

Sumitube® NH

Single Wall Polyolefin, 2:1
 Operating Temperature: -40 up to 105°C

Surface: Glossy
 Marking: None



ASTM
 BS 6853
 BS EN ISO 4589-3
 BSS 7239 Boeing Specification Support Standard
 Japanese Standard for railway vehicle material
 LUL: London Underground Limited Eng. Stand. E 1042. A6

Dimensions

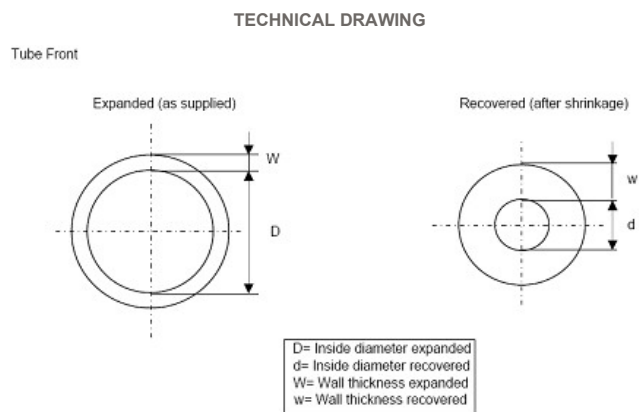
BEFORE SHRINKAGE		AFTER SHRINKAGE		DELIVERY UNITS *	
Inner diameter (EID) min.		Inner diameter (RID) max.	Wall thickness (RWT) min-max	Unit quantity	Box quantity
[type]	[mm]	[mm]	[mm]	[m]	[m]
1/16	1,60	0,80	0,60 - 0,80	300	900
3/32	2,40	1,20	0,60 - 0,80	150	900
1/8	3,20	1,60	0,60 - 0,80	150	600
3/16	4,80	2,40	0,70 - 1,00	60	300
1/4	6,40	3,20	0,75 - 1,05	60	300
3/8	9,50	4,80	0,85 - 1,15	30	150
1/2	12,7	6,40	1,02 - 1,38	30	150
3/4	19,1	9,50	1,15 - 1,65	30	90
1	25,4	12,7	1,50 - 2,10	30	90
1-1/2	38,1	19,1	1,50 - 2,10	30	90
2	50,8	25,4	1,90 - 2,50	30	60

* Non standard colours, larger sizes and cut length of 1200mm are available upon request.

Colours & Technical drawing

STANDARD COLOURS	
black	

SPECIAL COLOURS	
white	
yellow/green	
yellow	



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Technical properties

PHYSICAL PROPERTIES			
PROPERTY	TEST METHOD	REQUIREMENT	TYPICAL VALUE
Longitudinal Change	IEC	+5 to -10%	-5%
Specific Gravity	ASTM D 792	Max. 1,55	≤ 1,52
Tensile Strength	ASTM D 2671	Min. 10,4 MPa	≥ 11,7 MPa
Elongation at Break	ASTM D 2671	Min. 200%	≥ 450%
Secant Modulus	ASTM D 2671	Max. 131 MPa	67 MPa
Hardness (Shore D)	ASTM D 2240	45 ± 5	44

THERMAL PROPERTIES			
PROPERTY	TEST METHOD	REQUIREMENT	TYPICAL VALUE
Operating Temperature	life-Curve	-40 up to 105°C	-40 up to 105°C
Min. Shrink Temperature	Shrink curve	full recovery	120°C
Shrinking starts at	Shrink curve		60°
Heat Shock (225°C x 4h)	SAE-AMS-DTL-23053	no crack, flowing or dripping	Pass
Elongation after heat ageing (136°C x 168h)	ASTM D 2671	Min. 100%	≥ 300%
Tensile Strength after heat ageing (136°C x 168h)	ASTM D 2671	Min. 7,3 MPa	Pass
Low temperature flexibility (-40°C x 4h)	SAE-AMS-DTL-23053	no cracking	Pass
Copper Corrosion (175°C x 16h)	SAE-AMS-DTL-23053	no corrosion	Pass

CHEMICAL PROPERTIES			
PROPERTY	TEST METHOD	REQUIREMENT	TYPICAL VALUE
Halogen content	NFX-70-100 BS 6853	Zero	Zero
Flammability	Japanese Railway	Flame retardant	Pass
Weather Resistance (720h)	ASTM D 2671	Min. 75% retention (Tensile Strength)	≥ 87%
Weather Resistance (720h)	ASTM D 2671	Min. 75% retention (Elongation)	≥ 80%
Water Absorption	SAE-AMS-DTL-23053	Max. 1,0	0,40%
Flame Spread Index	ASTM E162	nom. 14	Pass
Oxygen Index	BS EN ISO 4589-2 Part 2	Min. 35	≥ 38
Flammability Temperature Index	NES 715 BS EN ISO 4589-3	Min. 250°C Ia(300°C) & Ib(250°C)	> 354°C, Pass
Smoke Index	NES 711	Max. 10,0	8,4
Smoke Emission Test	BS 6853 1999 Annex D 8.3	A0 < 0,017 m ² /g	0,0044 m ² /g
Acid Gas Generation (equiv. % of HCL)	MIL-C-24643	Max. 0,2%	0,07%
Toxic Fume Emission	LUL E1042 A6(2002)	< 0,015	Fully compliant
Toxic Gas Generation	BSS 7239		Pass
Fluid Resistance (after immersion 23°C x 24h)	ASTM D 638	Min. 4,13 MPa (Tensile Strength)	≥ 6,7 MPa
Fluid Resistance (after immersion 23°C x 24h)	ASTM D 638	Min. 100% (Elongation)	≥ 360%
Ozone resistance	NF F 00-608	No cracking or sweating	Pass

ELECTRICAL PROPERTIES			
PROPERTY	TEST METHOD	REQUIREMENT	TYPICAL VALUE

Voltage Rating		600V	Pass
Volume Resistivity	ASTM D 876	Min. $10^{12} \Omega \cdot \text{cm}$	$6 \times 10^{13} \Omega \cdot \text{cm}$
Dielectric Strength	ASTM D 876	Min. 19,7 kV/mm	$\geq 30 \text{ kV/mm}$

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