

# Irrax™ tubeF2 (Flexible heat-resrant tubing in compafiance with Electrical Applocance and Material Control Law)

Irrax™ tube F2 (which are compliant with the Electrical Appliance and Material Control Law) are made of the same materials as those of Irrax™ tube F2 (which are compliant with UL standard and the Electrical Appliance And Material Control Law).The description of the markings, colors, and sizes are shown below.

- Basic Properties

- (1) Materials : Cross-linked, flexible, flame-retardant polyolefin resin
- (2) Continuous operating temperature : -55 to 125°C

- Features & Benefits

- (1) Compliant with UL224 and Electrical Appliance and Material Control Law
- (2) Flexible
- (3) Flame-retardant

- Specifications & Approvals

#### UL224

- File No. : E75077
- Operating temperature : 125°C
- Voltage rating : 600V
- Flammability rating : VW-1

#### Electrical Appliance and Material Control Law

##### Optional Registration System of Compounds and Materials

- Operating temperature 125 °C  
(provisional registration)(Registration No. : Z004CC0176)
- Registration of flammability rating (-F-)  
(Registration No. : F-ST3-009 to F-ST3-016)

- Markings

The following letters are printed on the surface of Irrax™ tube F2.

VW-1 ◆ SUMITOMO IRRAXTUBE F2 125°C-F-

- Applications

- (1) Insulation, protection and reinforcement of terminations and joints of electric wires
- (2) Identification and bundling of electric wires

- Colors

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

● Properties

Properties	Items	Requirements	Typical values*
Mechanical	Tensile Strength (before aging)	10.4MPa min.	13.2MPa
	Tensile Strength(after aging)	158°C×7 days 7.3MPa min.	13.4MPa
	Ultimate Elongation (before aging)	200% min.	325%
	Ultimate Elongation (after aging)	158°C×7 days, 100% min.	350%
	Flexibility	158°C×7 days, No cracking	Pass
	Deformation	125°C×1hour, 50% max.	10%
	Heat Shock	136°C×1hour, No cracking	Pass
Electrical	Cold Bend	-10°C×1 hour, No cracking	Pass
	Dielectric Voltage Withstand (before aging)	A.C.2.5kV×60 sec. No breakdown	Pass
	Dielectric Voltage Withstand (after aging)	158°C×7 days	Pass
	Dielectric Voltage Breakdown (before aging)	A.C.2.5kV×60 sec. No breakdown	Pass
	Dielectric Voltage Breakdown (after aging)	A.C.2.5kV min.	Pass
	Volume Resistivity	158°C×7 days Percent of original 50% min. $1.0 \times 10^{14} \Omega \cdot \text{cm}$ min.	$1.6 \times 10^{16} \Omega \cdot \text{cm}$
Chemical	Copper Corrosion	After leaving for 24hours at relative humidity 95% and temperature 23°C, 158°C×7 days, No corrosion	Pass
	Copper Stability	After leaving for 24hours at relative humidity 95% and temperature 23°C, 158°C×7 days, Stretch 100% min.	325%
	Flammability	Flame-retardant, Pass VW-1	Pass

\* Some are not guaranteed values

● Sizes

Nominal Size	Inside Diameter (mm)	Wall Thickness (mm)	Unit Length (m)
AWG24	0.55±0.10	0.50±0.06	500 min.
AWG22	0.65±0.10	0.50±0.06	500 min.
AWG20	0.80±0.10	0.50±0.06	500 min.
AWG19	0.90±0.10	0.50±0.06	500 min.
AWG18	1.00±0.10	0.50±0.06	250 min.
AWG17	1.15±0.10	0.62±0.06	250 min.
AWG16	1.30±0.10	0.62±0.06	250 min.
AWG15	1.45±0.10	0.62±0.06	200 min.
AWG14	1.65±0.10	0.62±0.06	200 min.
AWG13	1.80±0.15	0.62±0.06	200 min.
AWG12	2.10±0.15	0.62±0.06	400 min.
AWG11	2.30±0.15	0.62±0.06	400 min.
AWG10	2.60±0.15	0.62±0.06	400 min.
AWG9	2.90±0.15	0.62±0.06	400 min.
AWG8	3.30±0.15	0.62±0.06	400 min.
AWG7	3.70±0.15	0.62±0.06	400 min.
AWG6	4.10±0.20	0.62±0.06	200 min.
AWG5	4.60±0.20	0.62±0.06	200 min.
AWG4	5.20±0.20	0.62±0.06	200 min.
AWG3	5.80±0.20	0.62±0.06	100 min.
AWG2	6.5±0.2	0.62±0.06	100 min.
AWG1	7.3±0.3	0.62±0.06	100 min.
AWG0	8.3±0.3	0.62±0.06	100 min.

Longitudinal change : -20% min. (125°C×1 minute)

● Irrax™ tube F2 (Extrafine)

Irrax™ tube F2 (Extrafine) is available which is made of the same materials as those of Irrax™ tube F2. It is compliant with UL224 (File No. : E70631, Flammability rating : VW-1). The following is the list of the sizes.

Nominal Size	Inside Diameter (mm)	Wall Thickness (mm)	Unit Length (m)
0.25×0.10	0.25±0.05	0.10±0.05	0.95 min.
0.30×0.10	0.30±0.05	0.10±0.05	0.95 min.
0.35×0.10	0.35±0.05	0.10±0.05	0.95 min.
0.40×0.10	0.40±0.05	0.10±0.05	0.95 min.
0.45×0.10	0.45±0.05	0.10±0.05	0.95 min.
0.50×0.10	0.50±0.05	0.10±0.05	0.95 min.
0.40×0.90	0.43±0.05	0.22±0.05 (Outside diameter 0.9 max.)	1,000 min.

Longitudinal change : -20% min. (125℃×1 minute)

F2 (Z) is available which is free of chlorine flame retarders and bromic flame retarders (PBBOs and PBBs)

F2 (Z) is compliant with UL and Electrical Appliance and Material Control Law.

Its UL224 approved contents and available sizes are the same as those of Sumitube™F2 (which is compliant with UL and Electrical Appliance and Material Control Law).

Operating temperature 125℃ (provisional registration)

(Registration No. : Z004CC0546-001)

Registration of flammability rating (-F-)

(Registration No. : STS3-009 to STS3-016)

● 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.