

SewperCoat® Wet Spray

Application of SewperCoat® Wet Spray mortar using wet spray process

INTRODUCTION

Where relatively large volumes or areas of repair mortar are required, SewperCoat® mortars may be applied by the wet spray process. The technique offers the following advantages over hand or trowl applied mortars when the various application parameters are met.

- Excellent bond to the substrate concrete.
- Excellent compaction of the mortar.
- Higher build without sagging or slumping.
- Rapid placement of material.

PRINCIPLES OF OPERATION

For the wet spray process, the SewperCoat® mortar is mixed in a forced-action mixer to produce a material with the correct consistency for pumping. When thoroughly mixed, the material is placed into a hopper containing a feed screw which moves the material to the pump.

The pump is typically a helical screw in a static jacket, forces the material along suitable pressure rated delivery hoses to the application nozzle. A jet of compressed air is introduced to the mortar just prior to the end of the nozzle, causing the mortar to be broken into small particles and projected at relatively high speed to the repair area. Much of the equipment currently available combines the mixer, hopper, feed screw, pump and air compressor in one electrically or diesel powered unit.

Wet spraying of mortars is a skilled process and requires experienced operatives to achieve good results. The operatives controlling the nozzle and the mixing of the mortar have a significant influence on the quality of the completed job. It is, therefore, strongly recommended that experienced applicators should be employed who are familiar with the process. Where such experience is not available, the applicators should demonstrate their capability through monitored trials.

MATERIAL

The factor controlling the water content is the stiffness of the mortar. It needs to be both 'soft' enough to drop into the feed screw of the pump and pass along the hoses, yet

'stiff' enough to enable a reasonable build to be achieved on vertical and overhead surfaces.

As a guide, 2.7 to 3.0 litres of water mixed with each 20kg bag of SewperCoat® Wet Spray will produce a sprayable mortar.

PRIMING

Any exposed steel reinforcement should be primed in accordance with the recommendations in the relevant data sheet. This will generally involve application of Nitoprime Zincrich, a zinc rich one component epoxy.

The concrete must be maintained in a saturated surface dry condition immediately prior to the application of the sprayed mortar, no bonding aids are required. The impact of the mortar from the spray nozzle causes good wetting of the mortar on to the concrete surface and results in excellent bond strengths.

THICKNESS OF APPLICATION

SewperCoat® Wet Spray should not be applied at a thickness less than 25mm. The mortar should be built up to the required thickness by applying wet on wet material, without allowing the previous layer to dry out.

The practical thicknesses achievable on site will depend on the orientation of the substrate, the consistency of the material and the geometry of the repair area. In no circumstances should a thickness be reached where the material sags or slumps as this can affect the bond at the mortar / substrate Interface. Should this occur, the material must be removed and replaced.

INFILTRATION PREVENTION

The area being sprayed must be SSD (saturated surface dry) before work commences however any infiltration or seepage through the concrete substrate must be eliminated first. Vandex Plug, rapid setting hydraulic cement is ideal for this purpose. Once the leak has been sealed, the area can be dampened down and spraying of the SewperCoat® Wet Spray can proceed.

***Please Note: SewperCoat® is a registered trademark and the ownership of Kerneos, used under license.**



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FINISHING

SewperCoat® Wet Spray is finished by cutting to the required profile and closing with a steel float. Wooden or plastic floats, or damp sponges, may be used to achieve the desired surface texture. The complete surface should not be overworked. The surface will normally be finished immediately after spray application.

CURING

In common with all cementitious materials, SewperCoat® Wet Spray must be cured immediately after finishing in accordance with good concrete practice. Concure A99 acrylic curing compound is recommended for this purpose and should be applied at the rate of 5m² per litre. Continuous wet curing of the SewperCoat® Wet Spray is also acceptable.

EQUIPMENT

PUMPS

SewperCoat® Wet Spray has been sprayed successfully through a number of screw pump plaster spray machines such as:

Putzmeister S5; 3 phase electric
Bunker S8 Smart; diesel powered

Any similar type of equipment should also be suitable, however it is recommended that a trial with the material and the proposed pump should be performed prior to commencing a job. The type of equipment selected for a job will depend on its availability, the amount of material to be applied and the location. Although many of the pumps have a compressor built in, this is frequently not adequate to ensure sufficient dispersion of the material and compaction onto the substrate. It is recommended that an independent 100 cfm / 13m³/m compressor is employed for wet spraying SewperCoat®.

MIXERS

SewperCoat® Wet Spray must be mixed in forced-action type mixers, and not in free-fall mixers. Many of the pumps have forced-action mixers built into the single powered unit, which perform quite satisfactorily. SewperCoat® Wet Spray has also been mixed successfully in continuous mixers where the powder and water are metered into a mixing screw at a controlled rate. Care must be exercised in controlling the water content. Please contact Parchem Construction Supplies for guidance on suitability for this mixing process.

HOSES

The hoses for conveying the mortar should be pressure rated to at least twice the pressure capability of the pump. Typically the hose should be 35 mm diameter, with a minimum diameter of 25 mm. Mortars have successfully been pumped through 30 metres of hose. Care must be

taken to ensure all the hose fittings are properly attached to the hose and are in good condition.

NOZZLES

Various designs of nozzle have been used successfully for spraying SewperCoat® Wet Spray. Apertures of 12 mm and 14 mm in steel and rubber caps have proved effective.

GENERAL INFORMATION

In the wet spray process, SewperCoat® Wet Spray is batched and mixed prior to being pumped along suitable hoses to the discharge nozzle. High velocity air is introduced at the nozzle to disperse the mortar and propel it into position.

The Impact of the mortar ensures excellent contact with the substrate and good compaction. The quality of the applied mortar is significantly better than can be consistently achieved by hand or trowel application. As the material is batch mixed prior to pumping, the water content can be accurately controlled, ensuring a consistent product is applied to the substrate.

The spraying technique employed for each job will depend on the nature of the work and the materials used. Wherever possible, it is recommended that trials are performed with the material and equipment on elements which exhibit the same features as the job to ensure the spraying technique employed is appropriate. The general guidelines presented here offer a starting point for these trials.

EQUIPMENT

The mixer, pump and spray equipment should be specifically designed for spraying mortars or plasters and should be capable of delivering a continuous, even flow of material to the nozzle. The equipment should be inspected and cleaned at least twice a day. The compressor should be capable of supplying a continuous supply of clean, oil-free compressed air to the nozzle, sufficient to disperse the mortar and ensure an even spray distribution of material onto the substrate.

Delivery hoses should be inspected to ensure they are clean and undamaged, with particular attention paid to the couplings. The couplings and seals should be clean and in good condition. If damaged, they must be replaced prior to proceeding. The delivery hoses should be laid out before work starts and all kinks and constrictions should be eliminated. The airline and couplings should be inspected for damage and laid out alongside the delivery hose without kinks or constrictions. In the work area, the air line should be attached to the delivery hose at regular intervals. The pump delivery pressure should be tested by attaching a suitable pressure gauge to the outlet and operating the pump with clean water as the control material. If the pressure reading is too low, the pressure must be adjusted or, if necessary, the pump stator jacket

replaced. When satisfactory, water must be pumped through the hoses followed by a slurry of

Calcium Aluminate Cement and water, introduced into the hoses to act as a lubricant.

DO NOT use slurry of the Ordinary Portland Cement (OPC). Any residue of OPC in the hose or equipment will flash set the SewperCoat® and cause blockages and equipment failure. No water should be left in the hoses as this will cause segregation of the material.

WORKMANSHIP

The contractor should be able to demonstrate his ability to satisfactorily spray cementitious mortars, either by monitored trials or by written proof of expertise from an independent organisation. The contractor should be fully conversant with any relevant codes of practice relating to the spraying of mortars and concretes. As the quality of the sprayed mortar is largely dependent on the skill of the nozzle-man, the contractor should employ an operative who is competent and experienced in spraying mortars.

The surface to accept the sprayed mortar should have been prepared to the required standard. To achieve good bond strength, the surface must be prepared to remove laitance and any organic or inorganic deposits. The aggregate should be exposed to provide a rough surface finish to act as a key for the mortar. Care must be taken to ensure all dust and debris has been removed prior to commencing spraying. Normal precautions for winter working with cementitious materials should be adopted. The materials should not be applied when the substrate and/or air temperature is 5°C and falling. At 5°C static temperatures or at 5°C and rising, the application may proceed. At ambient temperatures above 35°C, the material should be stored in the shade and cool water used for mixing.

Spray application should commence at the bottom of vertical or near vertical surfaces and the mortar built up to the required thickness by making several passes of the nozzle over the work area.

The nozzle should at all times be held perpendicular to the work surface. In general the distance of the nozzle from the application surface should be between 200mm and 400mm, dependent on the structure, air supply, mortar flow rate and application geometry. Care must be taken when spray applying material around reinforcement and into corners. The nozzle should be held at an angle to the surface to ensure complete encapsulation of the reinforcement or complete filling of the corner.

The mortar should emerge from the nozzle in a steady flow, free from pulsation. With wet spray application of mortars, the amount of rebound should be minimal. However, care must be taken to prevent the incorporation of rebound, or other wastage, into the finished work. Where thick layers are required, care must be taken to

ensure the material does not slump or sag, as this can result in the breaking of the bond. If slumping does occur, the affected area must be cut out and replaced.

Greater thicknesses can be achieved by allowing the initial layer of mortar to stiffen before further layers are applied. The stiffening time will vary with the prevailing environmental conditions. Prior to the application of additional layers, any loose material or overspray must be removed.

The applied material may be trowelled smooth to achieve a specified surface finish. Care must be taken to ensure the bond line is not disturbed during trowelling.

SAFETY

All necessary measures should be adopted in accordance with the requirements of all Health & Safety Acts or other nationally recognised legislation. In particular, lighting, ventilation and protective clothing shall be adequate for the safe and proper execution of the work. Before work commences, refer to the product data sheet and Material Safety Data Sheet (MSDS).

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ADDITIONAL INFORMATION

Parchem provides a wide range of complementary products which include:

- Decorative concrete solutions including stamped and stencilled patterned concrete
- ColourThru concrete oxides
- Concrete resurfacing products
- Sealer and sealer accessories
- Concrete and soil compaction products
- Concrete power equipment and vibrators
- Concrete hand and power finishing products
- Surface preparation equipment including grinding and polishing machines and accessories
- Concrete repair, grouts and anchors
- Waterproofing and adhesives
- Industrial flooring systems
- Engineering and architectural coatings
- Jointing systems and waterstops

For further information, please contact Parchem.

IMPORTANT NOTICE

A Material Safety Data Sheet (MSDS) and Technical Data Sheet (TDS) are available from the Parchem website or upon request from the nearest Parchem sales office. Read the MSDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

PRODUCT DISCLAIMER

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.



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