional Part 5.** The purpose of the **Part 5** is to produce a material with higher viscosity that is suitable for use on falls.

Mixed as a five-component system using **Parts 1, 2, 3, 5 and the pigment Part 4.** In general, the **Part 5** is only added when applied at high temperatures and steep falls.

Under most conditions falls of 1:25 can be accommodated.

8.3. Pour on to the substrate and spread to the correct thickness by trowel and guide rails or with a pre-set pin-rake at the following theoretical coverage rates.

(a) 4 mm: UCRETE Basecoat BC4: 6-8 kg/m^2
(b) 6 mm: UCRETE Basecoat BC6: 10-12 kg/m^2
(c) 9 mm: UCRETE Basecoat BC9: 16-18 kg/m^2

NB: The above coverage rates do not include for any wastage and may vary / increase due to the actual profile of the concrete substrate.

A level survey of the floor should be carried out to determine the actual profile / flatness of the substrate.

8.4. Some trowelling will be required at edges and to remove the marks left by the rake.

8.5. Lightly spike roll the surface with a wire spiked roller. The main purpose of the spiked roller is to produce an even resinous surface. The spiked roller can be used to remove rake marks, but this should be considered as additional rolling. In such cases roll through the full depth of the basecoat to remove rake marks, and then roll again lightly to bring the resin to the surface. Be careful to guard against throwing resin on to the already scattered floor by too aggressive use of the spike roller as this will create surface defects. Care must be taken not to roll back into material that is already beginning to set.

8.6. If the **UCRETE Basecoat** does not flow sufficiently and pin rake marks, etc. remain in the surface, even after spike rolling, try the following remedies.

- Omit **Part 4**
- Omit **Part 5 (of UCRETE Basecoat BC9)**
- Scratch coat the substrate
- Raise material temperature
- Raise substrate and or site temperature.

Failure to address the problem will result in poor aesthetics, variable surface texture and a substandard finish.

9. AGGREGATE SCATTER – Filler F5 / F20 / F25:

9.1. The aggregate scatter is applied to the wet **UCRETE Base Coat**. If hand scattering is undertaken care must be taken to ensure an even scatter is achieved. Mechanical means of application, either a hopper gun or by blast pot equipment, should be considered on larger projects and where high aesthetic standards are required.

9.2. The time at which the **UCRETE Basecoat** is scattered with the required **UCRETE FILLER** is critical:

- Too early and the surface will become uneven.
- Too late and the aggregate will not penetrate sufficiently.

- To ensure long term performance it is essential that the scatter is applied early enough to allow absorption into the surface.

9.3. At 20°C the scatter should be started when two to three mixes of basecoat have been applied and the same gap kept as the application proceeds. This will be reduced at higher temperatures, one to two mixes, and extended at lower temperatures, three to four mixes.

9.4. As the scatter is applied at the below coverage rate, the **UCRETE Basecoat** resin from below should be seen to rise to the surface. The aggregate scatter is then continued until an excess is applied. The application rate of 4-5 kg/m^2 is much higher than that usually used for scatter systems. It has been found that this level of scatter is required to produce a consistent and uniform finish.

(a) UCRETE Filler F5 : 4-5 kg/m^2

(b) UCRETE Filler F20 : 4-5 kg/m^2

(c) UCRETE Filler F25 – 4-5 kg/m^2

9.5. After overnight cure the surface should be lightly abraded using a single disc floor scrubbing machine fitted with a sanding pad prior to removing excess sand by brush and vacuum. The use of the rotary sander removes the partially adhered aggregate producing a much more uniform surface and reducing coverage rates for the topcoat. Provided the excess sand is clean and dry it can be re-used for subsequent areas.

10. UCRETE TCCS - APPLICATION GUIDELINES:

Ucrete TCCS is designed to be used as part of the systems **Ucrete CS10, Ucrete CS10AS, Ucrete CS20, Ucrete CS20AS** and **Ucrete CS30.**

10.1. Storage

In covered warehouse conditions and out of direct sunlight. Materials must be raised off the floor and kept dry.

On site: store above 10ºC and below 25ºC.
Part C must be protected from extreme temperatures as found in a shipping container or van.

In warehouse or on-site: store above 5ºC and below 25ºC. Liquid components must be protected from frost.

10.2. Packaging

Part A 10 kg Pigmented resin
Part B 0.23 kg Hardener
Part C 0.16 kg Catalyst

10.3. **Coverage**

(a) Ucrete TCCS on **Filler F5** for **Ucrete CS10** R11 floor 0.4 - 0.6 kg/m^2
(b) Ucrete TCCS on **Filler F20** for **Ucrete CS20** R12 floor 1.0 -1.2 kg/m² (in two layers)
(c) Ucrete TCCS on **Filler F20** for **Ucrete CS20** R13 floor 0.7 - 0.9 kg/m²
(d) Ucrete TCCS on **Filler F25** for **Ucrete CS30** R13 floor 1.0 - 1.2 kg/m² (in two layers)

NB: Above coverage rate does not include any wastage.

11. PLANNING THE APPLICATION:

11.1. It is important to remember that you are not painting the floor but applying a Ucrete Topcoat. The width of the bay should be such as to produce a strip of material **minimum** 50 cm across along the whole width of the bay to allow for efficient use of the squeegee and roller. The **maximum** bay widths are therefore:

For **Ucrete CS10** R11 floor 30 m
For **Ucrete CS20** R12 floor 20 m 1st application 30 m 2nd application
For **Ucrete CS20** R13 floor 20 m
For **Ucrete CS30** R13 floor 20 m 1st application 30 m 2nd application

On larger floors plan how the area is to be divided to produce the most practical and aesthetically acceptable floor.
Make sure there are sufficient operatives on site to apply the whole of the mix within the 3-4 minutes before the next mix arrives. **This should not be fewer than 4 people.**
Operatives can wear spiked shoes, but these must have flat spikes to prevent damage to the floor. Alternatively, they may wear 30-60 grit self-adhesive sandpaper (“deck,” or “grip,” tape). This allows for more freedom of movement and reduces damage to the aggregate surface.
As with all grades of Ucrete the mixing and the application of the material must occur at the same rate.
Ensure adequate ventilation and that there are no foodstuffs in the area during application. There is an odour during application. The floor is non tainting after 5 hours. The air must be removed from the area and exchanged with fresh air prior to reintroducing foodstuffs, forced ventilation may be required in some circumstances, e.g. in the middle of a factory.

11.2. **Temperature requirements**

Site temperatures 10 - 30°C (>3°C above Dew Point)

Material temperatures 12 - 25°C

Temperature is critical to the correct application of the **Ucrete CS**. **Ucrete CS** is a system sold where aesthetics is a key selection factor. Ensuring better control of site and materials

temperatures during installation will give produce a better-looking floor. These should be factored into the site discussions with the client and main contractor.
Temperatures below 12°C will make application more prone to problems.
The air and substrate temperature during application should be above 10°C.

Do not use at temperatures above 30°C

11.3. **Preparation of Basecoat**

The surface of the basecoat must clean, dry and free from loose particles of aggregate, prior to the application of the **Ucrete TCCS**. To achieve the necessary standard of preparation the broadcast basecoats must be abraded using a mechanical sanding machine fitted with a pad appropriate to the grade of aggregate broadcast used. Filler F20 and F25 will need sanding pads that are coarser than those used for Filler F5. Once abraded the surface should be swept and thoroughly vacuumed.

Important: Failure to follow this step will result in surface defects (pinholes and material tearing) and poor aesthetics. It is a mandatory application process.

12. MIXING:

12.1. Mixing is critical. Mix in the Part A container with a high-speed electric drill at **minimum 450 RPM** with a **Collomix DLX** type mixing head / helical paddle with a minimum **75 mm diameter.**
Important: The mixing process of **Ucrete TCCS** is unique and very different to the normal mixing requirements of other Ucrete products. During each mixing step air must be introduced into the mix. Mixing in air is important to the correct curing of the material and helps the reaction proceed. If this step is omitted, then the material may remain tacky and not fully cure.

12.2. Air should be introduced by systematically raising and lowering the mixing paddle and turning air into the mix. **Keep the drill at full speed to introduce the right amount of air.** This may feel very odd in the beginning since it is the exact opposite of other standardised mixing instructions. Ensure training of the mixing team is completed before starting work.

12.3. **Important:** Correct mixing is critical. Insufficient mixing will lead to tacky or uncured material. Overmixing can reduce working time. **A timer must be used. It is impossible to accurately control the mixing times without a timer; it is as important as having the right mixer**.

13. TOOLS:

Correct tools and equipment will facilitate the application and ensure the best possible results.

13.1. **Squeegee -** The wider squeegees have been found to be most effective. You should avoid using a squeegee that is less than 450mm wide.
Large folded rubber squeegees work best to correctly spread the material. The foam should be closed cell neoprene type. The example below is from multitool.de and comes in 450, 550, 750 mm sizes. It is a comparatively firm foam squeegee and is recommended. Suitable alternatives may be found via Roll Roy LLC in the U.A.E.

13.2. **Rollers**

Rollers are used to apply **Ucrete TCCS**. However, they are not used to move or redistribute the topcoat in the traditional way. They are used to even the surface in a similar way to a roller on the surface of **Ucrete UD200**.
The roller should follow the direction of the squeegee application. This is normally across the width of bay. Rolling up and down or at right angles to the squeegee application should be avoided. This can result in dropping freshly applied material into old which can lead to surface defects.
Saturated rollers which can be caused by heavy rolling or incorrect roller selection, have been found to create pinholes. The closed cell polyethene roller (structure roller) is currently the most effective roller found to finish **Ucrete TCCS**.

Tools will need to be replaced every 20 – 40 minutes depending upon temperature due to the rapid resin cure. It i9s therefore imperative that an adequate stock of consumables such as roller refills etc. are kept on site.

14. APPLICATION:

14.1. Do not apply when atmospheric condensation is occurring or likely to occur before full cure is attained, i.e., when the dew point is reached or when the ambient or substrate temperature is within 3°C of the dew point.
Pour the mixed **Ucrete TCCS** across the width of the bay immediately after mixing. Avoid leaving material in the bucket as it will reduce the working time.

14.2. **Two Squeegee Method**

The material is installed using the **Two Squeegee** method. This requires two installers to be assigned to the squeegee, both wearing flat spikes or 30-60 grit sandpaper on their shoes.
The first squeegee should be considered the spreading tool to achieve the correct consumption rate. This is similar then to a trowel, pin rake or screedbox in other installations. Emphasis should be given to spreading the material out quickly and efficiently to keep up with the continuous mixing.

The seconding squeegee should be considered the finishing tool to achieve the final level and even floor. This squeegee could be compared to the back-rolling step in other applications like **Ucrete UD200**. Emphasis should be given to working the **Ucrete TCCS** into the texture of the aggregate to remove any trapped air. Rolling is still required but when the second squeegee application is finished the floor should not have any ponded material and very few squeegee marks. This step is the only opportunity to move excess material down the bay.
Important: It is crucial that the material is physically forced into the texture to wet and remove the air from the troughs of the aggregate. Using this method is the simplest and fastest way to achieve a good looking, defect free floor.

14.3. Just like all Ucrete products the **Ucrete TCCS** will increase in temperature slightly during curing, even on the surface of the floor. This takes place more rapidly with **Ucrete TCCS** as it is a fast curing product. Any air left trapped under the topcoat will expand when the temperature of the curing topcoat increases. This can cause pinholes.
In the worst-case poor wetting will result in tear marks in the finished floor. This is where the squeegee has not passed over the surface multiple times, forcing the topcoat into the surface from both directions. This does not occur with the two-squeegee method.

14.4. Rolling as the final finishing step is still required and is done using the closed cell texture roller. It is important to achieve the correct coverage rate and as uniform an appearance as possible with the squeegee, so the roller only needs to remove any slight irregularities. The closed cell rollers do not pick up and move large amounts of material, so the two-squeegee application must be done to a good standard.

14.5. Lightly roll across the bay to leave a uniform finish. More pressure can be used to disperse small excesses of Topcoat. If the roller picks up too much of the **Ucrete TCCS** it is likely that too much pressure has been used. A full roller will allow material to spill off the ends and leave deposits at the end of each stroke. Spray off the roller onto older mixes will cause defects. To avoid this, remove the excess **Ucrete TCCS** by rolling out onto a piece of cardboard or better, change the roller sleeve.
Important: Roll across the bay and not at right angles to it. Rolling at right angles can cause defects between one mix and the next.

14.6. A uniform surface is best achieved by lightly rolling across the bay, with a wide (25 - 40 cm) closed cell polyethylene roller to remove and final marks left by the two squeegees.

Fresh mixes of material should be poured close to the wet edge making sure there is not a gap left, care needs to be taken at the join between mixes to ensure the area is repeatedly squeegeed in both directions Use a brush and small squeegee for corners and edgework.

15. CURING:

15.1. Full cure is normally reached after 3 - 5 hours. If necessary, the 2nd application can be applied once the first is dry to the touch, typically after 2 – 3 hours.
Overcoating must take place within 48 hours at 20ºC.

16. WASTE DISPOSAL:

Primary packaging / containers should be disposed of as contaminated / hazardous waste in accordance with local regulations.

16.1. Warnings and precautions

In its cured state Ucrete is physiologically non-hazardous. For normal flooring applications **Ucrete CS / Ucrete TCCS** does not require the use of respiratory protective equipment during installation. Normal precautions for handling resinous materials should be followed.

16.2. Caution

Ucrete TCCS - Part B. If exposure to air when finely dispersed (on cleaning rags or dry absorbent materials) an exothermic reaction may occur, the material itself is not self-igniting. **DO NOT use dry cleaning cloths**. Spillages of material should be diluted with water before collecting with a non-combustible absorbent material.

16.3. Collect contaminated clothing / cleaning cloths / absorbent / water / spilled mixture into metal containers and seal. Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. The Part B container should be resealed after use to prevent spillage.
Operatives should consult the CoSHH risk assessment and their work instructions.

16.4. Storage

In covered warehouse conditions and out of direct sunlight. Materials must be raised off the floor and kept dry.
On site: store above 10ºC and below 25ºC. Part C in particular must be protected from extreme temperatures as found in a metal container or van.
In warehouse: store above 5ºC and below 25ºC. Liquid components must be protected from frost.

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