

APPLICATION PROCEDURE

System: *MasterProtect 1812*

Description: *Non-toxic, chemical resistant, solvent free high build, epoxy resin coating over concrete.*

SCOPE

This document is to be included in site specific method statements and contains detailed instructions of the preparation for; and the application of **MasterProtect 1812** high build epoxy coating onto concrete substrates.

Although this document provides generic safety information for the use of Master Builders Solutions products used during the application of **MasterProtect 1812** system it does not replace a risk assessment, where site specific consideration must be made for confined areas, environmental issues and other safety matters.

This document does not provide any information with regards to programming or allocation of resources which must be covered by a site specific method statement.

SITE INSPECTION

The area to be coated shall be marked on the drawings and on the structure. Where different system build-ups are required, these shall also be detailed on drawings.

All deviations from the original Bill of Quantities or scope of works must be agreed in writing with the Engineer before application starts.

Any further areas to be coated shall be at the discretion of the Engineer and subject to re-measurement.

All areas not to be coated, but which may be affected by spillage or overspray shall be fully masked. Flora and fauna shall be protected.

All surfaces shall be free from oil, grease, and friable matter. Concrete surfaces shall have a minimum compressive strength of >25 MPa and a tensile strength >1.5 MPa.

Any significant concrete repairs shall have been completed to achieve the above tensile and compressive properties and the repairs shall be free of cracks and be well bonded.

SURFACE PREPARATION

Concrete Substrates

Concrete must be structurally sound and fully cured for minimum of 28 days. Test for vapor drive in accordance with ASTM D 4263 where necessary.

Remove curing and release compounds and other surface hardeners and floor coatings in accordance with the manufacturer's instructions.

Mechanical surface profiling is the method of surface preparation for both new and existing substrates. Mechanically profile the substrate to CSP 3 (approximating medium-grit sandpaper) as described by the International Concrete Repair Institute. Do not use acid etching for surface preparation. Do not use any method that will leave fractured concrete in place.

Arrises shall be rounded off and surface protrusions shall be ground down to ensure a smooth substrate.

Larger cavities shall be filled with appropriate epoxy repair mortars, i.e. **MasterBrace ADH 2200** or **MasterProtect 1890**.

PRODUCTS

The **MasterProtect 1812** system consists of the following products:

Table 1 : Products & Components			
Product Name:	Description / Function:	Packaging	
MasterProtect P 659 (17.5 L) (Zkit 25022804)	Primer	Base (50126638)	Reactor (50126639)
		15.5 kg	7.75 kg
MasterBrace ADH 2200 (3 kg) (Zkit 25013483)	Blowhole & Pin Hole Filler	Base (55474717)	Reactor (55474823)
		1.8 kg	1.2 kg
MasterProtect 1812 (18 L) Light Grey (Zkit 25022805)	Bodycoat	Base (50131461)	Reactor (50127434)
		23.5 kg	3.5 kg
MasterProtect 1812 (18 L) Black (Zkit 25022740)	Topcoat	Base (50127435)	Reactor (50127434)
		23.5 kg	3.5 kg

PRODUCT STORAGE AND CONDITIONING

All the above products should be stored and transported in unopened containers and stored in a clean, dry environment and protected from freezing.




All the components of the **MasterProtect 1812** system shall be preconditioned to 21°C (70°F) for 24 hours before using.

APPLICATION

Application Conditions

Substrate temperatures should not be less than 10°C. In hot weather, areas to be coated shall be shaded from direct sunlight to prevent the substrate temperature exceeding 40°C.

MasterProtect 1812 shall not be applied if the humidity is likely to rise above RH 85% or if the dew point is likely to be reached before or during the application. **MasterProtect 1812** shall be used when the ambient temperature is above 10°C.

Table 2 : Equipment, Mixing Times and Pot Life.				
Product Name	Mixing Equipment		Mixing Time *	Pot Life
MasterProtect P 659	Drill & Paddle (approx 350 rpm)		> 3 min.	25°C – 4 hours 40°C – 90 minutes
MasterBrace ADH 2200	Drill & Paddle (approx 200 rpm)		> 4 min.	25°C – 70 minutes 40°C – 30 minutes
MasterProtect 1812	Drill & Paddle (approx 350 rpm)		> 3 min.	25°C – 80 minutes 40°C – 50 minutes
* Mixing times are the minimum and may need to be increased at lower temperatures and will depend on the effectiveness of the mixing equipment. The stated mixing times relate only to "in pail" mixing, when using plural component spraying equipment, testing should be carried out to check that mixing is sufficient. Exact mixing ratios MUST be maintained.				

Application Rates

MasterProtect 1812 is to be applied at a dry film thickness to suit the particular exposure and chemical resistance requirements, these shall be summarised by location in a **Project Coatings Schedule** by the Engineer:

Table 3: Application Rates to Suit Exposure					
Moderate Exposure					
Total DFT		200	- 300	µm	
Primer	MasterProtect P 659	150	- 300	g/m ²	
Skim Coat	MasterBrace ADH 2200	As Required			
Top Coat	MasterProtect 1812	180	- 255	g/m ²	
Severe Exposure					
Total DFT		325	- 500	µm	
Primer	MasterProtect P 659	150	- 300	g/m ²	
Skim Coat	MasterBrace ADH 2200	As Required			
Body Coat	MasterProtect 1812	180	- 255	g/m ²	
Top Coat	MasterProtect 1812	180	- 255	g/m ²	
Immersed Exposure					
Total DFT		450	- 650	µm	
Primer	MasterProtect P 659	150	- 300	g/m ²	
Skim Coat	MasterBrace ADH 2200	As Required			
Body Coat 1	MasterProtect 1812	180	- 240	g/m ²	
Body Coat 2	MasterProtect 1812	180	- 240	g/m ²	
Top Coat	MasterProtect 1812	180	- 250	g/m ²	
Abrasive Exposure					
Total DFT		900	- 1200	µm	
Primer	MasterProtect P 659	150	- 300	g/m ²	
Skim Coat	MasterBrace ADH 2200	As Required			
Body Coat 1	MasterProtect 1812	250	- 312	g/m ²	
Body Coat 2	MasterProtect 1812	250	- 312	g/m ²	
Body Coat 3	MasterProtect 1812	250	- 312	g/m ²	
Body Coat 4	MasterProtect 1812	250	- 312	g/m ²	
Top Coat	MasterProtect 1812	180	- 250	g/m ²	

Skim Coat:

Within the re-coat window of the primer all blow holes and other surface defects shall be made good using **MasterBrace ADH 2200**. Equipment and mixing times for the **MasterBrace ADH 2200** shall be as per Table 2. Part A shall be mixed with Part B until a uniform, streak free colour is obtained. Full packs only shall be mixed.

Application shall be by spatula, ensuring that pinholes and other minor defects are completely filled.

Table 4: Working Time and Recoat Intervals				
Product Name	Ambient Temp.	Working Time	Re-coat Intervals	
MasterProtect P 659	25°C	4 hours	6 hours	- 36 hours
	40°C	90 minutes	4 hours	- 16 hours
MasterBrace ADH 2200	25°C	70 minutes	12 hours	- 36 hours
	40°C	30 hours	8 hours	- 24 hours
MasterProtect 1812	25°C	80 minutes	8 hours	- 36 hours
	40°C	50 minutes	4 hours	- 16 hours

Body Coats and Top Coat

Application shall be by brush, short hair roller or airless spray. Application may also be carried out using suitable plural component equipment.

Pre-mix the individual components prior to combining to ensure all active ingredients are fully incorporated (possible storage settlement). The total contents of the reactor component shall be poured into the base component and mixed as per Table 2 but shall continue until a uniform colour is achieved. Due to the high viscosity of the resin care must be taken to insert the mixing head slowly into the base material.

Each coat shall be applied giving total coverage of the prepared area, ensuring a minimum film thickness in accordance with the appropriate application rates as stated in Table 3. On smooth substrates the wet film thickness will be measured in accordance with ASTM D1212. All material shall be used within the working time of the material as stated in Table 3.

MasterProtect 1812 is produced in two different colours, light grey and black. The colour shall be alternated between each coat to make it easier to control application and spot defects in the application. After each coat the surface shall then be inspected for any pinholes or other defects. Any such defects shall be made good with **MasterBrace ADH 2200**, but within the recoat interval of the **MasterProtect 1812**.

Each coat shall be applied within the recoat interval as specified in Table 4. If the application of a following coat is delayed then the previous coat shall be abraded and wiped with a lint free cloth, dampened with Xylene / MEK / Acetone immediately prior to the application of subsequent coats.

Final Inspection and Handover

Completed areas will be inspected immediately after completion.

Upon completion of areas to the full design thickness the following non destructive tests shall be carried out where suitable:

- ASTM D 6132 – 08 Standard Test Method for Nondestructive Measurement of Dry Film Thickness of Applied Organic Coatings Using an Ultrasonic Gage.
- ASTM D 4787 – 08 Standard Practice for Continuity Verification of Liquid Sheet Linings Applied to Concrete Substrates.

All defects shall be rectified prior to final handover.

Areas that will have following trades working in them are to be fully protected from impact damage prior to hand over.

No drilling though **MasterProtect 1812** is allowed without approval of the engineer.

A thorough inspection of the coating shall be made prior to commissioning of the plant.

STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by Master Builders Solutions either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not Master Builders Solutions, are responsible for carrying out procedures appropriate to a specific application.
