

Scotchrap™ 50, 51 and Piper Primer Scotchfil™ Electrical Insulation Putty

All Weather Corrosion Protection Data Sheet



Wrap Your Job Up Right with Scotchrap™ Tapes

Scotchrap 50 and 51 Tapes 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. Scotchrap 50 and 51 tapes are:

- ❖ Resistant to corrosive salt water, soil acids, alkalis and salts, common chemicals, chemical vapours and exposure to outdoor weathering and sunlight.
- ❖ Resistant to impact, abrasions, punctures, and tears. Scotchrap 50 is a highly conformable, all weather 0.254mm (10mil) thick tape designed for application over a wide temperature range. Scotchrap 51 provides similar qualities in a thicker, 0.508mm (20mil) tape. Both tapes have high electric strength, and excellent insulating properties.

Scotchrap Pipe Primer

Quick dry, non-sag rubber based primer that permeates metal surface pits and irregularities, preparing the surface for tape application. Compatible with the special adhesives on Scotchrap Tapes, it enhances adhesion.

Typical Properties*

Property	Value
Colour	Black
% Solids	30
Weight	0.84kg/litre (7lbs/gal)
Coverage @ 0.025mm (1 mil) dry film thickness	17.4m ² /litre (700sq.ft/gal)
Drying time @ 24°C (75°F) and 50% RH 0.025mm (1 mil) dry film thickness	15 minutes
Flash point	-26°C (-14°F)

Scotchfil Electrical Insulation Putty

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

Typical Properties

Property	Value
Colour	Black
Thickness	ASTM – D – 1000 3.125mm (125 mil)
Elongation	ASTM – D – 1000 1000% min
Dielectric strength	ASTM – D – 1000 575V/mil
Insulation resistance	ASTM – D – 1000 >1 x 10 ⁶ megaohms

Application of Primer, Putty and Tape

Scotchrap tapes 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, ground or filed.

Apply a uniform, continuous coating of Scotchrap Pipe Primer to the prepared surfaces and let dry. Fill in irregular surfaces with Scotchfil Electrical Insulation Putty. Cover weld beads with one wrap of tape over the entire surface.

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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 of wide tape. Unusually severe construction or soil conditions may require additional tape thickness or protective overwraps. For below ground installation adequate provisions should be taken to protect the coating from physical damage during pipe handling, lowering or back filling operations. The pipeline ditch should be free of rock or other sharp objects so the coated pipe rests on a smooth bed of soil. Back fill 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 back fill may be used.

Scotchrap All Weather Corrosion Protection Tapes – Typical Properties

Property	Test Method	50 Tape	51 Tape
Classification Specification	Federal	Type III	Type II
L-T-1512A			
Colour Backing	-	Black	Black
Colour Adhesive	-	Black	Black
Thickness	ASTM – D – 1000	0.254mm (10mil)	0.508mm (20 mils)
Elongation @ Break	ASTM – D – 1000		
-12°C (10°F)		100%	100%
23°C (74°F)		200%	150%
Breaking Strength	ASTM – D – 1000	3.5kN/m	7,0kN/m
Adhesion to Steel	ASTM – D – 1000		
-12°C (10°F)		0.328kN/m	0.328kN/m
23°C (74°F)		0.219kN/m	0.219kN/m
Adhesion to Backing	ASTM – D – 1000		
-12°C (10°F)		0.328kN/m	0.328kN/m
23°C (74°F)		0.219kN/m	0.219kN/m
Roll Unwind	ASTM – D – 1000		
-12°C (10°F)		0.175kN/m	0.175kN/m
23°C (74°F)		0.175kN/m	0.175kN/m
Water Vapour Transmission Rate			
645cm ² (g/100 in ²)/24hrs	ASTM – D – 3833	1.0	1.0
Moisture Absorption	ASTM – D – 570	.30%	.35%
Resistance to Weathering	3M	100Hrs	100Hrs
Weatherometer			
Dielectric Strength	ASTM – D – 1000	12,000 Volts	20,000 Volts
Normal Application		-12°C to 65.6°C	-12°C to 65.6°C
Temperature Range		(10°F to 150°F)	(10°F to 150°F)
Normal Service		-48°C to 80°C	-48°C to 80°C
Temperature Range		(-55°F to 175°F)	(-55°F to 175°F)

* This data is not to be used for specification. Values listed are for typical properties and should not be considered minimum or maximum. NOTE: For the Scotchrap tapes to work properly, all metal surfaces must be coated with 3M Scotchrap Pipe Primer before wrapping with the tape.



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Coverage Tables

See chart on Page 4.

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

When using imperial:

$$\text{Squares of Tape} = \frac{\pi (\text{LP}) (\text{DP}) \text{TW}}{1200 (\text{TW}-\text{OV})}$$

When using metric:

$$\text{Squares of Tape} = \frac{\pi (\text{LP}) (\text{DP}) \text{TW}}{9290 (\text{TW}-\text{OV})}$$

Where

π	=	3.14,
LP	=	length of pipe (ft/M)
DP	=	outside diameter of pipe (inches/mm)
TW	=	tape width (inches/mm)
OV	=	overlap of tape (inches/mm)

4.546 litres of 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 = $\pi (\text{DP} / \text{TW} 12) (\text{LP})$

Metric Conversion:

25.4mm	=	1 inch
0.3048m	=	1 foot
0.092 sq m	=	1 sq ft
3.785ltrs	=	1 gallon

Scotchrap All Weather Corrosion Protection Tape

Tape Width	# Rolls per Square
25.4mm (1")	12
50.8mm (2")	6
101.6mm (4")	3
152.4mm (6")	2
304.8mm (12")	1

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

Shelf Life

Scotchrap™ Pipe and Primer, Scotchfil™ Electrical Insulation Putty and Scotchrap Tapes have a 5-year shelf life (from date of manufacturer) when stored under the following recommended storage conditions. Store behind present stock in a clean and dry place at a temperature of 21°C (70°F) and 40 – 50% relative humidity. Good stock rotation is recommended. Scotchrap 50 and 51 are available in the following standard roll sizes:

25.4mm (1in) x 30.5m (100ft)	50.8mm (2in) x 30.5m (100ft)
101.6mm (4in) x 30.5m (100ft)	152.4mm (6in) x 30.5m (100ft)

Other lengths and widths available upon request.

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3M UK PLC
Electrical Products
3M House, PO Box 1
Bracknell, Berkshire RG12 1JU
Telephone: 01344 858616
Fax: 01344 858758

3M Ireland
Sales Office
3M House, Adelphi Centre
Dun Laoghaire, Co Dublin, Ireland
Telephone: 353 1 280 3555
Fax: 353 1 280 3509

3M UK PLC
Sales Office
PO Box 393
Bedford MK41 0YE
Telephone: 01234 229462
Fax: 01234 229433



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PIPE SIZE

Nominal ID		Nominal OD		Suggested tape width		Squares of Tape per:-			
(inches)	(mm)	(inches)	(mm)	(inches)	(mm)	100 linear Feet pipe		100 Linear Meters pipe	
						Min overlap 1/2"	Half Lapped	Min overlap 1/2"	Half Lapped
0.5	12.70	0.84	21.34	1	25.4	0.44	0.44	1.44	1.44
0.75	19.05	1.05	26.67	2	50.8	0.37	0.55	1.20	1.80
1	25.40	1.32	33.53	2	50.8	0.46	0.69	1.51	2.27
1.25	31.75	1.66	42.16	2	50.8	0.58	0.87	1.90	2.85
1.5	38.10	1.90	48.26	2	50.8	0.66	0.99	2.17	3.26
2	50.80	2.38	60.45	2	50.8	0.83	1.25	2.72	4.09
2.5	63.50	2.88	73.15	2	50.8	1	1.51	3.30	4.95
3	76.20	3.50	88.90	4	101.6	1.05	1.83	3.43	6.01
3.5	88.90	4.00	101.60	4	101.6	1.2	2.09	3.92	6.87
4	101.60	4.50	114.30	4	101.6	1.35	2.36	4.42	7.73
5	127.00	5.57	141.48	4	101.6	1.59	2.92	5.47	9.56
6	152.40	6.63	168.40	6	152.4	1.89	3.47	6.21	11.38
7	177.80	7.63	193.80	6	152.4	2.18	3.99	7.15	13.10
8	203.20	8.63	219.20	6	152.4	2.46	4.52	8.08	14.82
10	254.00	10.75	273.05	6	152.4	3.07	5.63	10.07	18.46
12	304.80	12.75	323.85	6	152.4	3.64	6.67	11.94	21.89
14	355.60	14.00	355.60	6	152.4	4	7.33	13.11	24.04
16	406.40	16.00	406.40	6	152.4	4.57	8.37	14.98	27.47
18	457.20	18.00	457.20	6	152.4	5.14	9.42	16.86	30.91
20	508.00	20.00	508.00	6	152.4	5.71	10.47	18.73	34.34
22	558.80	22.00	558.80	6	152.4	6.28	11.51	20.60	37.77
24	609.60	24.00	609.60	6	152.4	6.85	12.56	22.48	41.21
26	660.40	26.00	660.40	6	152.4	7.42	13.61	24.35	44.64
28	711.20	28.00	711.20	6	152.4	8	14.65	26.22	48.08
30	762.00	30.00	762.00	6	152.4	8.56	15.7	28.10	51.51
36	914.40	36.00	914.40	6	152.4	10.28	18.84	33.72	61.81

3M UK PLC
Electrical Products
 3M House, PO Box 1
 Bracknell, Berkshire RG12 1JU
 Telephone: 01344 858616
 Fax: 01344 858758

3M Ireland
Sales Office
 3M House, Adelphi Centre
 Dun Laoghaire, Co Dublin, Ireland
 Telephone: 353 1 280 3555
 Fax: 353 1 280 3509

3M UK PLC
Sales Office
 PO Box 393
 Bedford MK41 0YE
 Telephone: 01234 229462
 Fax: 01234 229433