

# Application Guide

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## Spray Application



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Powercrete® J is a 100% Solids Epoxy used for corrosion and abrasion protection. This coating is applied over clean, bare steel and/or Fusion bonded epoxy.

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### 1.0 Scope

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- 1.1 This application guide details the spray application for coating the surface of bare steel pipe or over plant applied or mainline coatings with Powercrete® J.
- 1.2 Contractor shall furnish all labor, supervision, materials, equipment and related hardware required for completing an acceptable application.
- 1.3 Coating materials shall be plainly and permanently marked, stored, and applied in accordance with the manufacturer's specification as directed by the Company's authorized representative.

### 2.0 Definitions

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- 2.1 Company - The acceptor of the finished Powercrete J coated pipe, its employees, contracted inspector, or other authorized personnel.
- 2.2 Coating Applicator - The company responsible for the application of Powercrete J coating.
- 2.3 Manufacturer - The supplier/manufacturer of the Powercrete® J material to be applied.

### 3.0 Surface Preparation of Fusion Bonded Epoxy

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- 3.1 The primary coating surface shall be dry, cleaned and free of all contaminants, grease, oil, and salts. Solvent cleaning is strongly recommended. If solvent is used, it shall be without residue and should not leave any traces. Perform cleaning when surface is 5°F(3°C) above dew point, with no surface moisture present. Following cleaning, the coating shall be examined for U. V. degradation (fading, chalking, cracking or crazing). If degradation is observed, see 2.2 for correction.
- 3.2 If the primary coating was exposed to sunlight (or other U. V. source) the U. V. affected FBE surface shall be removed before Powercrete® J can be applied. The damaged surface shall be removed by lightly blasting (sweep blasting) with an air or rotary blaster using an appropriate angular blast media (not shot).
- 3.3 The primary coating shall be sweep blasted or abraded using an abrasive coated organic pad, equivalent to 3M scrubbing pad or medium grit sand paper. Following blasting or abrading, the FBE coating shall be thoroughly cleaned using compressed air.
- 3.4 Following surface cleaning, no dust or any other particles shall be visible on the surface. A clear adhesive tape that shall be pressed on the surface of the FBE coating and removed for observation.
- 3.5 Immediately prior to the application of Powercrete® J the primary pipe coating shall be 100% inspected for holidays, pinholes, and other damage. The repair procedure for damaged primary coating shall be identical to the repair procedure during original primary coating application.
- 3.6 The dry, clean surface shall be coated within 4 hours of abrasion.

### 4.0 Surface Preparation of Bare Steel

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- 4.1 The surface to be coated shall be dry, clean and free of all contaminants, grease, oil, and salts. Solvent cleaning is strongly recommended. If solvent is used, it shall be without residue and should not leave any traces. Perform cleaning when surface is 5°F(3°C) above dew point, with no surface moisture present. Following cleaning, the surface of the steel shall be particle-blasted (with suitable material). The pipe surface shall not be burnished. Steel surface to be coated shall be cleaned to near-white, ISO-8501-1, NACE No.2, SA-2 1/2, SSPS-SP-10 or better. Surface anchor profile to be 2.5 - 4 mils (63.5 - 101.6 microns) with sharp angularity.
- 4.2 Before applying the Powercrete® J coating, the surface shall be subject to inspection for appropriate surface preparation.
- 4.3 Following surface inspection, no dust or any other particles shall be visible on the surface. A clear adhesive tape shall be pressed on the surface of the steel and removed for observation.
- 4.4 While not always necessary, preheating can be useful just prior to application. To eliminate moisture, preheat the area to approx. 104°F(40°C). Preheating the area to approx. 140°F(60°C) will also accelerate curing of the coating. Under no conditions shall the coating be applied to a pipe surface temperature above 160°F(71°C).  
Pipe shall be coated immediately after heating.
- 4.5 The dry, clean surface shall be coated within 4 hours of blasting.

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## 5.0 Coating Application

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- 5.1 While not always possible, to obtain the best finish and even application of material, rolling rigs are recommended to be used.
- 5.2 The first layer shall be applied uniformly to a thickness that will not cause running/sagging of material. Rotating the pipe during application will eliminate running, sagging, and/or icicles.
- 5.3 Successive layers of 20-40 mils (500-1000 microns) shall be applied allowing 10 minutes between applications until desired thickness is achieved. During application on rotating pipe the coating thickness can be applied at a thicker layer in one pass. Thickness can be measured during application with a wet film thickness gauge.
- 5.4 Coated surface shall not be touched for at least 4 hours if ambient temperature is above 70°F(21°C). Check cure chart for stages of cure at temperatures. The freshly coated areas shall be protected from being contaminated with dust, insects, or other foreign debris. Excessive particle contamination shall require stripping, re-blasting, and recoating.
- 5.5 Cured coating shall be of uniform color, gloss, and thickness and shall be free of blisters, pinholes, fish eyes, sags, pimples, craters, and other irregularities. Moisture contacting the freshly applied Powercrete J shall be avoided. Contact with moisture after application may cause discoloration without affecting the quality of the coating.
- 5.6 The Powercrete® J coatings shall reach a minimum hardness of 65 (Type D Durometer-ASTM D2240) prior to handling. The Powercrete® J coating shall reach a minimum hardness of 75 (Type D Durometer-ASTMD2240) prior to installation.

## 6.0 Spray Equipment Recommendations

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- 6.1 Plural component spray system must be able to spray Powercrete® J at a ratio of 4.85:1 by volume. Graco Extreme Mix Spray system or other such suitable 'heated plural component spray system' will work for an application of Powercrete® J
- 6.2 The Part A material must be heated 140°F(60°C) and agitated before being transferred to the spray unit. The Part B must be preheated to 90°F(32°) before being transferred to the spray unit. Make sure the material is not scorched during heating. with feed pumps / transfer pumps. Material transfer by hand or hand tool should be avoided.
- 6.3 The material must maintain the temperature for atomization during spray. The hose bundle shall be heated to 140°F(60°C).
- 6.4 The spray machine filters shall be 60-100 mesh and shall be cleaned at the beginning of each day. The inline mixers should be cleaned every 5-6 drums of material sprayed.
- 6.5 The recommended spray guns are Binks or Graco.  
Tips size depends on pipe diameter - 419/431 for 12-16", 519/531 for 16-24", 619/631 for 24-48
- 6.6. Please consult a Berry Plastics CPG representative

## 7.0 Inspection

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- 7.1 All work done under this specification shall be subject to inspection and acceptance by the Company's inspector. All parts of the Coating Applicator's facilities associated with this work shall be accessible to the inspector. The Coating Applicator shall correct the work which is found defective under this specification or within the obvious intent of this specification.
- 7.2 The Coating Applicator's quality control inspector shall advise the Applicator's foreman when conditions exist which adversely affect the coating operation with respect to cleaning, application, or material performance, so that immediate corrective measures can be taken.
- 7.3 Coating thickness checks shall be made at an ambient temperature with a magnetic pull-off film thickness gauge. The thickness of the calibration standard shall beat the upper and lower end of the specified thickness range. Thickness measurements shall be made in accordance with SSPC-PA2, Section 2. The thickness measurements shall be taken at the 12 o'clock and 6 o'clock positions.
- 7.4 Coating hardness checks shall be made at an ambient temperature with a Type D Durometer(ASTM D2240), in good working condition and with no obvious damage. The checks shall be made at the 12 o'clock and 6 o'clock positions.
- 7.5 Holiday checks shall be made using a Hot Spark Detector. The total voltage used for holiday checks shall be 125 volts per mil (i.e. 5 volts per micron) per NACE RP0490. Holidays found shall be patched per Section 8 of this guideline. The patched holidays shall be retested.

## 8.0 Repairs

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- 8.1. All damage detected by visual inspection shall be repaired by the Applicator.
- 8.2 Scars, dents, damaged areas, and large holidays shall be cleaned by removing all rust, scale, dirt or other foreign material and loose coating by using hand or power driven wire brush. The area to be patched (holiday plus at least 1 inch {19 mm} of surrounding coating) shall be suitably roughened before patching with 60 grit sandpaper or similar. Files shall not be used. Dust generated by the sanding shall be removed with a clean, dry cloth or brush prior to patching.
- 8.3 Areas not meeting hardness requirements shall be removed using a method that will not damage the primary coating or pipe.
- 8.4 Powercrete® J material (in consultation with manufacturer) shall be used for patching holidays and damaged coating. In all cases, end user specification shall supersede this specification.
- 8.5. The surface to be patched shall be heated with a small torch until it is thoroughly dry, without damaging surrounding surface/coating. The Powercrete® J shall be mixed and applied over the heated surface.
- 8.6 Patches shall overlap the surrounding undamaged coating by a minimum of 1 inch (19 mm).
- 8.7 Repairs shall be inspected at the discretion of the Company inspector.

## 9.0 Storage

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For optimum performance, store Powercrete® J products in a dry, well-ventilated area. Maintain products in original packaging and sealed until just before use. Avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental conditions or contaminants.

**NOTE:** Avoid prolonged storage at temperatures above 40°C (104°F) or below 5°C (40°F).


## 10.0 Safety Guidelines

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**Important:** Read the MSDS prior to using the products. Product installation should be done in well-ventilated area and in accordance with local health and safety regulations. These application guidelines are intended as a guide for standard products. Consult your Berry Plastics representative for specific projects or unique applications.

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