

# 3M™ Scotchkote™ Spray Grade Fusion Bonded Epoxy Coating 413

## Product Description

3M™ Scotchkote™ Spray Grade Fusion Bonded Epoxy Coating 413 is a one-part, heat curable, thermosetting epoxy coating designed for corrosion protection of reinforcing steel. The epoxy is applied to preheated steel as a dry powder which melts and cures to a uniform coating thickness. This bonding process provides excellent adhesion and coverage on concrete reinforcing bar, wire fabric, piling, tensioning hardware and other steel members of any size or shape. Scotchkote 413 is resistant to corrosive agents such as deicing salts, airborne salt spray, sea water, harsh chemicals, acid rain, carbonation, contaminated aggregate and concrete additives.

## Features

- No primer required
- Economical
- Improved UV resistance
- Fast curing for high-speed application
- Protects over wide temperature range
- Resists deicing salts
- Can be shipped with minimum damage
- Is not damaged by concrete embedment
- Resistant to cathodic disbondment
- Lightweight for lower shipping costs
- Will not sag, cold flow, or become soft in storage
- Easy visual inspection of coated articles
- Meets FHWA requirements
- Meets ASTM A 775/A 775M
- Meets AASHTO M 284 and AASHTO M 254
- Meets ASTM A 1078, type 1 and ASTM 1055
- Meets ASTM A 884

## General Application Steps

1. Remove oil, grease and loosely adhering deposits.
2. Using steel grit or a steel grit/shot mixture, blast clean the bar surface to the SSPC-SP No.10/NACE No.2 Near-White Blast Cleaning standard or ISO 8501 Sa2.5.
3. Preheat metal to 300°F to 460°F (149°C to 238°C).
4. Deposit Scotchkote 413 Spray Grade coating by electrostatic spray to the thickness required.
5. Cure by post baking according to cure guide below.
6. Electrically inspect for holidays after coating has cooled to 250°F (121°C) or lower.

## Cure Specifications

Scotchkote 413 coating must be cured to achieve maximum performance properties. Suggested application temperatures and cure times are listed in the cure guide. Post bake is required. Cure time can vary because of differences in heating systems. Applications at lower temperatures or on lightweight material may require additional cure.

### 3M™ Scotchkote™ Spray Grade Fusion Bonded Epoxy Coating 413 Cure Guide

Metal Temperature	Cure Time
350°F (177°C)	20 minutes
375°F (191°C)	12 minutes
400°F (204°C)	8 minutes
425°F (218°C)	6 minutes
450°F (232°C)	5 minutes

### 3M™ Scotchkote™ Spray Grade Fusion Bonded Epoxy Coating 413

Property	Value
Color	Green
Specific Gravity - Powder (Air Pycnometer)	1.21
Coverage	159 ft <sup>2</sup> /lb/mil (0,83 m <sup>2</sup> /kg/mm)
Gel Time	15 to 20 seconds at 400°F (204°C)
Minimum Explosive Concentration	0.03 oz/ft <sup>3</sup> (30,6 g/m <sup>3</sup> )



## 3M™ Scotchkote™ Spray Grade Fusion Bonded Epoxy Coating 413 Test Data

Property	Test Description	Results
Impact	ASTM G 14 1/8" x 3" x 3" (0,32 cm x 7,6 cm x 7,6 cm) steel panel, 5/8" (1,6 cm) radius tup	160 in•lbs 1,8 kg•m
	ASTM A 775	80 in•lbs 0,9 kg•m
Abrasion Resistance	ASTM A 775 CS-17 1000g weight / 1000 cycles	5 mg loss
Penetration	ASTM G 17 -40° to 240°F (-40° to 116°C)	0
Hardness	Knoop Hardness	≥ 16
Cathodic Disbondment	ASTM A 775, 1.5 volt 168 hours at 75°F (24°C), 3% NaCl 0.12 in (3 mm) intentional holiday	3.0 mmr
Chemical Resistance	ASTM A 775	No blistering, cracking or peeling
	45 days at 70°F (21°C) immersed in:	No blistering, cracking or peeling
	3 molar (25% CaCl)	Slight reduction in adhesion
	3 molar (10.7% NaOH) Saturated Ca(OH) <sub>2</sub>	No blistering, cracking or peeling
Bendability	Rebar bend, #5 rebar around 3.13" (79,5 mm) diameter mandrel	No cracks or tears
	180° at 20°F (-7°C)	
Chloride Permeability	FHWA-RD-74-18	< 2.86 x 10 <sup>-5</sup>
Salt Spray Resistance	ASTM A 775/A 775M ASTM B 117, coated rebar 5% NaCl 800 hrs at 95°F (35°C) 0.12 in (3mm) intentional holiday	2.0 disbondment radius average
Relative Bond Strength to Concrete	FHWA-RD-74-18	>88% of mean strength for uncoated bar

### Handling & Safety Precautions

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

### Important Notice

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### 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: 877/601-1305

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### Infrastructure Protection Division

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80-6111-8059-9 Rev. D