

# SUMITUBE™ F4 (Z)

[125°C rating, flame-retarded heat-shrinkable tubing]  
UL/CSA recognized

Catalog No. 942 ✓ RoHS directive 10 substances

Waterproofing Flame-retarded UL recognized CSA recognized



## Basic Properties

- Material : Irradiated cross-linked flexible flame-retarded polyolefin
- Shrink temperature : min. 90°C
- Shrink ratio : Radial change: min. 50% Longitudinal change: min. -15%
- Continuous operating temperature : -55 to 125°C

## Features

- UL/CSA recognized
- Thin wall, quick shrinkage
- Flexible
- Flame-retarded (PBDE/PBB-free)

## Specifications/Approvals

UL224 File No. E75077 Catalog No. SUMITUBE™ F4 (Z) or 942  
Rating temperature: 125°C Rating voltage: 300V Flammability: VW-1  
CSA C22.2 No. 198.1 File No. LR33298  
Rating temperature: 125°C Rating voltage: 150V Flammability: VW-1  
Electrical Appliance and Material Safety Law (Japan)  
Flammability rating (-F-) test registration No.: F-ST53-009 to F-ST53-012

## Marking on Surface

125°C VW-1 SUMITOMO-K SUMITUBE F4 (Z) CAT 942 CSA 125°C VW-1 -F-

## Applications

- Insulation, protection and reinforcement for termination and joints of electric wire
- Color identification and bundling for electric wires
- Insulation and protection of resistors and capacitors

## Properties [UL224]

Properties	Items	Requirements	Typical values*1
Mechanical	Tensile strength (before aging)	min. 10.4MPa	15.2MPa
	Tensile strength (after aging)	158°C x 7 days, min. 7.3MPa	16.0MPa
	Elongation (before aging)	min. 200%	350%
	Elongation (after aging)	158°C x 7 days, min. 100%	350%
	Heat shock	250°C x 4 hours, no crack	Pass
Electrical	Cold bend	-30°C x 1 hour, no crack	Pass
	Dielectric withstand (before aging)	AC2.5kV x 60 sec., no breakdown	Pass
	Dielectric withstand (after aging)	158°C x 7 days, AC2.5kV x 60 sec., no breakdown	Pass
	Dielectric breakdown (before aging)	min. AC2.5kV	12.6kV
	Dielectric breakdown (after aging)	158°C x 7 days, min. 50% of original and min. AC2.5kV	Pass
Chemical	Volume resistivity	min. 1.0 x 10 <sup>14</sup> Ω·cm	2.5 x 10 <sup>16</sup> Ω·cm
	Corrosion against bare copper	158°C x 7 days, no corrosion after leaving under 95% humidity, 23°C x 24 hours	Pass
	Stability against copper	158°C x 7 days, elongation min. 100% after leaving under 95% humidity, 23°C x 24 hours	342%
	Flammability	Flame-retarded, pass VW-1	Pass

\*1: For reference use only

## Sizes

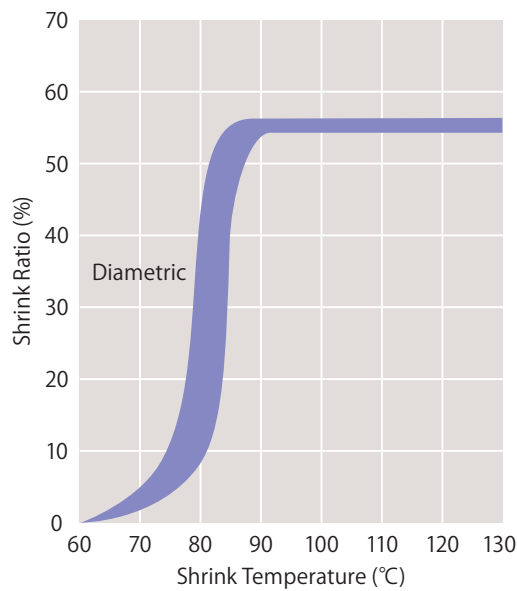
### Metric size

Trade size (mm)	As supplied (mm)		After recovered (mm)		Unit length (min.) (m)
	Inside diameter	Wall thickness (nom.)	Inside diameter (max.)	Wall thickness (min.)	
1 × 0.1	1.30 ± 0.30	0.10	0.50	0.20	200
1.5 × 0.1	1.90 ± 0.30	0.10	0.75	0.20	200
2 × 0.1	2.30 ± 0.30	0.10	1.00	0.20	200
2.5 × 0.15	2.80 ± 0.30	0.15	1.25	0.25	200
3 × 0.15	3.30 ± 0.30	0.15	1.50	0.25	200
3.5 × 0.15	3.80 ± 0.30	0.15	1.75	0.25	200
4 × 0.15	4.40 ± 0.30	0.15	2.00	0.25	200
5 × 0.15	5.50 ± 0.30	0.15	2.50	0.25	100
6 × 0.15	6.5 ± 0.4	0.15	3.00	0.28	100
7 × 0.15	7.5 ± 0.4	0.15	3.50	0.28	50
8 × 0.15	8.5 ± 0.4	0.15	4.00	0.28	50
9 × 0.15	9.5 ± 0.4	0.15	4.50	0.28	50
10 × 0.15	10.5 ± 0.4	0.15	5.00	0.28	50

### Inch size

Nominal size (inch)	As supplied (mm)		After recovered (mm)		Unit length (min.) (m)
	Inside diameter	Wall thickness (nom.)	Inside diameter (max.)	Wall thickness (min.)	
1/2	13.2 ± 0.5	0.15	6.4	0.28	61
3/4	20.6 ± 0.6	0.18	9.5	0.35	61
1	26.6 ± 0.8	0.20	12.7	0.40	61

## Shrink Properties



## Colors

- Black, Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White

## SUMITUBE™

A
C
A4
LA
C (UL)
D
A2

B
LB

F (Z)
F3 (Z)
NHR2
NHR4
V (300V)
V (600V)

F2 (Z)
F4 (Z)
B2
B2 (3X)
B8

K
K2

KH200 (TW)
KH230 (TW)

B6
R
AN25

W
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O2C
W3C

O2B2
W3F2
W3B2
W3B2 (4X)
SA2
SA3

## IRRAX™TUBE IRRAX™TAPE

A
B
F2
F2 (UL)
V2
RP3
B8
ER2
NHR
FE2
VZL

## IRRAX™SLEEVE

SCM2
SBI 300/350
SNHM

## Composite articles

SUMISEAL
SUMITUBE SA3 CAP

## Processing equipment

SUMISHRINKER / HEATING GUN