3M™ Scotchrap™ Tapes 50, 51 and Pipe Primer, 3M™ Scotchfil™ Electrical Insulation Putty,
All-Weather Corrosion Protection

Data Sheet **May 2013**

Description

3M™ Scotchrap™ Tapes 50 and 51 are tough, polyvinyl chloride based tapes with special high tack adhesives formulated to resist corrosion of metal piping systems above and below ground, fittings and joints on all mill-coated pipe and electrical conduit systems. These tapes are:

- Resistant to corrosive salt water, soil acids, alkalies and salts, common chemicals, chemical vapors, and exposure to outdoor weathering and sunlight.
- Resistant to impact, abrasions, punctures, and tears. Tape 50 is highly conformable, all-weather 10 mil (0,254 mm) thick tape designed for application over a wide temperature range. Tape 51 provides similar qualities in a thicker, 20 mil (0,508 mm) tape. Both tapes have electrical insulating properties.

3M™ Scotchrap™ Pipe Primer is a quick-dry, non-sag rubber base primer that permeates metal surface pits and irregularities, preparing the surface for tape application. The primer is compatible with the special adhesives on these tapes, as it enhances adhesion.

3M™ Scotchfil™ Electrical Insulation Putty is used as a build-up compound on highly irregular surfaces such as fittings and valves, providing a smooth, waterproof taping surface. The putty is soft and pliable – simply press putty into place on irregular surfaces, mold with finger pressure and over tape using standard methods.

Application of Primer, Putty and Tape:

The Scotchrap Tapes 50 and 51 are easy to apply without special tools or dangerous flame. However, a few general application procedures should be followed to obtain optimum performance. Surfaces to be wrapped should be clean, dry and free of oil, grease, and other contaminants. Blast removal of rust and scale is preferred. Welding slag and spatter, sharp edges or burrs should be chipped, grinded or filed.

Apply a uniform, continuous coating of the pipe primer to the prepared surface and let dry. Fill in irregular surfaces with the putty. Cover weld bead with one wrap of tape over the entire surface.

Straight pipe and conduit are normally spirally wrapped using tape width listed in coverage table. Field joints on mill-coated pipe can be wrapped spirally or with a cigarette wrap or wide tape. Unusually severe construction or soil conditions may require additional tape thickness or protective overwraps.

Application of Primer, Putty and Tape, *continued*

For below ground installation adequate provision should be taken to protect the coating from physical damage during pipe handling, lowering or backfilling operations.

The pipeline ditch should be free of rock or other sharp objects so the coated pipe rests on a smooth bed of soil. Backfill materials should also be free of rock or other sharp objects to avoid damage of the coating. After layer of debris-free soil has covered the pipe, general backfill may be used.

Typical Properties

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

3M™ Scotchrap™ Pipe Primer

Property	**Typical Value** US units (metric)
Color	Black
% Solids	30
Weight	7lbs. /gal. (0.84 kg/litre)
Coverage @ 1 mil (0,025 mm) dry film thickness	700 sq. ft. /gal. (17.4 m^2/litre)
Drying Time @ 75°F (24°C) and 50% RH 1 mil (0,025 mm) dry film thickness	15 min.
Flash Point	19°F (-7.2°C)

3M™ Scotchfil™ Electrical Insulation Putty

Property (Test Method ASTM D-1000 unless otherwise stated)	**Typical Value** US units (metric)
Color	Black
Thickness	125 mils
Elongation	1000% min.
Dielectric Strength	575 V/mil
Insulation Resistance	>1 x 10^6 Ω

3M™ Scotchrap™ Tapes 50 and 51, All-Weather Corrosion Protection Tapes

Property (Test Method ASTM D-1000 unless otherwise stated)	**50 Tape** US units (metric)	**51 Tape** US units (metric)
Classification Specification L-T-1512A (Federal)	Type III	Type II
Color - Backing	Black	Black
Color – Adhesive	Black	Black
Thickness	10 mils (0,254 mm)	20 mils (0,508 mm)
Elongation @ Break 10°F (-12°C) 74°F (23°C)	 100% 200%	 100% 150%
Breaking Strength	20 lb./in. (3,5 kN/m)	40 lb./in. (7,0 kN/m
Adhesion to Steel 10°F (-12°C) 74°F (23°C)	 30 oz/in (0,328 kN/m) 20 oz./in (0,219 kN/m)	 30 oz/in (0,328 kN/m) 20 oz./in (0,219 kN/m)
Adhesion to Backing 10°F (-12°C) 74°F (23°C)	 30 oz/in (0,328 kN/m) 20 oz./in (0,219 kN/m)	 30 oz/in (0,328 kN/m) 20 oz./in (0,219 kN/m)
Roll Unwind 10°F (-12°C) 74°F (23°C)	 16 oz/in (0,175 kN/m) 16 oz/in (0,175 kN/m)	 16 oz/in (0,175 kN/m) 16 oz/in (0,175 kN/m)

Typical Properties, ***continued***

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

3M™ Scotchrap™ Tapes 50 and 51, All-Weather Corrosion Protection Tapes, *continued*

Property (Test Method ASTM D-1000 unless otherwise stated)	**50 Tape** US units (metric)	**51 Tape** US units (metric)
Water Vapor Transmission Rate (ASTM D-3833) g/100 in^2 (645 cm^2) /24 hrs	1.0	1.0
Moisture Absorption (ASTM D-570)	.30%	.35%
Resistance to Weathering (3M) Weatherometer	100 Hrs.	100 Hrs.
Dielectric Break Down Voltage	12,000 volts	20,000 volts
Normal Application Temperature Range	+10°F to 150°F (-12°C to 65.6°C)	+10°F to 150°F (-12°C to 65.6°C)
Normal Service Temperature Range	-55°F to 175°F (-48°C to 80°C)	-55°F to 175°F (-48°C to 80°C)

Note: For 3M™ Scotchrap™ Tapes 50 and 51 to work properly, all metal surfaces must be coated with 3M™ Scotchrap™ Pipe Primer before wrapping with the tape.

Tape Width	# Rolls per Square
1”	12
2”	6
4”	3
6”	2
12”	1

All widths are in 100 ft. rolls. 1 square = 100 sq. ft. (i.e., a roll 1 ft. wide x 100 ft. long)
To convert to rolls, multiply the number of squares by the number of roll/square from the above tables

3M™ Scotchrap™ Tapes 50 and 51, All-Weather Corrosion Protection Tape – Pipe Coverage Table

Paper Size			Squares of Tape for 100 Linear Ft. Pipe	
Nominal I.D. (Inches)	O.D. (Inches)	Suggested Tape Width	Minimum Overlap 1/2”	Half-Lapped
1/2	0.84	1	0.44	0.44
3/4	1.05	2	0.37	0.55
1	1.32	2	0.46	0.69
1-1/4	1.66	2	0.58	0.87
1-1/2	1.90	2	0.66	0.99
2	2.38	2	0.83	1.25
2-1/2	2.88	2	1.00	1.51
3	3.50	4	1.05	1.83
3-1/2	4.00	4	1.20	2.09
4	4.50	4	1.35	2.36
5	5.57	4	1.59	2.92
6	6.63	6	1.89	3.47
7	7.63	6	2.18	3.99
8	8.63	6	2.46	4.52
10	10.75	6	3.07	5.63
12	12.75	6	3.64	6.67
14	14.00	6	4.00	7.33

3M™ Scotchrap™ Tapes 50 and 51, All-Weather Corrosion Protection Tapes – Pipe Coverage Table, *cont.*

Paper Size			Squares of Tape for 100 Linear Ft. Pipe	
Nominal I.D. (Inches)	O.D. (Inches)	Suggested Tape Width	Minimum Overlap 1/2"	Half-Lapped
16	16.00	6	4.57	8.37
18	18.00	6	5.14	9.42
20	20.00	6	5.71	10.47
22	22.00	6	6.28	11.51
24	24.00	6	6.85	12.56
26	26.00	6	7.42	13.61
28	28.00	6	8.00	14.65
30	30.00	6	8.56	15.70
36	36.00	6	10.28	18.84

While the chart gives coverage data for most common sizes, the following formula may be helpful for non-standard items:

Squares of Tape = □ (LP) ((DP) TW
1200 (TW-OV)

Where □ = 3.14

LP = length of pipe (ft.)
DP = outside diameter of pipe (in.)
TW = tape width (in.)
OV = overlap of tape (in.)

When using metrics,

Squares of tape = □ (LP) ((DP) TW
9290 (TW-OV)

Metric Conversions

1 inch = 25,4 millimeters
1 foot = 0,3048 meter
1 sq. ft. = 0,092 sq. meter
1 gallon = 3,785 liters

Primer Coverage

1 gallon of 3M Scotchrap Pipe Primer will cover up to 700 sq. ft., depending on the surface condition of the pipe. To calculate area of pipe for primer coverage:

Sq. ft. of pipe = □ (DP ÷ 12) (LP)

Shelf Life & Storage	These products have a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).
Availability	Please contact your local distributor; available from 3M.com/electrical [Where to Buy] or call 1-800-245-0329.
Important Notice	All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product, which are not contained in 3M's current publications, or any contrary statements contained on your purchase order, shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.
Warranty; Limited Remedy; Limited Liability	This product will be free from defects in material and manufacture at the time of purchase. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

3M, Scotchrap and Scotchfil are trademarks of 3M Company.

3M

Electrical Markets Division
6801 River Place Blvd.
Austin, TX 78726-9000
800.245.3573
FAX: 800.245.0329
www.3M.com/electrical

Please recycle
© 3M 2013 All rights reserved
78-8129-9283-8 Rev C