

# Low Smoke Heat-Shrinkable Rubber Tubing

## ST-DGE series

ST-DGE series conform to hazard level3 of the EN 45545-2(R22/R23) fire protection standard of railway vehicles.

### 1 Features

High flame retardant  
Excellent electrical property  
Suitable flexibility after heat shrinking  
Good workability

### 2 Diameter

Diameter is equivalent to ST-DG series. If you want to custom size, please contact your local sales representative.

### 3 Packaging

1 m or 50 m reel

### 4 Applications

- For protecting cable of trains, ships, vehicles and underground area that it takes time to escape in case of a fire.
- For insulating coat of electronics parts

### 5 General Properties

(Sheet, t=2mm)

Parameter	Product name	ST-DG	ST-DGE
Features		General purpose	Flame retardant, Low smoke
Density		1.20	1.34
Hardness	Durometer A	70	75
Tensile Strength	MPa	6.0	6.2
Elongation	%	350	230
Tear Strength	kN/m	15	13
Dielectric Breakdown Voltage	kV/mm	25	27
Volume Resistivity	TΩ · m	2	92
Flame-Resistant (Sheet, t=1mm)	UL-94	—	V-0 equivalent
Temperature Range	°C	-40 – +200	-40 – +200
Shrinkage (in direction of diameter)	%	about 50	about 50
Shrinkage Temperature	°C	80<	80<

(Not specified values)

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- For detailed information regarding safety, please refer to the Safety Data Sheet (SDS).
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### 6 Test result EN45545-2

Requirement	Test method	Parameter	Thickness		HL3 required value
			2mm	3mm	
R22 (Internal)	Fuming characteristic (Optical density)	Ds max - Dimensionless Smoke Density (Max in 10 min)	66	76	≤150
	Smoke Toxicity	CIT-Dimensionless Toxicity (8 gas)	0.08	0.07	≤0.75
	Oxygen index	Limited Oxygen Index (LOI)	39.0	44.0	≥32
R23 (External)	Fuming characteristic (Optical density)	Ds max - Dimensionless Smoke Density (Max in 10 min)	66	76	≤300
	Smoke Toxicity	CIT-Dimensionless Toxicity (8 gas)	0.08	0.07	≤1.5
	Oxygen index	Limited Oxygen Index (LOI)	39.0	44.0	≥32

\*Test laboratory Crepim (France)

### 7 Storage and handling precautions

- Products should be stored at room temperature (1°C – 30°C) in a dry place out of direct sunlight.
- Avoid contact with residual solvents or oil as they may deteriorate the properties of the product.
- For better results, the object should be cleaned and dried to remove any dirt, moisture or oils before application.
- Please read the Safety Data Sheet (SDS) before use, SDS can be obtained from our Sales Department.

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