

Basic Properties

- (1) Materials : Irradiated cross-linked flexible flame-retardant polyolefin
- (2) Shrink temperature : min. 90°C
- (3) Shrink Ratio : Radial change: min. 50%
: Longitudinal change: min. -15%
- (4) Continuous Operating Temperature : -55 to 125°C

Features

- (1) UL/CSA approved
- (2) Thin wall, quick shrinkage
- (3) Flexible
- (4) Flame-retardant

Specification/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-STS3-009 - F-STS3-012

Marking on the surface

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

Application

- (1) Insulation, protection and reinforcement for termination and joints of electric wire
- (2) Colour identification and bundling for electric wires
- (3) Insulation and protection for resistor and condenser

Colours

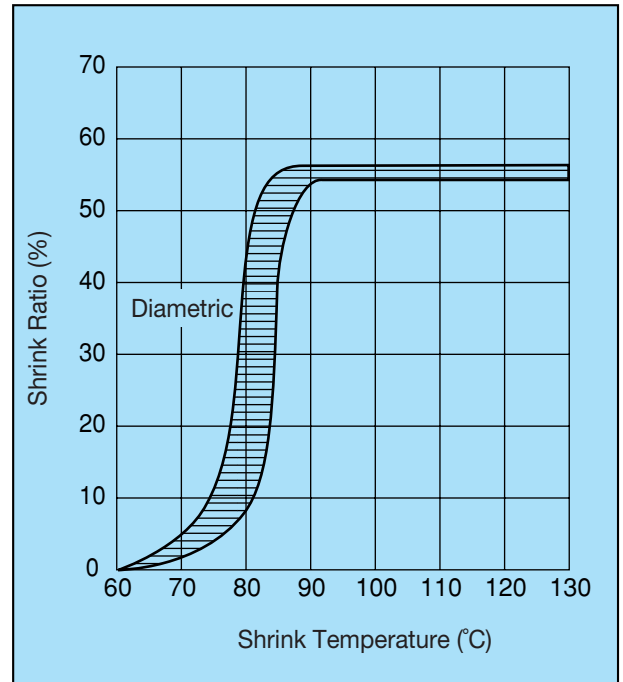
Black, Brown, Red, Orange, Yellow, Green, Blue, Purple, Grey, White

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 |
| | Cold bend | -30°C x 1 hour, no crack | pass |
| Electrical | Voltage resistance (before aging) | AC2.5kV x 60 sec. no breakdown | pass |
| | Voltage resistance (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 |
| | Volume resistivity | min. 1.0 x 10 ¹⁴ Ω·cm | 2.5 x 10 ¹⁶ Ω·cm |
| Chemical | Corrosion against bare copper | 158°C x 7 days, no corrosion after leaving under humidity 95%, 23°C x 24 hours | pass |
| | Stability against copper | 158°C x 7 days, elongation min. 100% after leaving under humidity 95%, 23°C x 24 hours | 342% |
| | Flammability | Flame-retardant, pass VW-1 | pass |

*1: For reference use only

Shrink Property



Sizes

| Nominal size (mm) | Supplied ID (mm) | | Recovered ID (mm) | | Unit length (min.) (m) |
|----------------------|------------------|-----------------------|------------------------|-----------------------|------------------------|
| | Inside diameter | Wall thickness (nom.) | Inside diameter (max.) | Wall thickness (min.) | |
| 1 x 0.1 | 1.30 ± 0.30 | 0.10 | 0.50 | 0.20 | 200 |
| 1.5 x 0.1 | 1.90 ± 0.30 | 0.10 | 0.75 | 0.20 | 200 |
| 2 x 0.1 | 2.30 ± 0.30 | 0.10 | 1.00 | 0.20 | 200 |
| 2.5 x 0.15 | 2.80 ± 0.30 | 0.15 | 1.25 | 0.25 | 200 |
| 3 x 0.15 | 3.30 ± 0.30 | 0.15 | 1.50 | 0.25 | 200 |
| 3.5 x 0.15 | 3.80 ± 0.30 | 0.15 | 1.75 | 0.25 | 200 |
| 4 x 0.15 | 4.40 ± 0.30 | 0.15 | 2.00 | 0.25 | 200 |
| 5 x 0.15 | 5.50 ± 0.30 | 0.15 | 2.50 | 0.25 | 100 |
| 6 x 0.15 | 6.5 ± 0.4 | 0.15 | 3.00 | 0.28 | 100 |
| 7 x 0.15 | 7.5 ± 0.4 | 0.15 | 3.50 | 0.28 | 50 |
| 8 x 0.15 | 8.5 ± 0.4 | 0.15 | 4.00 | 0.28 | 50 |
| 9 x 0.15 | 9.5 ± 0.4 | 0.15 | 4.50 | 0.28 | 50 |
| 10 x 0.15 | 10.5 ± 0.5 | 0.15 | 5.00 | 0.28 | 50 |

| Nominal size (inch) | Supplied ID (mm) | | Recovered ID (mm) | | Unit length (min.) (m) |
|------------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|
| | Inside diameter (min.) | Wall thickness (nom.) | Inside diameter (max.) | Wall thickness (min.) | |
| 1/2 | 12.7 | 0.15 | 6.4 | 0.28 | 61 |
| 3/4 | 19.1 | 0.18 | 9.5 | 0.35 | 61 |
| 1 | 25.4 | 0.20 | 12.7 | 0.40 | 61 |