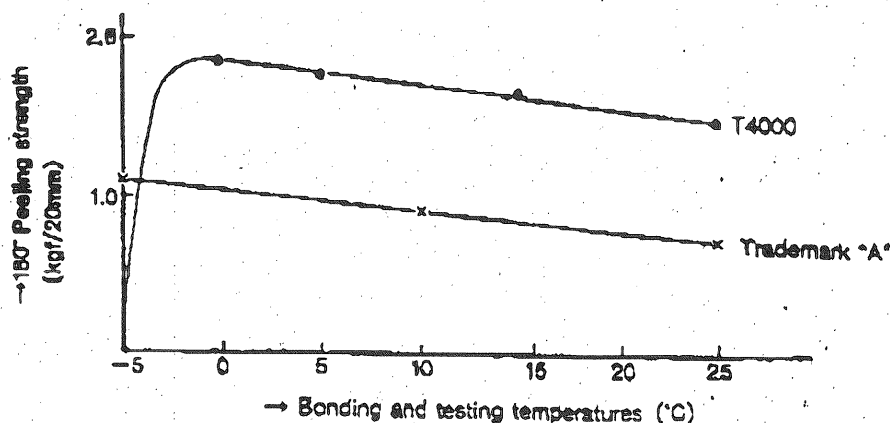


Industrial Adhesive Tape T4000

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.

Sony Chemicals Corporation

6-3 Nihondashi-miyamachi-1-chome, Chuo-ku, Tokyo Telephone:(03)3279-0447 Fax:(03)3246-1784

Sony Chemicals Singapore Pte Ltd.

Block 1022 Tai Seng Avenue Tai Seng Industrial Estate #02-3530 Singapore 1953 Telephone:382-1600 Fax:382-1780

Sony Chemicals Corporation of America

100 Technology Drive Mount Pleasant, Pennsylvania 15666 Telephone:(412)696-7500 Fax:(412)696-7599

Sony Chemicals Europe B.V.

Diamantlaan 27 2132 WV Hoofddorp, The Netherlands Telephone:31(0)23-365 06 00

Printed 1997.3

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

109

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.



SA 規格書 3/5

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

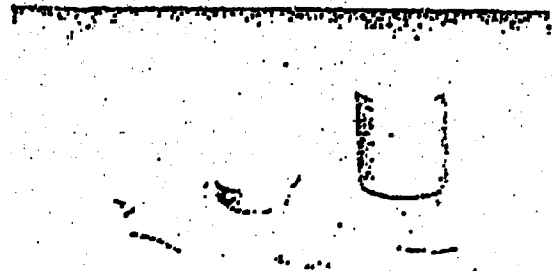
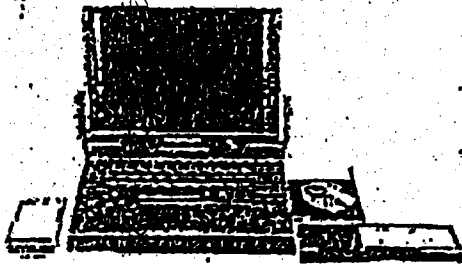
Properties	Unit	Requirement
Operation Temperature range	°C	-55 ~ 105
Shrinkage Beginning temperature	°C	75
Shrinkage Finishing temperature	°C	115
Longitudinal change	%	-15 . MIN.
Dielectric Voltage Withstand	V	No break down (A.C. 2.5kV × 1 minute)
Volume resistivity	Ω·cm	10 ¹⁰ . MIN.
Tensile strength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



E-FLEX CONDUCTIVE TAPE

我我我

我



The unique E-FLEX conductive Tape combines highly conductive copper and corrosion resistant nickel technology to achieve a light weight, strong, flexible, and high-tack conductive adhesive tape.

E-FLEX tape is smooth, soft-edged and non-cracking. It also provides total uniform coverage, even on uneven surfaces.

E-FLEX high quality flexible conductive Nickel/Copper(Ni/Cu) tape offers excellent surface conductivity, shielding effectiveness, and reflectivity for a variety of applications to protect against EMI/RFI.

GENERAL CHARACTERISTICS

- ① Shielding Effectiveness: At Far-field plane wave 30-2000MHz, norm value S.E. = 88dB attenuation
- ② conductivity: Surface resistance $R_s = 0.08 \Omega / \square$, applied with 2 kg of vertical force
- ③ Antistatic Property: Highly conductive PET providing electrostatic discharge path
- ④ Weight: 120 g/m^2 . Plated Cu = 18 g/m^2 . Plated Ni = 7 g/m^2
- ⑤ Operating Temperature: 104-122 °F (40-50 °C) in continuous operation. Max. short exposure 401 °F (205 °C) without high-tack adhesive
- ⑥ Substrate / Metal: PET / Cu/Ni
- ⑦ Substrate metal thickness: 0.003 inches, 76.2 microns

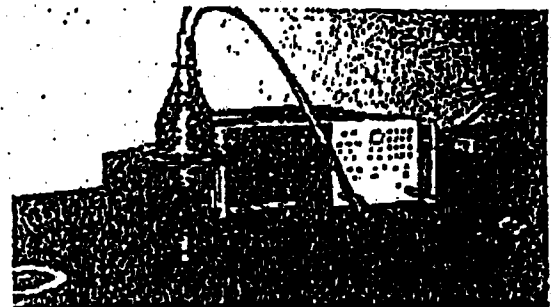
ADHESIVE SYSTEMS

High-tack conductive adhesive permanently bonded after four hours

- Adhesive strength $\geq 1.1 \text{ kg}/25 \text{ mm}$
- Tensile Strength $\geq 15 \text{ kg}/25 \text{ mm}$
- Surface resistance = $0.2 \Omega / \text{in}^2$

APPLICATIONS

E-FLEX conductive tape is a direct replacement for sharp, rigid, nonconforming foil tapes. variety of applications included sealing small apertures in frames, chassis, enclosures, cable wrap, gaskets, FCC cables, tapes, curtains, shielding laminates, and grounding.



SHIELDING EFFECTIVENESS

CHI TEN log MAG 9.95 dB / REF -70.45



START 1,000,000 MHz STOP 1,000,000,000 MHz

PACKAGING

Material Code = ET-CH-WX-LX

WX=Width dimension by customer spec. \pm / mm

LX=Length dimension by customer spec. \pm / mm

含膠厚度: $0.11 \pm 0.02 \text{ mm}$

* Tested by UL in compliance with

UL 94 and UL 1950 Flame Test Requirements

EE-POWER Tech USA.
41140 Norwalk Street
Fremont, CA 91534
Tel: (510) 883-0100
Fax: (510) 651-8545

EE-POWER
E-POWER TECH CO. LTD.

P/N: ET-CH-XX 導電布

翔雲科技有限公司
E.E-POWER Tech Co., Ltd. TAIWAN
2F, No. 13, Alley 21, Lane 69,
Ming Seng E. Rd., Sec. 3
Taipei, TAIWAN.
Tel: (02) 765-3600
Fax: (02) 765-1367

3M
SCOTCH 467MP, 468MP 薄膜雙面膠

產品構造:

離型紙: 55磅多層塗佈牛皮紙(0.102mm)
膠 系: #200MP 高效能壓克力膠
(467MP膠厚0.05mm, 468MP膠厚0.127mm)

應用範圍: 銘版, 噴飾品, 裝飾片及彩色薄片貼合用

產品特點:

- *膠面塗佈極為均勻, 特別適用於塑膠薄片之貼合
- *有極佳之黏聚力, 減少一般無基材雙面膠邊緣溢膠之缺點。
- *耐溫性佳, 為金屬銘版之最佳貼合用雙面膠
- *有極佳之黏性及良好的耐候特性
- *467MP膠厚0.05mm, 適用於較光滑之表面
- *468MP膠厚0.127mm, 適用於咬花或較粗糙之表面

產品性質及效能:

1. 黏聚力: 200MP 高效能壓克力膠, 其黏着力會隨時間及溫度之增加而愈來愈強

2. 抗溼性: 於38℃及100%相對溼度環境下七天, 依然有極高之黏性

3. 抗紫外線特性:

在美國FLORIDA州強烈陽光下測試一年無不良影響

4. 耐水性: 將此雙面膠浸於65℃之水中100小時, 其黏性反而增加

5. 溫度循環測試:

在下列之溫度下循環五次, 測得其黏結性將會增加

30分鐘	121℃
15分鐘	22℃
30分鐘	-29℃
15分鐘	22℃

6. 化學阻抗性:

於多數化學溶劑之測試中, 均不影響其黏性, 如石油, JP-4油精, 酸性溶劑, 油脂, 三氯乙烯, 煤油, 煙化及脂肪質之溶劑等

7. 耐熱性: 200MP膠系短期可承受204℃數小時, 長期下並能承受149℃之高溫

8. 產品壽命:

於22℃及50%相對溼度之庫儲條件下, 其黏性可確保一年之壽命

膠系特性:

測試方法

*ASTM D903

180度剝離力: 305mm/分鐘 (20分鐘)
0.025mm厚PIET貼合於不銹鋼

*3M測試

90度剝離力—305mm/分鐘 (72小時/長期)
0.184mm箔貼合於不同表面金屬 (不銹鋼)

高能量表面
(PC, PU, PIET, PVC)

低能量表面
(PP, PE, PS)

407MP

468MP

59
牛頓/100厘米

90
牛頓/100厘米

119/232
牛頓/100厘米

234/388
牛頓/100厘米

107/112
牛頓/100厘米

154/152
牛頓/100厘米

使用9471, 9491 9472, 9492