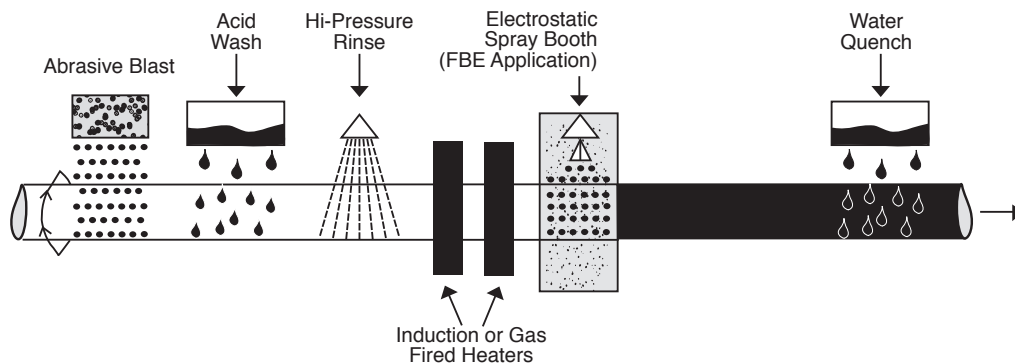


3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 626-140 Application Guide



General

This document provides guidance for the plant application of 3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 626-140.

Coating materials shall be handled, stored, and applied in accordance with the manufacturer's specifications, or as directed by an authorized representative of the coating manufacturer. All references to SSPC shall be interpreted as Society for Protective Coatings. All references to NACE shall be interpreted as National Association of Corrosion Engineers.

Surface Preparation

Prior to blast cleaning, surfaces shall be inspected and pre-cleaned according to SSPC-SP1 to remove oil, grease and loosely adhering deposits. Visible oil and grease spots shall be removed by solvent wiping. Only approved safety solvents that do not leave a residue shall be used. Mill lacquer or other protective coating must be removed prior to beginning the following blast cleaning process.

Prior to blast cleaning, the pipe shall be pre-heated to a temperature sufficient to remove all moisture. The exterior pipe surface shall be abrasive blast-cleaned using two machines to NACE No. 2/SSPC-SP10 ISO 8501:1, Grade SA 2 1/2 near-white finish. The first machine may use shot or grit. The second machine shall use steel grit with a hardness of Rockwell C ≥ 53 . The size shall be selected to achieve an

anchor pattern profile of ≥ 2 mils/51 μm to ≤ 4.0 mils/110 μm . Near-white finish is interpreted to mean that all metal surfaces shall be blasted to remove all dirt, mill scale, rust corrosion products, oxides, paint and other foreign matter. Very light shadows, very light streaks or slight discolorations shall be acceptable; however, at least 95% of the surface shall have the uniform gray appearance of a white-metal blast-cleaned surface. Standards for comparison shall be made available by the contractor.

For consistent surface finish, a stabilized working mix of the cleaning media shall be maintained by frequent small additions of new grit commensurate with consumption; infrequent large additions shall be avoided.

The cleaning-media working mix shall be maintained clean of contaminants by continuous and effective operation of blasting-machine scalping and air-wash separators.

Any raised slivers, scabs, laminations or bristles of steel remaining on the newly cleaned surface shall be removed using abrasive grinders or by hand filing. This cleaning operation must minimize damage to the anchor pattern.

Prior to coating, the cleaned pipe shall be inspected to ensure that all cleaning steps have been adequately performed. Presence of contaminants indicates a malfunction of the cleaning equipment, which shall be corrected immediately.

Remove cleaning media or other loose contaminants that may have entered the interior of the pipe. Use clean, dry, oil-free air in a manner that shall not affect the other clean pipe or pipe to be coated.

The cleaned pipe surfaces shall be protected from conditions of rainfall, or surface moisture. Flash rusting shall not occur prior to heating the pipe.

Surface Preparation in Brief

Before blast cleaning

- Remove mill lacquer, paint, or other protective coatings
- Remove visible oil and grease

Use two blast machines

- In the first, use either grit or shot
- In the second, use steel grit of Rockwell C hardness of ≥ 53 of a size that provides an anchor pattern profile of ≥ 2 mils/ $51 \mu\text{m}$ to ≤ 4.0 mils/ $110 \mu\text{m}$
- Maintain blast equipment to continuously clean media. Maintain an operating mix.

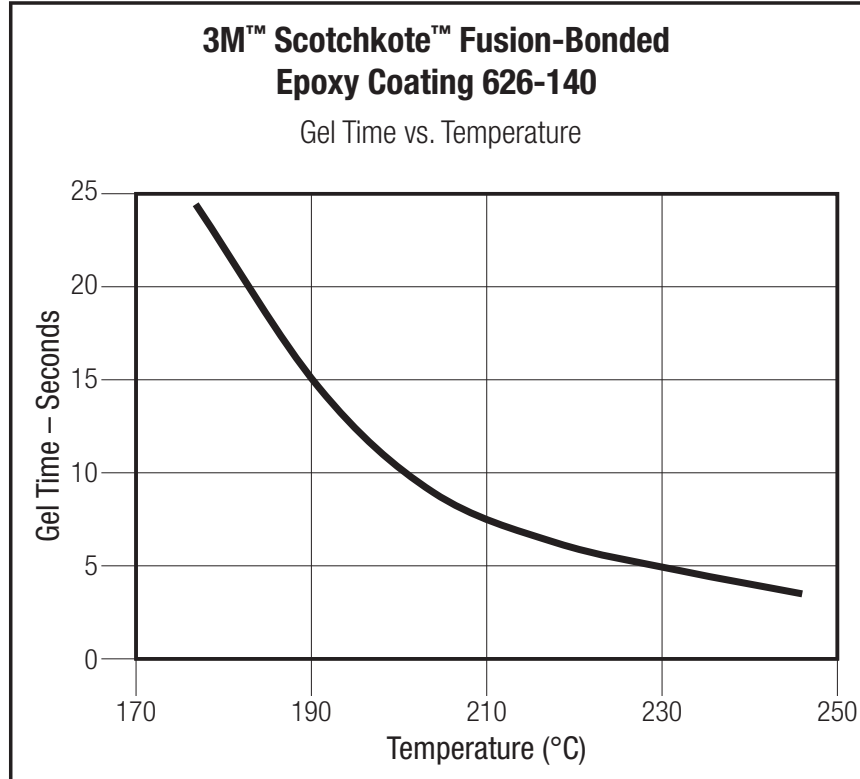
A higher degree of cleaning is recommended. To attain this, the use of phosphoric acid pre-treatment is suggested.

Phosphoric acid wash and rinse ($\leq 50 \mu\text{Siemens conductivity}$) to remove remaining acid, salts, and organic materials

The pH of water after rinse should be the same as the rinse water before exposure to the acid wash process.

Coating Application

For normal coating thickness, the pipe temperature at the entrance of the coating station is normally between $433^\circ\text{F}/223^\circ\text{C}$ and $459^\circ\text{F}/237^\circ\text{C}$. The pre-heat temperature shall not exceed $500^\circ\text{F}/260^\circ\text{C}$. The heat source shall not leave a residue or contaminant on the pipe surface. Graduated Tempilstik crayons may be used to measure the temperature. Only a small spot of pipe shall be touched with the Tempilstik crayon. 3M™ Scotchtrak™ Optical Pyrometers or equivalent sensing device may be used in conjunction with Tempilstik crayons or contact pyrometers. All temperature measurement devices must be calibrated and in good working order.



3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 626-140 shall be applied to the pipe at the specified thickness using the best commercial practice. Typically, thicknesses are in the range of 15 mils/380 m to 30 mils/760 m. A suitable coating cutback shall be provided at each end of the pipe.

After application, the Scotchkote 626-140 coating shall be allowed to cure in accordance with the following:

| Minimum Time to Quench (sec) with 450°F/232°C application temperature | |
|---|-------------|
| Scotchkote 626-140 | 240 seconds |

Cure by residual heat; extra light wall pipe (e.g. 0.23 in./ 6 mm) may require additional cure. During the period of coating and curing, the pipe shall be handled so as to avoid damage to the coating.

After the coating has cured it shall be cooled with air or water spray to a temperature not to exceed 230°F/110°C for inspection and repair.

Inspection

Upon completion of the coating operation, but prior to storage, the coating shall be inspected for continuity in accordance with NACE Standard RP0490-01. The search electrode shall be steel spring or conductive rubber.

The thickness of the coating shall be checked with properly calibrated gauges and shall have a minimum thickness as specified.

Coating Repair

Pipe requiring limited repair due to scars, slivers, coating imperfections and other minor defects shall be repaired as follows:

Areas of pipe requiring small spot repairs shall be cleaned to remove dirt and damaged coating using surface grinders or other suitable means. All dust shall be wiped off. For pinholes only, surface preparation is not required other than removing surface dirt, oil, grease and other detrimental contaminant's which impair the adhesion of the repair material.

3M™ Scotchkote™ Liquid Epoxy Coating 323 shall be applied in small areas to the thickness as specified. The freshly coated area shall be allowed to properly cure prior to handling and storage. Liquid epoxy shall not be applied if the pipe temperature is 41°F/5°C or less, except when manufacturer's recommended heat curing procedures are followed.

Pipe with major coating defects, such as partially coated joints, unbonded coating or inadequate film thickness, shall be set aside for a decision by purchaser to accept, repair or reprocess.

Storage, Handling and Shipping

Pipe shall be handled and stored in a manner to prevent damage to pipe walls, beveled ends and coating. Pipe or coating damaged in handling or other operations shall be satisfactorily repaired.

Stacking in the yard shall be in accordance with good safety practices or in accordance with purchaser's specifications. Sufficient spacers and padding shall be used to prevent damage to coating.

Pipe will be transported from the coating yard to the job site by truck, rail or barge as specified in the purchase order. Pipe shall be shipped using sufficient dunnage to adequately protect the pipes and their external coating. Chains or wire rope shall not be used without sufficient padding to prevent damage to the coating.

Trucks and trailers used for hauling coated pipe shall be equipped with fenders and gravel guards to prevent road gravel or slag damage to the coating.

Pipe shall be loaded for shipping in compliance with existing shipping standards and regulations.

Handling and Safety Precautions

Read all Health Hazard, Precautionary and First Aid, Material Safety Data Sheet, and/or product label prior to handling or use.

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