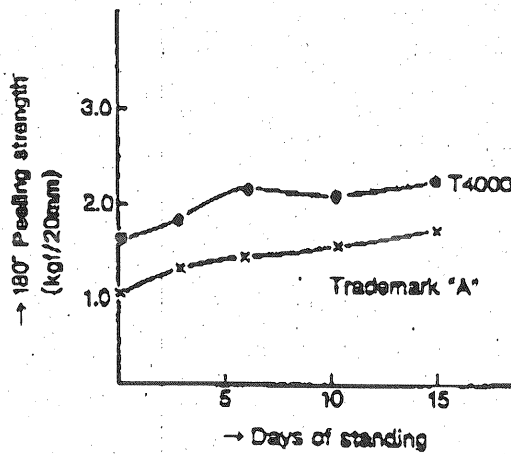


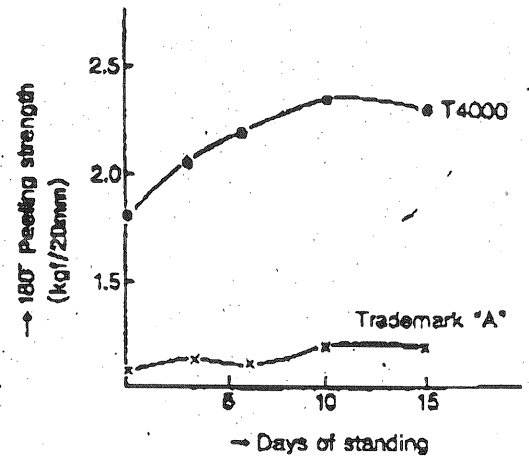
● THERMAL AGING

Standing test in the atmosphere



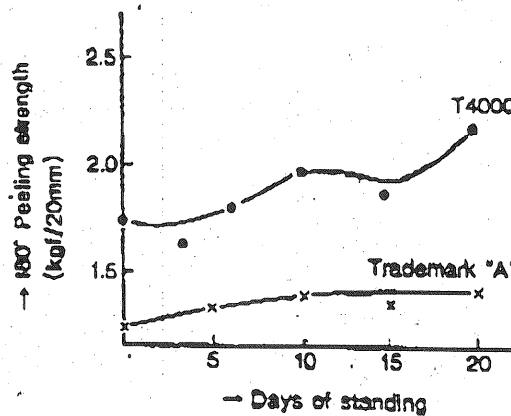
● MOISTURE RESISTANCE

Standing test in the atmosphere of 50°C and relative humidity of 90 %



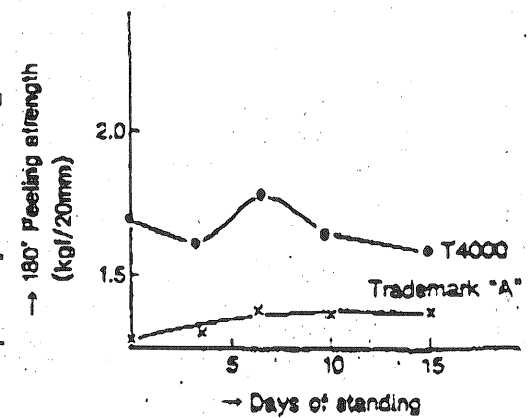
● WATER RESISTANCE

standing test in water at 40°C

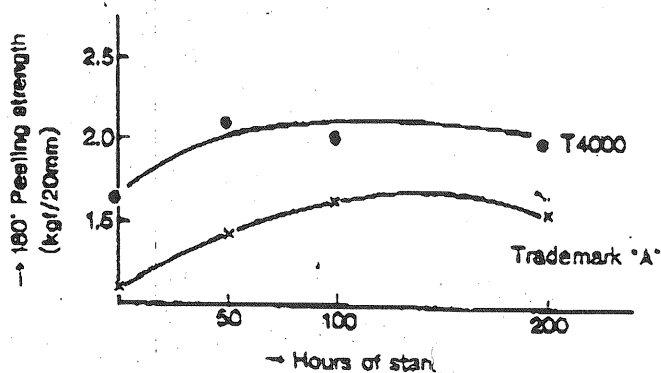


● OIL RESISTANCE

Standing test in machine oil at 40°C



● WEATHERING

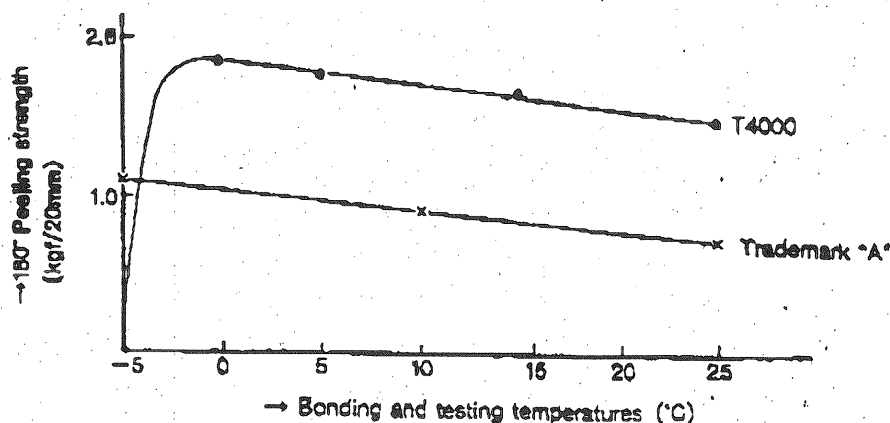


Industrial Adhesive Tape T4000

WORKABILITY

Low-temperature adhesion

T4000 provides high adhesion even in the bonding work at low temperatures.



CAUTION: While this report is based on our company's reliable testing, this does not imply that the effects noted herein are guaranteed. The user is requested to use this product at his own risk after thorough study of the purposes for which the product is designed and the conditions under which it is used.

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PGGU2

August 10, 1995

Component - Marking and Labeling System Materials - Component

SONY CHEMICALS CORP

MH15431 (M)

(B-cont from A-card)

T3500, T3500S, T3500SW, T3500W. For bonding aluminum (thickness .007 to 0.020 in), polycarbonate (thickness .019 to .079 in) and acrylic (thickness .019 to .079 in) to acrylonitrile butadiene styrene (ABS) plastic, maximum surface temperature 80 C (176 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water.

T4000, T4000W. For bonding aluminum (thickness .007 to 0.020 in), polycarbonate (thickness .019 to .079 in) and acrylic (thickness .019 to .079 in) to acrylonitrile butadiene styrene (ABS) plastic, maximum surface temperature 80 C (176 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors to high humidity and occasional exposure to water.

Reports: January 13, 1988; January 13, 1988.

Replaces MH15431B dated March 4, 1994.

663476001

Underwriters Laboratories Inc.®

[Cont on C card]

011/0226605

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SA 規格書 1/5

SUMITOMO ELECTRIC FINE POLYMER, INC.

910, Oaza Noda, Kumatori-cho, Sennan-gun, Osaka, 590-0451 JAPAN

Date : Dec. 24, 1999

No. : RE4-0180C

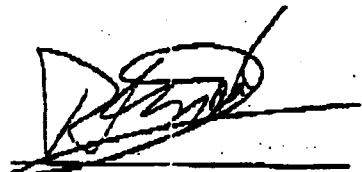
Request : SUMIPAC CORPORATION

SPECIFICATION

FOR

SUMITUBE A

Authorized by



J. Kishimoto
Senior Engineer,
Irradiated Products Group
Engineering Department

Prepared by



C. Sasaki
Engineer,
Irradiated Products Group
Engineering Department



SA規格書 2/5

RE4-0180C

SUMITUBE A SPECIFICATION1. Scope

This specification covers SUMITUBE A.

2. Feature

This product is irradiated cross-linked, thermally-stabilized, flexible polyolefin heat-shrinkable tubing.

3. Colors

Black, Brown, Red, Orange, Yellow, Green, Blue, Gray, White and Clear Colors conform to SUMITOMO's standard.

4. Sizes

Sizes are specified in Table 1.

5. Properties

Properties are specified in Table 2.

6. Test method6-1. Inside diameter

Inside diameter shall be measured by using a gage rod or a taper gage.

In case of using a gage rod---- Read the value of the maximum gage rod which passes freely into the tubing without expanding the wall of tubing.

In case of using a taper gage-- Read the value on the gage when tubing isn't expanded by insertion and there is no visible space between the end of tubing and the taper gage.

6-2. Wall thickness

Wall thickness shall be measured by a pin-dial gage or a micrometer at several points.

6-3. Shrinkable condition

Tubing shall be fully recovered at 125°C for 1 minute in an oil bath.



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RE4-0180C

6-4. Longitudinal change

Tubing shall be cut into about 100 mm lengths and measured.
After full recovery, the length shall be remeasured and the
longitudinal change shall be calculated from the following formula:

$$\text{Longitudinal change(\%)} = \frac{\text{Length after full recovery} - \text{Initial length}}{\text{Initial length}} \times 100$$

6-5. Properties

Test methods conform to JIS-C-2133.

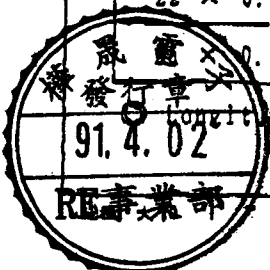


RE4-0180C

Table 1. Sizes

Trade Size [mm]	As supplied [mm]		After recovered [mm]		Standard length [m] (Min.)	
	Inside diameter	Wall thickness (Nom.)	Inside diameter (Max.)	Wall thickness	Cuts	Spool
1.5 × 1.2	2.10 ± 0.30	0.2	0.8	0.4 ± 0.1	1	200
2 × 1.2	2.60 ± 0.30	0.2	1.3	0.4 ± 0.1	1	200
2.5 × 1.2	3.10 ± 0.30	0.2	1.5	0.4 ± 0.1	1	200
3 × 1.2	3.60 ± 0.30	0.2	1.8	0.4 ± 0.1	1	200
3.5 × 1.2	4.10 ± 0.30	0.2	2.0	0.4 ± 0.1	1	100
4 × 1.2	4.60 ± 0.30	0.2	2.3	0.4 ± 0.1	1	100
5 × 1.2	5.60 ± 0.30	0.2	2.9	0.4 ± 0.1	1	50
6 × 0.25	6.5 ± 0.3	0.25	3.5	0.5 ± 0.1	1	50
7 × 0.25	7.5 ± 0.3	0.25	4.2	0.5 ± 0.1	1	50
8 × 0.25	8.5 ± 0.3	0.25	4.7	0.5 ± 0.1	1	50
9 × 0.25	9.6 ± 0.3	0.25	5.4	0.5 ± 0.1	1	50
10 × 0.25	10.5 ± 0.4	0.25	6.0	0.5 ± 0.1	1	50
11 × 0.25	11.5 ± 0.4	0.25	7.0	0.5 ± 0.1	1	50
12 × 0.3	12.4 ± 0.3	0.3	7.6	0.6 ± 0.1	1	50
13 × 0.3	13.4 ± 0.3	0.3	8.0	0.6 ± 0.1	1	50
14 × 0.3	14.4 ± 0.3	0.3	9.0	0.6 ± 0.1	1	50
15 × 0.3	15.4 ± 0.3	0.3	10.0	0.6 ± 0.1	1	50
16 × 0.3	16.4 ± 0.3	0.3	10.5	0.6 ± 0.1	1	50
18 × 0.3	18.4 ± 0.3	0.3	11.5	0.6 ± 0.1	1	50
20 × 0.3	20.4 ± 0.3	0.3	13.0	0.6 ± 0.1	1	50
22 × 0.3	22.4 ± 0.4	0.3	14.0	0.6 ± 0.1	1	50
25 × 0.3	25.5 ± 0.5	0.3	15.0	0.6 ± 0.1	1	50

Longitudinal change : -15% min.



RE4-0180C

Table. 2 Properties

Properties	Unit	Requirement
Operation Temperature range	°C	-55 ~ 105
Shrinkage Beginning temperature	°C	75
Shrinkage Finishing temperature	°C	115
Longitudinal change	%	-15 . MIN.
Dielectric Voltage Withstand	V	No break down (A.C. 2.5kV × 1 minute)
Volume resistivity	Ω·cm	10 ¹⁰ . MIN.
Tensile strength	MPa(kg/cm ²)	10.8(1.05) . MIN.
Ultimate elongation	%	200 . MIN.





VHB™ Double Coated Acrylic Foam Tapes and Adhesive Transfer Tapes

Technical Data

August, 1994

Supersedes December, 1991

Adhesive Description 3M VHB™ (Very High Bond) Tapes utilize high performance adhesives which have excellent long-term holding power. The peel adhesion and tensile holding power of tapes in the VHB family are significantly higher than typical pressure sensitive tapes.

Product Description VHB Tapes are ideal for use in many interior and exterior industrial applications. In many situations they can replace rivets, spot welds, liquid adhesives, and other permanent fasteners.

Each tape in the VHB family has specific features. These can include high tensile, shear and peel adhesion, resistance to solvents, moisture and plasticizer migration, U.L. recognition, low outgassing, film liners, conformability and adhesive which can be applied at temperatures as low as 32°F (0°C).

VHB Tapes are ideal for bonding a variety of substrates, including most metal, sealed wood and glass, as well as many plastics, composites and painted surfaces.

Note: All VHB Tapes should be thoroughly evaluated by the user under actual conditions with intended substrates to determine whether a specific VHB tape is fit for a particular purpose and suitable for user's method of application, especially if expected use involves extreme environmental conditions.

Products

Double Coated Acrylic Foam Tapes

4905	0.020 in.	(0.5 mm)
4910	0.040 in.	(1.0 mm)
4920	0.015 in.	(0.4 mm)
4925	0.025 in.	(0.64 mm)
4926*	0.015 in.	(0.4 mm)
4929	0.025 in.	(0.64 mm)
4930	0.025 in.	(0.64 mm)
4932	0.025 in.	(0.64 mm)
4936*	0.025 in.	(0.64 mm)
4940	0.045 in.	(1.1 mm)
4941*	0.045 in.	(1.1 mm)
4943F	0.045 in.	(1.1 mm)
4945	0.045 in.	(1.1 mm)
4946F	0.045 in.	(1.1 mm)
4949	0.045 in.	(1.1 mm)
4950	0.045 in.	(1.1 mm)
4951	0.045 in.	(1.1 mm)
4952	0.045 in.	(1.1 mm)
4955	0.080 in.	(2.0 mm)
4956*	0.062 in.	(1.55 mm)
4957F	0.062 in.	(1.55 mm)
4959	0.120 in.	(3.0 mm)

Adhesive Transfer Tapes

F-9460PC	0.002 in.	(0.05 mm)
F-9469PC	0.005 in.	(0.13 mm)
F-9473PC	0.010 in.	(0.25 mm)

*Film-linered versions are available as 4926F, 4936F, 4941F and 4956F tapes.

VHB™ Double Coated Acrylic Foam Tapes and Adhesive Transfer Tapes

Typical Physical Properties

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Primary Products

Thin ←

Products		F-9460PC	F-9469PC	F-9473PC	4920	4929	4930	
Adhesive Family:		A-10	A-10	A-10	VHB	VHB	VHB	
Adhesive Carrier:		None	None	None	Acrylic Foam Closed Cell	Acrylic Foam Closed Cell	Acrylic Foam Closed Cell	
Thickness:								
Nominal	in. (mm)	0.002 (0.05)	0.005 (0.13)	0.010 (0.25)	0.015 (0.40)	0.025 (0.64)	0.025 (0.64)	
Tolerance		±20%	±10%	±5%	±5%	±15%	±15%	
Color:		Clear	Clear	Clear	White	Black	White	
Release Liner:		in. (mm)	0.004 (0.10) Printed Paper	0.004 (0.10) Printed Paper	0.004 (0.10) Printed Paper	0.003 (0.08) Printed Paper	0.002 (0.05) Clear Polyester	0.003 (0.08) Printed Paper
Approximate Density: (Foam Only)		lb./ft. ³ (kg/m ³)	NA	NA	NA	50 (800)	50 (800)	50 (800)
Roll Length:								
Standard	yds. (m)	60 (54.9)	60 (54.9)	60 (54.9)	72 (65.8)	72 (65.8)	72 (65.8)	
Maximum								
Standard Units								
a. 1/4" up to 1/2" wide	yd.				72	72	72	
b. 1/2" and wider	yd.				216	216	216	
c. 1/4" to 3/8"	yd.	60	60	60				
d. 3/8" up to 1" wide	yd.	240	240	120				
e. 1" up to 3"	yd.	360	360	120				
f. 3" and wider	yd.	360	360	180				
Metric Equivalents								
a. 6.4 mm up to 12.7 mm wide	(m)				65.8	65.8	65.8	
b. 12.7 mm and wider	(m)				197.5	197.5	197.5	
c. 6.4 mm to 9.5 mm	(m)	54.9	54.9	54.9				
d. 9.5 mm up to 25.4 mm	(m)	220	220	110				
e. 25.4 mm up to 76 mm	(m)	330	330	110				
f. 76 mm and wider	(m)	330	330	165				
Roll Width:								
Minimum	in.	1/4	1/4	1/4	1/4	1/4	1/4	
	in. (mm)	0.25 (6.4)	0.25 (6.4)	0.25 (6.4)	0.25 (6.4)	0.25 (6.4)	0.25 (6.4)	
	(mm)							
Maximum	in.	60	60	60	46	46	46	
	(mm)	(1525)	(1525)	(1525)	(1170)	(1170)	(1170)	
Slitting Tolerance:								
	in. in. (mm)	±0.02 ±0.03 (±0.8)						