

# DIAMOND DF4 FINE

## Super Durable, Weather Resistant Two-Component Colored Coating

### 1 Product Description

- 1.1 Diamond DF4 Fine has been formulated using the very latest polyurethane technology. The result is a super low VOC (volatile organic component) system which is not only easy to apply but produces a coating which also dries and hardens rapidly. The nature of polymers used in Diamond DF4 Fine also imparts weathering properties vastly superior to those of a conventional two-component (2K) polyurethane or epoxy system.
- 1.2 Diamond DF4 Fine is suitable for roller, brush or spray application.

### 2 Suitable Substrates

- 2.1 Diamond DF4 Fine is suitable for many types of substrate. It is optimized for use on concrete or asphalt surfaces.

### 3 Preparation

- 3.1 Ensure both the Product Information and Safety Data Sheets have been read and understood before commencing work.
- 3.2 The applicator should wear protective clothing in accordance with the Diamond DF4 Fine Safety Data Sheet.
- 3.3 Ensure that concrete substrates are free of curing agents or other surface sealers which will impair adhesion. This can easily be tested by applying a small amount of water or detergent solution to the surface and observing whether it soaks into the surface (good) or sits on the surface (bad). If the solution sits on the surface and is not absorbed, abrasion of the surface must be carried out and the above test repeated to facilitate the adhesion of any subsequent coating. A small "mock up" sample can be prepared to test Diamond DF4 Fine's suitability. Suitable methods for the removal of sealers or membranes are:
  - 3.3.1 High pressure water jetting.
  - 3.3.2 Sand or shot blasting.
  - 3.3.3 Scarification.
  - 3.3.4 Brushing.
  - 3.3.5 Acid etch primer.
  - 3.3.6 Standard methods must be used when employing any of these methods:
  - 3.3.7 ASTM D4258 Standard Practise for Cleaning Concrete.

- 3.3.8 ASTM D4259 Standard Practise for Abrading Concrete.
- 3.3.9 ASTM D4260 Standard Practise for Etching Concrete.
- 3.3.10 We recommend consulting qualified/experienced persons for these pre-treatment methods.
- 3.4 Make good depressions or potholes with suitable repair materials and techniques.
- 3.5 Ensure that the substrate to be coated is clean and dust-free.
- 3.6 Remove any oil, de-icing salt, grease and similar contaminants by washing with a suitable degreasing agent, followed by flushing with water.
- 3.7 Ensure that the surface is dry before application. A hot compressed air lance can be used to speed up the drying process.
- 3.8 It is important to be aware that traces of moisture can affect drying time and application properties. Drying time will be reduced but application properties will be negatively affected as the Diamond DF2 Fine cures more rapidly. Do not mix or apply in a moist environment. The pot life will be affected by humidity. The ideal relative humidity range is 40-60%. Be aware that, as relative humidity increases, the pot life and curing time reduces. A guide to the effects of humidity on working time is as follows:
  - Up to 60% - ok.
  - 60-70% - may see a slight reduction in working time.
  - 70-80% - further slight reduction.
  - 80-90% - there will be a noticeable reduction in working time.
  - >90% - DO NOT APPLY.
- 3.9 Diamond DF4 Fine can be applied at temperatures in the range -20 °C to +40 °C.
- 3.10 The use of a primer is not always necessary with Diamond DF4 Fine. However, in some cases, for example where sealed or power floated concrete has been shot-blasted prior to application, an application of Primer C may be necessary. Particularly open textured asphalt may also require an application of Primer C or Void Filler. The aim of any primer would be to prevent Diamond DF2 Fine draining through, leading to a decrease in spread rate. If in doubt, please consult us first.



## 4 Spray Application Method

- 4.1 Plural component mixing and spray system.
- 4.1.1 For spray application, a plural component system is recommended due to the rapid curing reaction between the Base and Hardener components. A plural component system is suitable for regular large volume applications and would need to be set up in the correct mixing ratio. It has the advantage of keeping parts A and B separate until blending takes place at the spray tip, reducing wastage and eliminating the risk of the product hardening in the pump and hoses. A plural component system requires no prior mixing of components but the continuous ratio in which the components are blended is critical.
- 4.2 Separate mixing and single-component spray systems
- 4.2.1 Although a twin-feed set-up is preferable, a single part spray applicator can be used providing it is equipped with a direct insertion piston displacement pump.
- 4.2.2 It is essential to check the condition of the spray tips regularly, because of the rapid reaction between Diamond DF4 Fine Base and Hardener components.
- 4.2.3 Before use, in order to avoid the possibility of blockages in spray equipment, flush all lines with acetone or MEK cleaning Solvent.
- 4.2.4 Regular total flushing of the mixed component system is essential to prevent hardening of the material in the spray lines. This can be achieved by adding another freshly mixed pack of Diamond DF4 Fine rather than flushing by using a solvent.
- 4.2.5 CAUTION - WHEN USING SINGLE PART SPRAY EQUIPMENT TO SPRAY MIXED TWO-COMPONENT MATERIAL, NEVER ALLOW THE MATERIAL TO HARDEN IN THE MACHINE.
- 4.2.6 Ensure that each mixed pack is fully sprayed out then replaced. DO NOT top-up part emptied, mixed packs.
- 4.2.7 Airless spray machine requirements:
- Pump capable of achieving pressure of 3000 psi (207 bar)
  - 50-100' spray hose
  - Minimum 3/8" fluid hose 10' whip hose is recommended
- 4.2.8 Conventional spray machine requirements
- Atomisation pressure 80 psi
  - Fluid pressure 18-30 psi
- 4.2.9 Spray gun type – either:
- Binks 95 type
  - DeVilbiss MBC
  - DeVilbiss JCA
- 4.2.10 Tip size
- 0.019" – 0.025" (19-25 thousandths of an inch)
- 4.2.11 Instructions for the mixing phase are common to both conventional and airless spray systems. Mixing of components is carried out as a separate process in advance of feeding the mixed material through the spray machine.
- 4.2.12 A power supply, suitable mixer and mixing paddle is required.
- 4.2.13 Always carry out mixing on a protective sheet or tarpaulin to avoid contamination or unwanted spillages.
- 4.2.14 Due to Diamond DF4 Fine's pot life, only mix what is required.
- 4.2.15 Check that the mixer and paddle and the spray machine are clean and in full working order before commencing mixing. Do not mix in a moist environment. The pot life will be affected by temperature and humidity. Small batches may also have shorter pot lives. Apply in the relative humidity range 40-90% only. Be aware that, as relative humidity increases, the pot life and curing time reduces.
- 4.2.17 Using the mixer and paddle, the Base component (Part A) should be agitated thoroughly for at least 1 minute to ensure it is homogenous.
- 4.2.18 After 1 minute and whilst the Base component (Part A) is being agitated, slowly pour all the Hardener component (Part B) into the Base component (Part A).
- 4.2.19 Mix both components thoroughly until homogenous taking care to ensure that all material from the sides and bottom of the container is included. This should take 1-2 minutes.
- 4.2.20 Once the Hardener has been mixed into the Base component, the curing process will start, giving a pot life of approximately 50-60 minutes at 21°C.
- 4.2.21 Immediately place the mixed material into position on the spray machine and insert the material feed pipes into it.
- 4.2.22 Follow the spray machine manufacturer's instructions to spray out the material.
- 4.2.23 Use a 50% overlap with each pass of the spraygun to ensure an even coating over the entire application area.
- 4.2.24 The wet film thickness should be between 150 and 250µm.
- 4.2.25 The achievable spread rate is dependent on the characteristics of the substrate including its texture, absorbency etc and of the throughput of the spray machine and the tip characteristics but is normally greater than that achieved when applying by roller or brush. If this is critical, conduct a small trial in order to measure spread rate in advance coating the main work area.
- 4.2.26 Once applied, Diamond DF4 Fine will be unaffected by any rainfall that may occur during the cure.
- 4.2.27 One coat of Diamond DF4 Fine is normally all that is required.
- 4.2.28 Some surfaces may require 2 coats. Where a



second coat is required, it can normally be applied 30 minutes after the application of the first coat. Where Diamond DF4 Fine is to be overlaid, first ensure the surface is touch dry. Cross-spray Diamond DF4 Fine at right angles to the spray pattern of the first coat.

- 4.2.29 Mixing and spray equipment should be cleaned immediately after use using either acetone or MEK, following the relevant handling and safety requirements. Spray equipment should be thoroughly flushed using these solvents in a closed circuit, using clean solvent for the final flush.
- 4.3 Roller Application.
- 4.3.1 The use of a paint scuttle and a 12mm medium pile roller is recommended.
- 4.3.2 Pour the mixed material into the scuttle.
- 4.3.3 Ensure that the roller is fully charged and squeeze off excess liquid material back into the scuttle.
- 4.3.4 Roll the material out, applying sparingly. Work quickly and apply evenly to the surface using even pressure, thus ensuring good distribution of the material at the recommended film thickness. Do not pour mixed material directly onto the ground and then apply, as this will lead to a patchy appearance.
- 4.4 Brush Application.
- 4.4.1 Small areas, such as dressing into edges and corners, may be applied by brush.
- 4.4.2 Do not pour material directly onto the surface of the substrate, for reasons described above.
- 4.4.3 Brush material sparingly across the top surface of the substrate only.
- 4.4.4 Ensure brushes are cleaned thoroughly immediately after application using acetone or MEK cleaning solvent.
- 4.5 The maximum wet film thickness should be between 350 and 400um.  
The achievable spread rate may vary according to the texture and porosity of the surface on which it is being applied.
- 4.6 If extra skid/slip resistance is required, then fine aggregate can be scattered over the wet film, followed by back-rolling to ensure this aggregate is fully bound.
- 4.7 Once applied, Diamond DF4 Fine will be unaffected by any rainfall that may occur during the cure.
- 4.8 Tools and equipment should be cleaned immediately after use using acetone or MEK cleaning Solvent.
- 4.9 It is unlikely that roller heads can be cleaned to an acceptable standard and these should be discarded after use.
- 4.10 One coat of Diamond DF4 Fine is normally all that is required. However, some surface may require 2 coats. The second coat can normally be applied 2

hours after the application of the first coat. Where Diamond DF4 Fine is to be overlaid, first ensure the surface is dry and does not mark.

- 4.11 Return the surface to use no sooner than 2 hours after application.
- 4.12 Once fully dry, thermoplastic markings can be applied over Diamond DF4 Fine. If applying preformed markings to a substrate coated with Diamond DF4 Fine, ensure that the gas torch does not scorch the Diamond DF4 Fine coatings but is held well back, heating but not burning.

## 5 Alternative Substrates

- 5.1 Diamond DF4 Fine can be applied to metal, plastic, wood and stone and will offer the same performance.
- 5.2 Metals should be lightly abraded to create a physical 'key' to enhance bonding.
- 5.3 Aluminium substrates should be coated as soon as possible after abrasion before their rapid oxidation.
- 5.4 Most plastics require no prior preparation. However, some, such as polypropylene may need pre-treatment, such as 'Corona' treatment - see [en.wikipedia.org/wiki/corona-treatment](http://en.wikipedia.org/wiki/corona-treatment).
- 5.5 Wood should be sanded back to a clean, sound surface.

## 6 Aftercare

- 6.1 No aftercare is necessary other than occasional cleaning by wet scrubbing or by pressure washing.

## 7 Technical Support

- 7.1 If you are unsure about any aspect of Diamond DF4 Fine application, please contact CompleteStreetsUSA before use.

## 8 Disclaimer

Installation of all products purchased must be by professional installers. The installer shall maintain a written record of field condition including, without limitation, surface and atmospheric conditions, usage rates, and lot numbers of products installed). Moisture Vapour Transmission (MVT) and ASR (Alkali Silica Reaction) Disclaimer and Exclusion: Although rare, some floors at or below grade level are sometimes subjected to saturation by moisture from beneath the concrete floor slab. This moisture can travel through the concrete and collect between floor toppings creating the potential for delaminating from hydrostatic pressure and or ASR. Conditions contributing to this include heavy rainfall, broken pipes, excess hydration within fresh concrete, and other factors or defective and old concrete. These factors are difficult, if not impossible to predict. We recommend testing



for MVT and/or the presence of ASR in the concrete substrate prior to application.

The recommended test method for MVT is ASTM F 2170-11. ASR can be predicted by a higher than normal pH within the concrete. If high pH should be detected, it is recommended a lab test for ASR is performed. If and when delamination of the floor occurs because of a moisture condition that exists beneath or in the concrete slab beyond the capacity of the individual product installed or failure of the concrete due to ASR, then manufacturer and distributor shall not be liable for damages caused by application of Diamond DF4 Fine over concrete with excessive moisture vapour transmission or alkalinity.

Diamond DF4 Fine should not be applied on asphalt which is less than 28 days old, to ensure that any oils or solvents within the asphalt have had sufficient time to evaporate. Failure to follow this may affect the long-term performance of Diamond DF4 Fine.

Manufacturer and distributor shall not be liable for any injury incurred in a slip and fall accident.

Manufacturer and distributor state that this product shall be within consistent quality and manufactured in accordance with our manufacturing instructions.

Given that manufacturer and distributor hold no control over the use of Diamond DF4 Fine, we do not warranty the installation of Diamond DF4 Fine. Manufacturer's warranty shall be limited to the refunding of any materials determined to be defective, after thorough inspection and testing by Manufacturer Technical Department.

MANUFACTURER MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE ALL DISCLAIMED

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