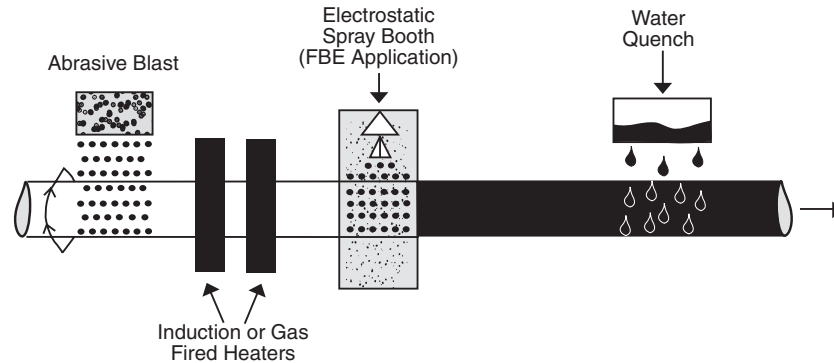


3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 6233

Application Guide



General

This document provides guidance for the plant application of 3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 6233.

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 solvents which do not leave a residue shall be used.

The exterior pipe surface shall be abrasive blast-cleaned to NACE No. 2/SSPC-SP10 ISO 8501:1, Grade SA 2 1/2 near-white finish using steel grit after pre-heating of pipe to sufficient temperature to remove all moisture. 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 slight 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.

The cleaning media shall be selected to achieve an anchor pattern profile of no less than 1.6 mils/40 μm or more than 4.3 mils/110 μm . 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 should not occur prior to heating the pipe.

Coating Application

For normal coating thickness the pipe temperature at the entrance of the coating station is normally between 425°F/218°C and 488°F/253°C. The pre-heat temperature shall not exceed 500°F/260°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 devices may be used in conjunction with Tempilstik® crayons. Infrared sensing devices may be used to monitor the temperature of the applied coating. Do not use on uncoated/bare steel.

3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 6233 shall be applied to the pipe at the specified thickness using the best commercial practice. A suitable coating cutback shall be provided at each end of the pipe.

After application, Scotchkote coating 6233 coating shall be allowed to cure in accordance with the following:

	Gel Time (sec)* 400°F/205°C	Time (sec)* 450°F/232°C
Scotchkote 6233 4G	9.5	40
Scotchkote 6233 8G	17	90
Scotchkote 6233 11G	25	110

*See Figures 1–4 for more details

Cure by residual heat; extra light wall pipe may require additional cure. See cure charts in figures 2, 3 and 4 for additional detail. 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 250°F/121°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.

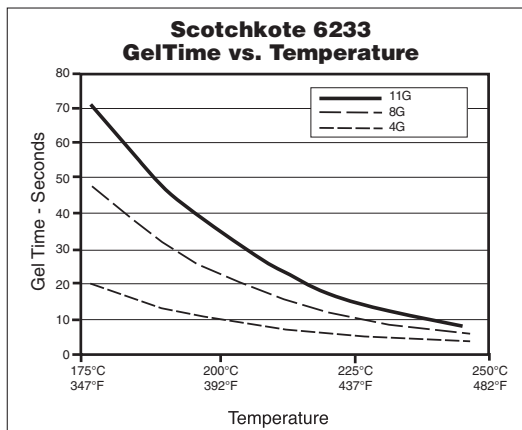


Figure 1

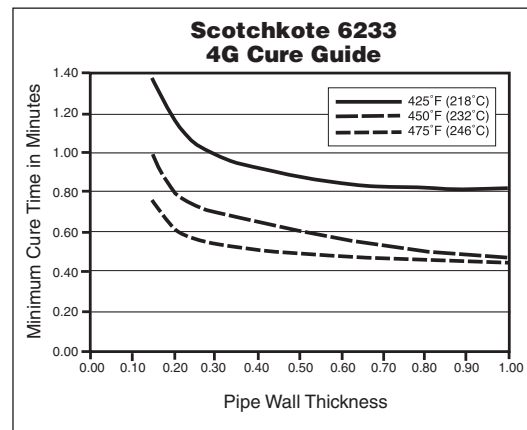


Figure 2

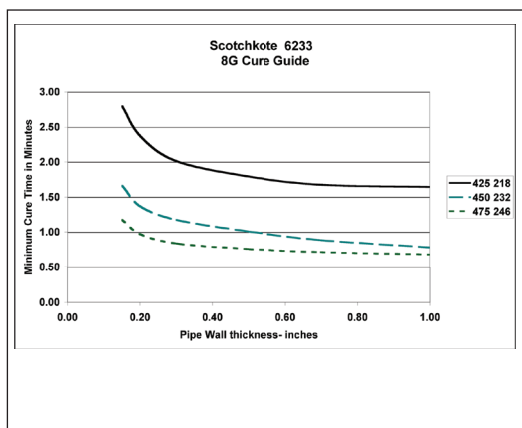


Figure 3

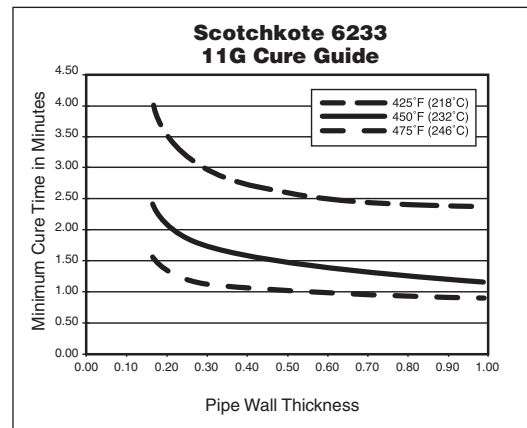


Figure 4

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 or 3M™ Scotchkote™ Liquid Epoxy Coating 327 shall be applied in small areas at a minimum thickness of 25 mils (625 µ). 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. Alternatively, for pinhole areas, the heat bondable polymeric 3M™ Scotchkote™ Hot Melt Patch Compound 226P shall be applied in small areas to a minimum thickness of 16 mils/400 µm in addition to the parent coating. Abrade the area with sandpaper. A non-contaminating heat source shall be used to heat the area to be repaired to approximately 350°F/177°C. When the patch compound sticks to the hot surface, it is hot enough. While continuing to heat the cleaned and prepared area, the patch compound shall be applied by rubbing the stick on the area to be repaired in circular motion to achieve a smooth, neat appearing patch. The patch shall be allowed to cool before handling.

Handling and Safety Precautions

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

Important Notice

All statements, technical information and recommendations related to 3M Products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using the 3M Product, you must evaluate it and determine if it is suitable for your intended application. Because conditions of Product use are outside of our control and vary widely you assume all risks and liability associated with such use. Any Product-related statements not contained in current 3M publications, or any contrary statements contained in your purchase order, shall have no force or effect unless expressly agreed to in writing by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability.

3M warrants that Product will conform to 3M published specifications upon shipment. If Product is proven not to have met the specifications your exclusive remedy and 3M's sole obligation will be, at 3M's option, to replace the Product

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.

Ordering Information/Customer Service

For ordering technical or product information, or a copy of the Material Safety Data Sheet, call:

Phone: 800/722-6721

Fax: 871/601-1305

or to refund the purchase price of the Product. **EXCEPT WHERE PROHIBITED BY LAW, THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR THOSE ARISING FROM A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE.** Buyer is an expert in its field and is responsible for determining if Products are suitable for a particular purpose or application. 3M has no obligation under this warranty with respect to any Product that has failed due to inadequate or improper storage, handling, surface preparation, application, or maintenance; failure to follow Product instructions; or alteration or damage to the Product caused by accident, neglect, or misuse. **EXCEPT WHERE PROHIBITED BY LAW, IN NO EVENT SHALL 3M BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL LOSS OR DAMAGES (INCLUDING LOST PROFITS) ARISING FROM THIS PRODUCT, REGARDLESS OF THE LEGAL THEORY ASSERTED.**



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