Technical data sheet

Product:	50,51
Manufacturer:	3M DEUTSCHLAND GMBH
Product group:	ELEKTRO
Article group:	KLEBEBAND
Download:	30.08.2025

SCOTCHRAP ® TAPES 50, 51 AND PIPE PRIMER

Tewipack Uhl GmbH
Industriestraße 15
D-75382 Althengstett

Telephone:
+49(0)7051/9297-0
Fax:
+49(0)7051/9297-99

E-Mail:
info@tewipack.de
Website:
www.tewipack.de

Managing director:
Alexander Uhl,
Michael Uhl
HRB 330424
Amtsgericht
Stuttgart

Bank details:
Sparkasse
Pforzheim
Calw
BLZ 666 500
85
Konto 17 787

Commerzbank
Sindelfingen
BLZ 603 400 71
Konto 8 001 166

Vereinigte
Volksbank AG
Böblingen
BLZ 603 900 00
Konto 80 089
003

Postbank
Stuttgart
BLZ 600 100
70
Konto 146
294 708

Scotchrap® Tapes 50, 51 and Pipe Primer, Scotchfil® Electrical Insulation Putty

All-Weather Corrosion Protection

1. Product Description

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 0,254 mm thick tape designed for application over a wide temperature range. Tape 51 provides similar qualities in a thicker, 0,508 mm tape. Both tapes have electrical insulating properties.

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.

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.

2. Applications

- 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.

- 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.

3. Typical Properties

Not for specifications. Values are typical, not to be considered minimum or maximum.
Properties measured at room temperature 23℃ unless otherwise stated.

Scotchrap® Pipe Primer

Physical Properties	**Typical Value**
Color	Black
% Solids	30
Weight	0,84kg/litre
Coverage @ 0,025 mm dry film thickness	17,4 m^2/litre
Drying Time @ 24℃ and 50% RH 0,025 mm dry film thickness	15 min
Flash Point	-26℃

Scotchfil® Electrical Insulation Putty
Test Method ASTM D1000 unless otherwise stated

Physical Properties	**Typical Value**
Color	Black
Thickness	3,18 mm
Elongation	1000% min.
Dielectric Strength	22,6 kV/mm
Insulation Resistance	>1 x 10^6 Ω

Scotchrap® Tapes 50 and 51, All-Weather Corrosion Protection Tapes
Test Method ASTM D1000 unless otherwise stated

Physical Properties	**50 Tape**	**51 Tape**
Classification Specification L-T-1512A (Federal)	Type III	Type II
Color - Backing	Black	Black
Color - Adhesive	Black	Black
Thickness	0,25 mm	0,51 mm
Elongation @ Break -12℃ 23℃	 100% 200%	 100% 150%
Breaking Strength	3,5 kN/m	7,0 kN/m
Adhesion to Steel -12℃ 23℃	 0,33 kN/m 0,22 kN/m	 0,33 kN/m 0,22 kN/m
Adhesion to Backing -12℃ 23℃	 0,33 kN/m 0,22 kN/m	 0,33 kN/m 0,22 kN/m
Roll Unwind -12℃ 23℃	 0,18 kN/m 0,18 kN/m	 0,18 kN/m 0,18 kN/m
Water Vapor Transmission Rate ASTM D3833 645 cm^2/24 hrs	 1.0	 1.0
Moisture Absorption ASTM D570	.30%	.35%
Resistance to Weathering (3M) Weatherometer	100 hrs	100 hrs
Dielectric Break Down Voltage	12 kV	20 kV
Normal Application Temperature Range	-12℃ to 65,6℃	-12℃ to 65,6℃
Normal Service Temperature Range	-48℃ to 80℃	-48℃ to 80℃

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

Tape Width	# Rolls per Square
25,4 mm	12
50,8 mm	6
101,6 mm	3
152,4 mm	2
304,8 mm	1

All widths are in 30,5 m rolls. 1 square = 9,3 m^2 (i.e., a roll 30,5 cm wide x 30,5 m long)
To covert to rolls, multiply the number of squares by the number of rolls/square from the above tables.

Scotchrap® Tapes 50 and 51, All-Weather Corrosion Protection Tapes – Pipe Coverage Table

Paper Size			Squares of Tape for 30,5 m Pipe	
Nominal I.D. (mm)	O.D. (mm)	Suggested Tape Width	Minimum Overlap 12,7 mm	Half-Lapped
12,7	21,3	25,4	11,2	11,2
19,1	26,7	50,8	9,4	14,0
25,4	33,5	50,8	11,7	17,5
31,8	42,2	50,8	14,7	22,1
38,1	48,3	50,8	19,8	25,1
50,8	60,4	50,8	21,1	31,7
63,5	73,2	50,8	25,4	38,4
76,2	88,9	101,6	26,7	46,5
88,9	101,6	101,6	30,5	53,1
102	114,3	101,6	34,3	59,9
127	141,5	101,6	40,4	74,2
152	168,4	152,4	48,0	88,1
178	193,8	152,4	55,4	101,3
203	219,2	152,4	62,5	114,8
254	273,1	152,4	78,0	143,0
305	323,8	152,4	92,5	169,4
356	355,6	152,4	101,6	186,2
406	406,4	152,4	116,1	212,6
457	457,2	152,4	130,6	239,3
508	508,0	152,4	145,0	265,9
559	558,8	152,4	159,5	292,4
610	609,6	152,4	174,0	319,0

Paper Size			Squares of Tape for 30,5 m Pipe	
Nominal I.D. (mm)	O.D. (mm)	Suggested Tape Width	Minimum Overlap 12,7 mm	Half-Lapped
660	660,4	152,4	188,5	345,7
711	711,2	152,4	203,2	372,1
762	762,0	152,4	217,4	398,8
914	914,4	152,4	261,1	478,5

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

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

Where π = 3,14
LP = length of pipe (m)
DP = outside diameter of pipe (mm)
TW = tape width (mm)
OV = overlap of tape (mm)

Primer Coverage
3,785 l of Scotchrap® Pipe Primer will cover up to 65 m^2 depending on the surface condition of the pipe. To calculate
area of pipe for primer coverage:

$$0{,}092\ m^2 \text{ of pipe} = \pi\ (DP\ TW\ 12)\ (LP)$$

4. User Information

4.1 Shelf Life & Storage

This product has a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10℃ to 27℃ and <75% relative humidity).

4.2 Availability

Please contact your local distributor.

5. Additional Information

To request additional product information see address below.

Important Notice

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application.

Values presented have been determined by standard test methods and are average values not meant to be used for specification purposes.

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