

# Sumitube F32

UL224 and CSA approved  
Thin, flame-retardant heat-shrinkable tubing  
The maximum operating temperature is 125°C.

## Basic Properties

- 1) Materials : Cross-linked, flexible, flame-retardant polyolefin resin
- 2) Shrink temperature : 90°C min.
- 3) Shrink ratio (Radial change) : 50% min.
- 4) Longitudinal change :  $-(5\pm 5)\%$
- 5) Continuous operating temperature : -55 to 125°C

## Features & Benefits

- 1) UL224 and CSA recognition
- 2) Flame-retardant
- 3) Flexible
- 4) Free of polybrominated biphenyl ethers(PBBEs), polybrominated biphenyl oxides(PBBOs), polybrominated biphenyls(PBBs).
- 5) Made in Sumi-Pac, Taiwan, only.

## Specifications / Approvals

UL224(5 Edition)

File No.: E48762  
Catalogue No. : SUMITUBE F32  
Operating temperature : 125°C  
Voltage rating : 600V  
Flammability rating : VW-1

CSA C22.2 No.198.1-99

Authorized file No. : LR84766  
Operating temperature 125°C  
Voltage rating : 600V  
Flammability rating : VW-1

Electrical Appliance and Material Control Law  
Optional Registration System of Compounds and Materials

Registration of flammability rating (-F-)  
(Registration No. : F-SPE-001 to F-SPE-004)

## Markings

The following letters are printed on the surface of Sumitube F32.

 SUMIPAC CSA SUMITUBE F32 CSA 125°C VW-1 -F- (size) 

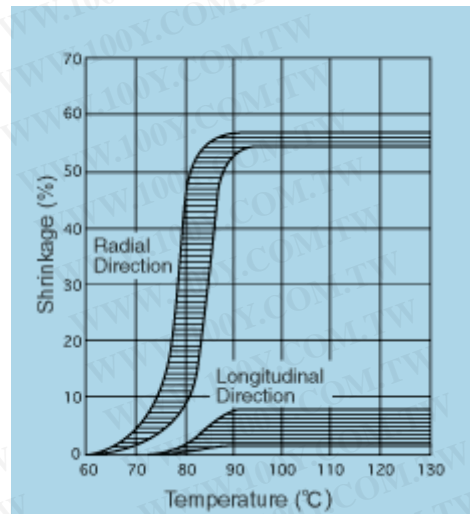
## Applications

- 1) Insulation, protection and reinforcement of terminations and joints of electric wires
- 2) Color identification and bundling of electric wires
- 3) Insulation and protection of resistances and capacitors

## Colors

Standard colors : Black, brown, red, orange, yellow, green, blue, violet, gray and white

## Shrinkage-Temperature Curve



The above curve chart shows the shrink ratio in each direction. The shrink ratio in longitudinal direction should be indicated with negative sign. (ex. 15% → -15%)

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## ■ Properties [UL224]

Properties	Items	Requirements	Typical Values*
Mechanical	Tensile Strength (before aging)	10.4MPa{ 1.06kg/mm <sup>2</sup> } min.	10.9MPa{ 1.11kgf/mm <sup>2</sup> }
	Tensile Strength (after aging)	158°C × 7 days Percent of original 70% min.	Percent of original 94%
	Ultimate Elongation (before aging)	200% min.	350%
	Ultimate Elongation (after aging)	158°C × 7 days, 100% min.	320%
	Flexibility	158°C × 7 days, No cracking	Pass
	Heat Shock	250°C × 4 hours, No cracking	Pass
	Cold Bend	-30°C × 1 hour, No cracking	Pass
Electrical	Dielectric Voltage Withstand (before aging)	AC2.5kV × 60sec. No breakdown	Pass
	Dielectric Voltage Withstand (after aging)	158°C × 7 days AC2.5kV × 60sec. No breakdown	Pass
	Dielectric Voltage Breakdown (before aging)	AC2.5kV min.	24.8kV
	Dielectric Voltage Breakdown (after aging)	158°C × 7 days Percent of original 50% AC2.5kV min.	Pass
	Volume Resistivity	10 <sup>14</sup> Ω·cm min.	4.4 × 10 <sup>14</sup> Ω·cm
Chemical	Copper Corrosion	After leaving for 24hours at humidity 95% and temperature 23°C 158°C × 7 days, No corrosion	Pass
	Copper Stability	After leaving for 24hours at humidity 95% and temperature 23°C 158°C × 7 days Ultimate Elongation 100% min.	338%
	Flammability	Flame-retardant, Pass VW-1	Pass

\*Not guaranteed values

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## ■ Sizes

Inch Sizes						
Nominal Size (inch)	As Supplied (mm)		After Full Recovery (mm)		Unit Length (m)	
	Inside Diameter	Wall Thickness (nom.)	Inside Diameter (max.)	Wall Thickness (min.)	Cut	Spool
3/64	1.60±0.20	0.20	0.60	0.33	1.0	200
1/16	2.10±0.20	0.20	0.80	0.36	1.0	200
3/32	2.70±0.20	0.25	1.20	0.44	1.0	200
1/8	3.60±0.20	0.25	1.60	0.44	1.0	100
3/16	5.20±0.30	0.25	2.40	0.44	1.0	100
1/4	6.8±0.4	0.30	3.20	0.56	1.0	50
3/8	10.0±0.4	0.30	4.80	0.56	1.0	50
1/2	13.2±0.5	0.30	6.4	0.56	1.0	50
3/4	20.0±0.6	0.35	9.5	0.69	1.0	50
1	26.6±0.8	0.40	12.7	0.77	1.0	50

Metric Sizes						
Nominal Size (mm)	As Supplied (mm)		After Full Recovery (mm)		Unit Length(min.) (m)	
	Inside Diameter	Wall Thickness	Inside Diameter (max.)	Wall Thickness (min.)	Cut	Spool
1 × 0.2	1.40±0.20	0.20	0.50	0.33	1	200
1.5 × 0.2	2.00±0.20	0.20	0.75	0.36	1	200
2 × 0.2	2.50±0.20	0.20	1.00	0.44	1	200
2.5 × 0.2	3.00±0.20	0.25	1.25	0.44	1	200

3 × 0.25	3.50±0.30	0.25	1.50	0.44	1	200
3.5 × 0.25	4.00±0.30	0.25	1.75	0.44	1	200
4 × 0.25	4.50±0.30	0.25	2.00	0.44	1	200
5 × 0.25	5.40±0.30	0.25	2.50	0.56	1	100
6 × 0.25	6.4±0.4	0.25	3.00	0.56	1	100
7 × 0.25	7.4±0.4	0.25	3.50	0.56	1	50
8 × 0.25	8.4±0.4	0.25	4.00	0.56	1	50
9 × 0.25	9.4±0.4	0.25	4.50	0.56	1	50
10 × 0.25	10.4±0.4	0.25	5.00	0.56	1	50
11 × 0.25	11.4±0.4	0.25	5.50	0.56	1	50
12 × 0.25	12.4±0.4	0.25	6.0	0.56	1	50
13 × 0.3	13.5±0.4	0.30	6.5	0.69	1	50
14 × 0.3	14.5±0.4	0.30	7.0	0.69	1	50
15 × 0.3	15.5±0.4	0.30	7.5	0.69	1	50
16 × 0.3	16.8±0.5	0.30	8.0	0.69	1	50
18 × 0.35	18.7±0.5	0.35	9.0	0.77	1	50
20 × 0.35	21.2±0.6	0.35	10.0	0.77	1	50
22 × 0.4	23.2±0.6	0.40	11.0	0.77	1	50
25 × 0.4	26.1±0.8	0.40	12.5	0.87	1	50
28 × 0.5	29.0±1.0	0.50	14.0	0.87	1	50
30 × 0.5	32.0±1.0	0.50	15.0	0.87	1	50

▲Caution!

All statements and technical information contained herein are based on tests we believe to be liable and only general properties are described. Therefore, safety of each specific application by the users should not be guaranteed. The users themselves should determine product conformance to your specific applications and assume all responsibility for all damages that may be caused directly or indirectly when using the products.

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