

3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 6233P

Data Sheet

July 2015

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.

Product Description

3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 6233P is a one-part, heat curable, thermosetting epoxy coating powder designed for corrosion protection of pipe.

Scotchkote Fusion Bonded Epoxy Coating 6233P is an advanced thermosetting epoxy coating that incorporates 3M's proprietary advanced adhesion promotion technologies. The patented formula is designed to be more resilient to disbondment when exposed to cathodic protection currents. Resulting in not only less total disbondment during long term testing, but also less variability between test samples. The advanced Scotchkote Coating 6233P 4G, 8G and 11G also incorporates advanced color stabilization technologies. Allowing for a more consistent final product appearance.

Physical Property	Typical Value US units (metric)
Color	Green
Specific Gravity - Powder	1.44
Coverage based on - Powder	133.47 ft. ² /lb/mil (0.694 m ² /kg/mm)
Gel Time at 400°F/204°C and Cure Time at 450°F/232°C CSA Z245.20 -2010 Clause 12.1 and 12.2	
6233P-4G Gel Time Cure Time	9.5 seconds ± 20% 30 seconds
6233P-8G Gel Time Cure Time	17 seconds ± 20% 60 seconds
6233P-11G Gel Time Cure Time	30 seconds ± 20% 90 seconds

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Chemical Restraints

Chemical Restraints (Test Method) ASTM G20 / 30 days / 23°C	
Acetic Acid (5%)	No blistering or disbondment
Acetone	No blistering or disbondment, but the coating is a little rubbery
Carbon Disulfide	No blistering or disbondment
Gasoline	No blistering or disbondment
Hydrochloric Acid (10%)	No blistering or disbondment
Kerosene	No blistering or disbondment
Lime Water, Saturated	No blistering or disbondment
Methyl Alcohol	No blistering or disbondment, but the coating is a little rubbery
Methyl Ethyl Ketone	No blistering or disbondment, but the coating is a little rubbery
Nitric Acid (10%)	Discoloration (photo on left); No blistering or disbondment
Sodium Carbonate Solution (20%)	No blistering or disbondment
Sodium Chloride Solution (10%)	No blistering or disbondment
Sodium Hydroxide Solution (10%)	No blistering or disbondment
Sulfuric Acid (30%)	No blistering or disbondment
Toluene	No blistering or disbondment
Trichloroethylene	No blistering or disbondment, but the coating is a little rubbery

Note: The typical values in this data sheet are based on lab prepared samples. Values shown are not to be interpreted as product specifications

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Physical and Electrical Properties

Physical Property (Test Method)	
Impact ASTM G14 (modified) 3/8 in (9.5 mm) thick plate	1.5J Pass
Cathodic Disbondment CSA-Z245.20- 2010 Clause 12.8 24 hour, 3.5 volt, 3% NaCl 149°F (65°C) 28 day, 1.5 volt, 3% NaCl 68°F (20°C) 28 day, 1.5 volt, 3% NaCl 149°F (65°C) 28 day, 1.5 volt, 3% NaCl 203°F (95°C)	1.2 mmr 1.6 mmr 3 mmr 4.75 mmr
Hot Water Resistance 24 hours, CSA-Z245.20-2010 Clause 12.14, 167°F (75°C) 28 day, CSA-Z245.20-2010 Clause 12.14, 167°F (75°C) 28 day, CSA-Z245.20-2010 Clause 12.14, 203°F (95°C)	1 rating 1 rating 2 rating
Flexibility (Mandrel Bend) CSA-Z245.20-2010 Clause 12.11, Temperature -22°F/-30°C	°/PD 3.0
Strained Polarization CSA Z245.20- 2010, 2.5° Strained, 28 day@ 68°F (20°C)	Pass (No cracking)
Porosity CSA-Z245.20-2010 Clause12.10 Interface Cross sectional	2 rating 2 rating
Thermal Analysis CSA-Z245.20 – 2010 Clause12.7 Tg (inflection) Tg (inflection)	57°C 103°C
Penetration ASTM G17 Test temperature 23°C	0 inches
Tabor Abrasion CS-17 wheel 5000 cycles/1kg load ASTM D4060	0.22 grams
Tensile/Elongation ASTM D2370	7500 lb _f /in ² Tensile Strength 7%- Elongation
Compression ASTM D695	12800 lb _f /in ²
Overlap Shear ASTM D1002	5000 lb _f /in ²
Durometer ASTM D2240	88 Shore D
Indentation Hardness ASTM D2583	32 Barcol

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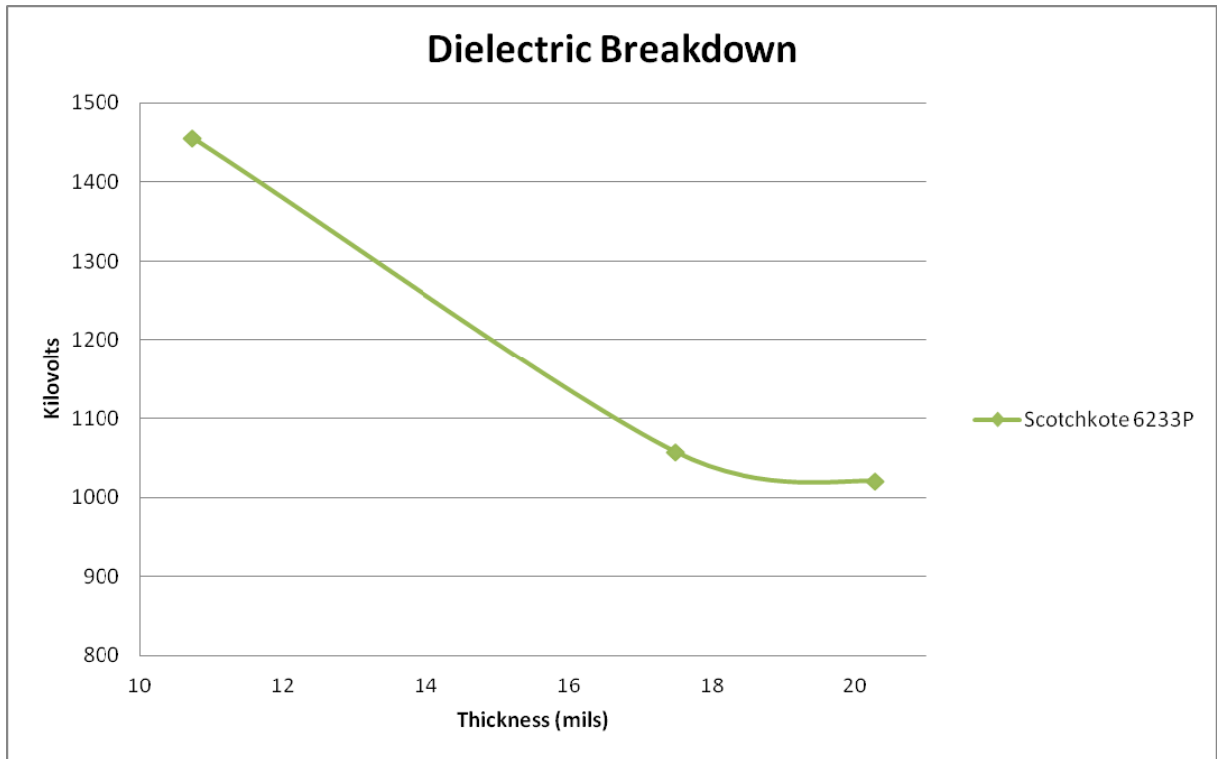
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**Cont.
Typical
Physical
and
Electrical
Properties**

Pull- Off Adhesion ASTM D4541	4451 PSI
Thermal Conductivity ASTM D5470 25°C 50°C 75°C 100°C 125°C 150°C	W/mK 0.2873 0.2921 0.2975 0.3147 0.285 0.2708
Thermal Shock Internal 3M Method 10 Cycles -100°F to 300°F	Pass no cracking, disbondment, or adhesion loss
Volume Resistivity ASTM D257	5.1×10^{14} Ohms-cm
Dielectric Strength ASTM D149	See Graph

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Figure 1



3M™ Scotchkote™ Fusion-Bonded Epoxy Coating 6233P

Figure 2

IR Spectra

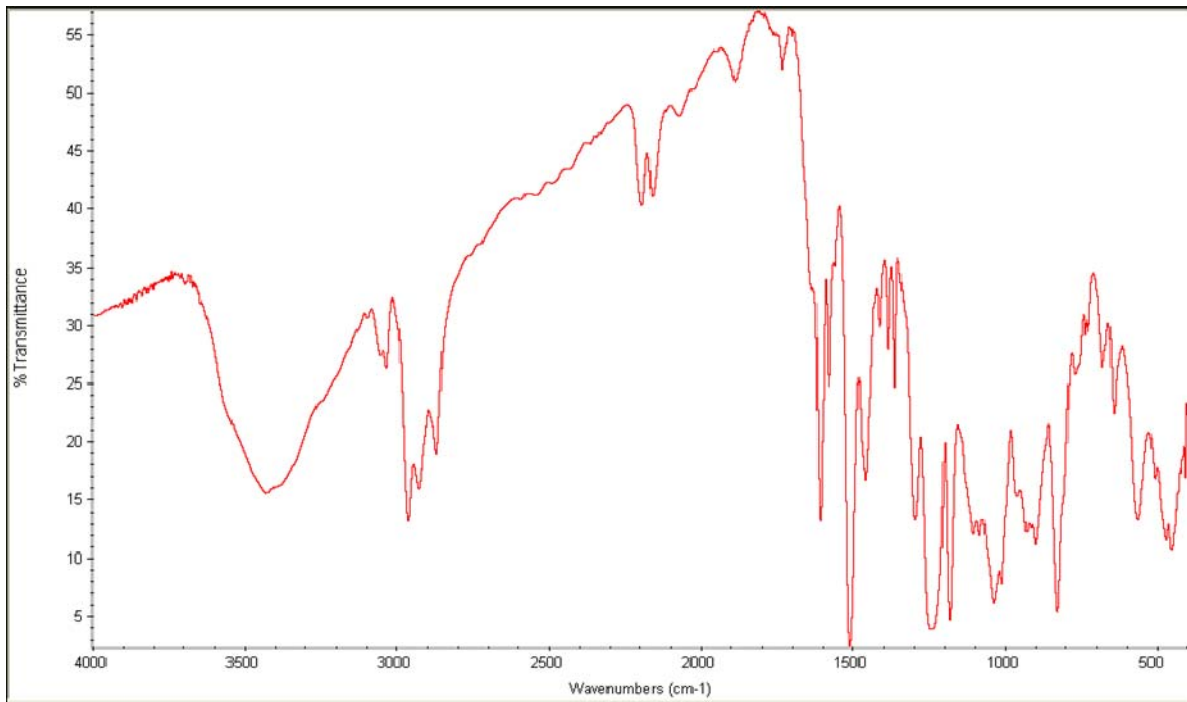
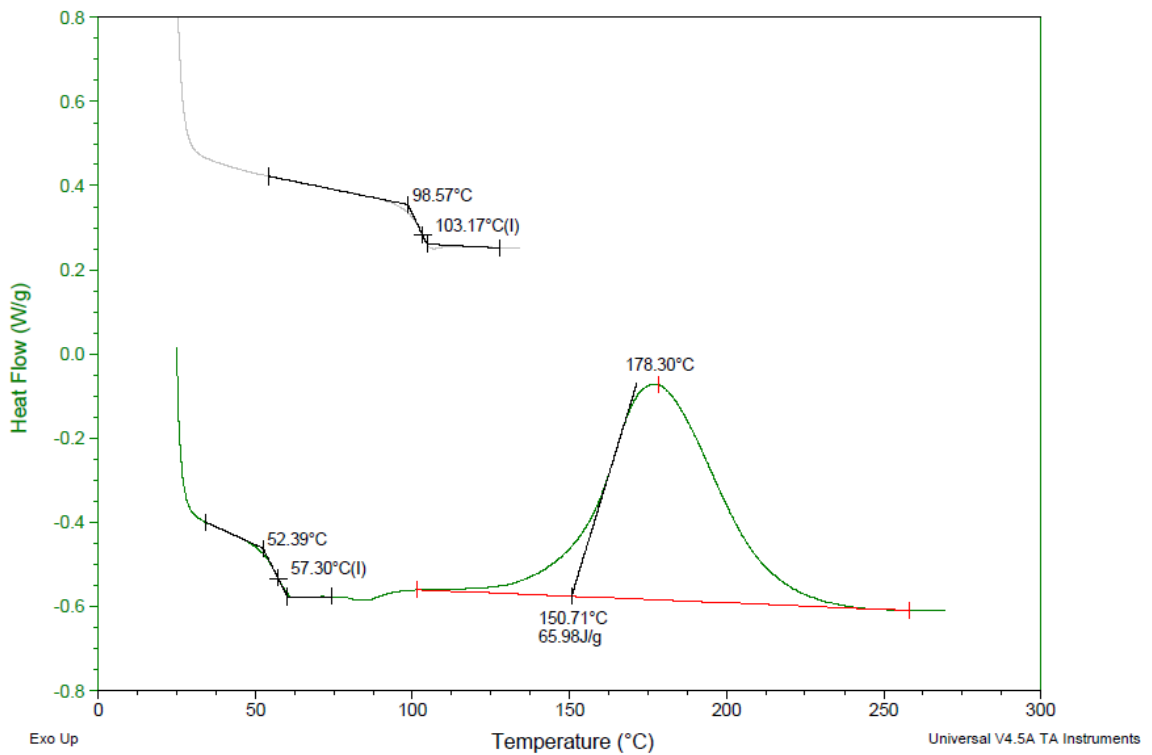


Figure 3

Differential Scanning Calorimetry



DSC Scan

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Shelf Life & Storage

This product has a 1-year shelf life from date of manufacture. Store in original sealed containers at temperatures less than 80°F (27°C).

Availability

For ordering call:
Phone: 800 722 6721
Fax: 877 601 1305

For Data Sheets and MSDS inquires please visit:
www.3m.com/corrosion

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