

Safety Data Sheet Heat Shrink Tubing PHD Series

multicomp PRO

1. Description

The PHD Series Heat Shrink Tubing is a 2:1 thin-wall, flexible tubing offering the advantages of integral, adhesive-lined construction. The tubing is made from flame-retardant, flexible polyolefin with a thin layer of special thermoplastic adhesive. The heat-shrinkable outer wall is selectively cross-linked, while maintaining the high flow and excellent adhesion of the inner sealant liner.

When heated in excess of 121°C (250°F), Multicomp Pro PHD Series tubing rapidly shrinks to a skintight fit, forcing the melted adhesive lining to flow and cover the substrate. The adhesive forms a flexible bond with a wide variety of rubbers, plastics and metals. Upon cooling, the adhesive solidifies, forming a permanent, non-drying, flexible and water resistant barrier. Adhesive reflow will occur at temperatures above 80°C (176°F).

2.1. Details of the supplier of the safety data sheet

Manufacturer : Premier Farnell plc 150 Armley Road Leeds LS12 2QQ +44 (0) 8701 202530

2.2. Emergency number

Emergency Number : +44 1865 407333

3. Agency Approvals & Self Certifications

Meets the requirements of:

- AS23053/Class 2*
 - UL Recognized, File E-39100
 - CSA Certified, CSA LR38227
 - For RoHS and REACH information, please visit www.3M.com/regs
- *Formerly MIL-I-23053/4, MIL-DTL-23053/4 and SAE-AMS-DTL-23053/4

4. Applications

Multicomp Pro PHD tubing offers convenient protection of electronic components, wire splices, or bundling of wires. Automotive, truck and marine wiring splices and connections are quickly and easily protected from harsh environments.

5. Shrink Ratio

Multicomp Pro PHD tubing has a 2:1 shrink ratio. When freely recovered, the tubing will shrink 50% of its as-supplied diameter. The recovered wall thickness of the tubing is proportional to the degree of recovery. The operating temperature range is from -55°C (-67°F) to 110°C (230°F), with a shrinking temperature minimum of 121°C (250°F).

6. Standard Colors

Black

Also available in Clear, Red and Yellow. Price, MOQ and Lead Time will vary for these colors. Please contact Local Sales Representative or Customer Service Representative for more information.

NOTE: The clear tubing is not flame retardant or UL listed.

Safety Data Sheet Heat Shrink Tubing PHD Series



7. Typical Properties

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

Physical Property	Typical Value US units (metric)
Tensile Strength	2100 PSI
Ultimate Elongation	450%
Longitudinal Change	+1, -5%
Secant Modulus (2%)	17,000 PSI
Specific Gravity	1.3
Heat Aging (outer wall only) 168 hrs @ 175°C	Elongation 175%
Heat shock (outer wall only) 4 hrs @ 225 °C	No dripping, flowing, cracking
Low Temperature Flexibility (outer wall only) 4 hrs @ -55 °C	No cracking
Flammability	Self-extinguishing, meets UL224 All-Tubing Flame Test (jacket)

Electrical Property (Test Method)	Typical Value US units (metric)
Dielectric Strength	800 V/mil
Volume Resistivity	10 ¹⁴ ohm/cm

Chemical Property (Test Method)	Typical Value US units (metric)
Corrosion Resistance (Copper mirror)	Non-corrosive
Fungus Resistance	Non-nutrient
Water Absorption	0.30%
Fluid Resistance	Excellent

Adhesive	Typical Value
Peel Strength, pli	
Polyethylene	30
PVC	10
Lead	15
Aluminum	40
Corrosive Effect (Copper mirror)	Non-corrosive

Safety Data Sheet Heat Shrink Tubing PHD Series



8. Standard Sizes and Dimensions

Ordering Size (Nominal)	Expanded I.D. (Minimum)	Recovered I.D. (Maximum)	Total Recovered Wall Thickness (Nominal)	Meltable Recovered Wall Thickness
	In. (mm)	In. (mm)	In. (mm)	In. (mm)
1/8	.125 (3,18)	.063 (1,60)	.027 (0,68)	.004 (0,10)
3/16	.187 (4,75)	.093 (2,36)	.027 (0,68)	.004 (0,10)
1/4	.250 (6,35)	.125 (3,18)	.030 (0,76)	.005 (0,13)
3/8	.375 (9,53)	.187 (4,75)	.031 (0,79)	.005 (0,13)
1/2	.500 (12,70)	.250 (6,35)	.032 (0,81)	.006 (0,15)
3/4	.750 (19,05)	.375 (9,53)	.037 (0,94)	.006 (0,15)
1	1.000 (25,40)	.500 (12,70)	.046 (1,17)	.008 (0,20)
1-1/2	1,500 (38,10)	.750 (19,05)	.049 (1,24)	.008 (0,20)
2	2.000 (50,80)	1.000 (25,40)	.060 (1,52)	.015 (0,38)

Shelf Life & Storage

Multicomp Pro Heat Shrink Tubing PHD series has a 10-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity).

Part Number
PHD-008-4025-BLK
PHD-012-4025-BLK
PHD-016-4025-BLK
PHD-024-4025-BLK
PHD-032-4005-BLK
PHD-048-4005-BLK
PHD-064-4005-BLK
PHD-096-4005-BLK
PHD-128-4002-BLK
PHD-008-6028-BLK
PHD-012-6024-BLK
PHD-016-6020-BLK
PHD-024-6016-BLK
PHD-032-6014-BLK
PHD-048-6012-BLK
PHD-064-6008-BLK
PHD-096-6005-BLK
PHD-128-6002-BLK

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