

## ZH thermal transfer printable heatshrink tubing

The ZH heatshrink tubing are made of halogen free, flame retardant, heat shrinkable polyolefin tubing with ideal printability properties for identification purposes. The compound of the tubing is excluded for halogens and offers excellent fire safety characteristics combined with minimal smoke emission.

### Physical

Properties	Test Method	Typical value
Tensile strength	ASTM D 638	13 N/mm <sup>2</sup>
Elongation at break	ASTM D 638	200%
Longitudinal change	ASTM D 2671	≤+5%, ≤-10%
Water absorption	ASTM D 570	≤0,15%
Specific gravity	ASTM D 792	1.4 g/cm <sup>3</sup>

### Electrical

Properties	Test Method	Typical value
Dielectric strength	ASTM D 2671	20 kV/mm <sup>2</sup>
Volume resistivity	ASTM D 257	10 <sup>14</sup> Ω cm

### Chemical

Properties	Test method	Typical value
Fungus resistance	AMS-DTL-7444	Inert, no growth
Chemical resistance	AMS-DTL-23053/5	Good
Copper corrosion	ASTM D 2671B	No corrosion
Oxygen index	ASTM D 2863	36%

#### Notes

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We reserve the right to modify characteristics with the aim of improving the product and adapting it to the requirements of the market

### Colors

Yellow, white, black, light red, light blue, light green and orange.  
Other colors available upon request and subject to minimum volumes.

### Material

Extruded, cross-linked polyolefin.  
Shrink ratio 2:1

### Operating temperature

-30°C up to +105°C.

### Specifications

- Adherence: MIL81531 (SAE-AS81531-1998 Clause 3.4.2/4.6.2) Passed with following black ribbon: FTI-Y, FTI-X

- **Resistance to solvents:**  
MIL-STD-202G test method 215(2002) (MIL81531/SAE-AS81531-1998 Clause 3.4.3.)  
Passed with following black ribbon: FTI-Y, FTI-X

### Storage

Cool and dry in original packaging.  
Recommended temperature at +10°C to +25°C and 45-55% relative humidity.  
Use within 3 years from date of manufacture.

### Boeing BSS 7239

Meet the M-7 Technical Specification requirements as they pertain to toxic gas generation

## Thermal

Properties	Test method	Typical value
Heat shock 4 hours at 175°C	ASTM D 2671	No dripping, cracking or flowing
Heat aging 168 hours at 150°C	ASTM D 638	Elongation 100%
Low temperature flexibility -30°C	ASTM D 2671C	No cracking
Flammability	ASTM D 635	Pass » flame retardant

## Applications

Common uses include marking, insulation, wire bundling and mechanical protection.

## Printers recommended

CAB A4+/300 printer  
CAB A4+M/300 printer

## Compliance on fire behavior

Standards	Flame propagation	Toxicity	Smoke density	Low Oxygen Index
<b>BS 6853</b>	ISO 4589-2 Annex A	BS 6853 Ap. B1 or NF X-70-100	BS 6853 D8.3	ISO 4589-2
<b>NF F-16 101</b>	NF T 51-071 & NF C 20-455	NF X 70-100	NF X 10-702 – 1/2	ISO 4589-2
<b>NFPA130</b>	ASTM 162	BSS 7239	ASTM 662	
<b>EN 45545-2</b>		NF X 70-100 600°C	ISO 5659-2	ISO 4589-2
<b>DIN 5510-2</b>	DIN 54837	DIN ISO 5659	DIN ISO 5659	
<b>UNI CEI 11170-3 cl LR4</b>	ISO 11925-2:2010	NF X 70-100	NF X 10-702	



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