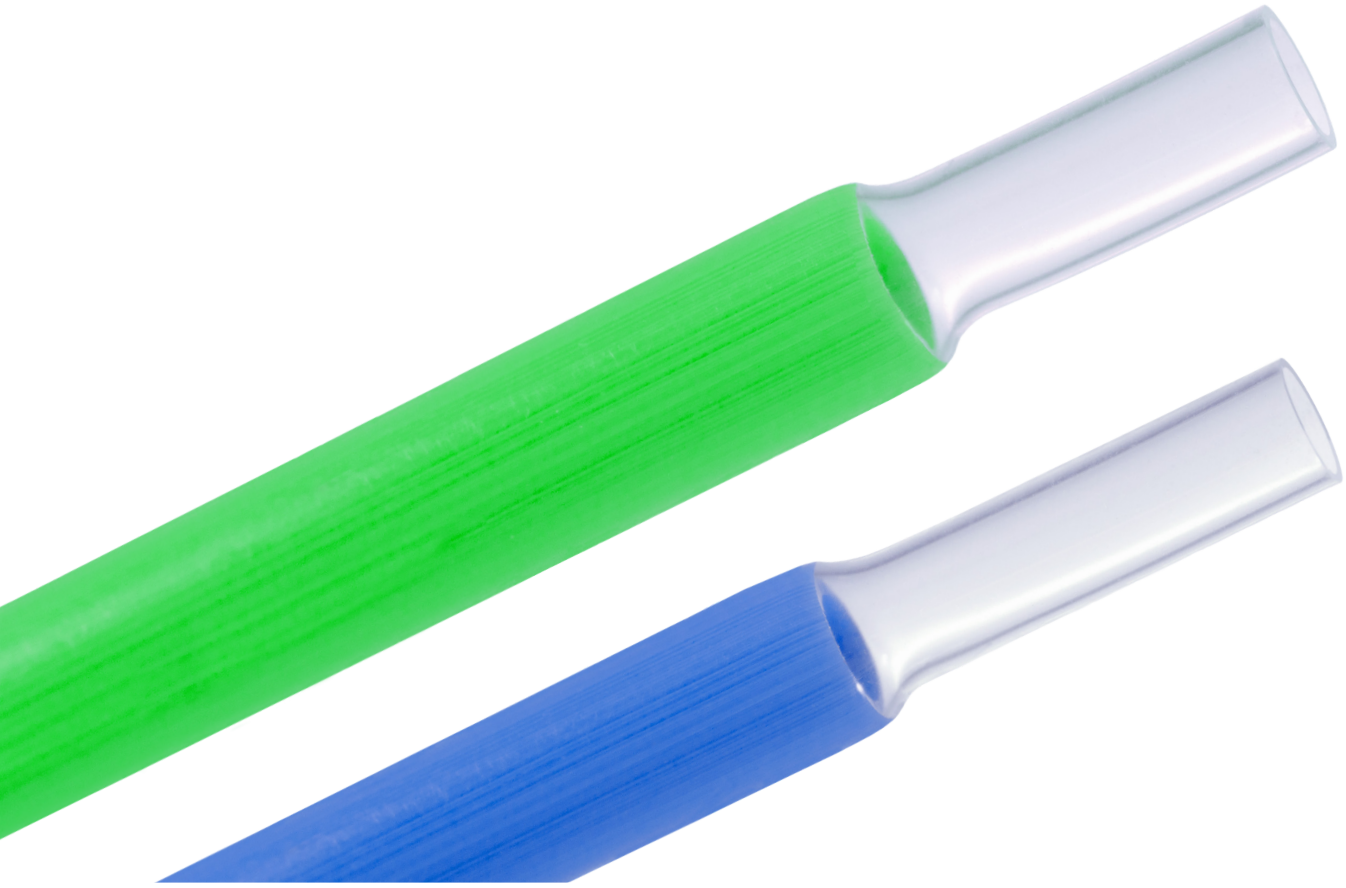


Heat Shrink Comparison Guide

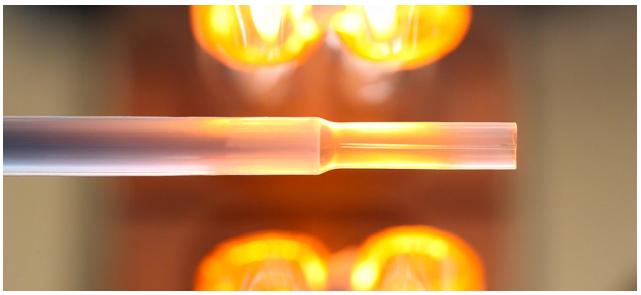
High-performance heat shrink options extruded for protection and customized to overcome design challenges.

ZEUS®

www.zeusinc.com | support@zeusinc.com

Heat Shrink Portfolio

Volatile environments can cause expensive insulation failures. Our extrusions minimize downtime, every time.



Heat Shrink Products

FLUOROPEELZ® PEELABLE HEAT SHRINK: This optically clear, peelable heat shrink is designed to improve the reflow of the catheter jacket – the final step in the construction process. FluoroPEELZ® reduces downstream processing, increases yields, and produces minimal scrap for cost savings. FluoroPEELZ® is available in sizes from neurological builds to AAA profiles.

DUAL-SHRINK™: Can be used to splice wiring exposed to the most extreme environments. Constructed with an exterior of PTFE heat shrink and an inner layer of FEP, our Dual-Shrink™ provides a tight moisture-proof bond over wires, cables, connectors, splices, terminals and others.

PTFE SUB-LITE-WALL®: 4:1 & 2:1 HEAT SHRINK: We make the smallest heat shrink in the world – as thin as a human hair - with our PTFE-Sub-Lite-Wall® products. These products have wall thicknesses down to .0015" and tolerances of +/- .0005". Zeus also has PTFE Heat Shrink catalog sizes ranging to 4.00" expanded ID's with a maximum shrink ratio of 4:1 and meets the AMS 23053/12. These excellent insulators withstand high temperatures up to (500 °F / 260 °C).

PEEKSHRINK™: This product is ideal for difficult environments where abrasion, chemicals, or dielectric interference pose a threat to wires and electrical components.

Heat Shrink Property Comparison Chart

RESIN/ PRODUCT	OPERATING TEMP	SHRINK RATIOS	RECOVERY TEMP	DI S A
FluoroPEELZ®	200 °C / 400 °F	Up to 1.65:1	215 °C / 420 °F +/- 10 °C / 50 °F	2
PEEKshrink™	260 °C / 500 °F	Up to 1.4:1	343 °C - 385 °C (650 °F - 725 °F)	3
Dual-Shrink™	232 °C / 450 °F	Varies by diameter	343 °C / 650 °F +/- 10 °C / 50 °F	2
Low-Temp Dual-Shrink™	302 °F / 150 °C		215 °C / 419 °F +/- 10 °C / 50 °F	
PTFE Sub-Lite-Wall®	260 °C / 500 °F	Up to 4:1	343 °C / 650 °F +/- 10 °C / 50 °F	8
PTFE	260 °C / 500 °F	Up to 4:1	343 °C / 650 °F +/- 10 °C / 50 °F	8
FEP	205 °C / 400 °F	Up to 2:1	215 °C / 420 °F +/- 10 °C / 50 °F	2
FEP Roll Cover	205 °C / 400 °F	Up to 1.6:1	215 °C / 420 °F +/- 10 °C / 50 °F	2
FEP Lay-Flat™	205 °C / 400 °F	Up to 1.6:1	215 °C / 420 °F +/- 10 °C / 50 °F	2
ETFE	150 °C / 302 °F	Up to 1.6:1	174 °C / 345 °F +/- 10 °C / 50 °F	1
PFA	260 °C / 500 °F	Up to 1.6:1	210 °C / 410 °F +/- 10 °C / 50 °F	2
PET Lay-Flat™	145 °C / 293 °F	Varies	89 °C / 180 °F	

**Always assure good ventilation in the immediate work area prior to and dizziness. Ovens are the most reliable way to recover heat shrink p overheating the material (which can lead to brittleness and crac*

ELECTRIC TRENGTH STM D149	SPECIAL FEATURES	APPLICATIONS
000 V/Mil	• **Peelable** • Clear • USP Class VI	• Catheter manufacturing aid • Packaging
500 V/Mil	• High temperature resistance • **Abrasion resistant** • Lightweight • Non-flammable	• Wire splicing • Lead wire insulation • Replacement for Kapton® tape
000 V/Mil	• Combines the best properties of PTFE & FEP for a dual-layer heat shrink • Keeps out moisture • Non-flammable	• **Environmental seal over wires, cables, connectors, splices, terminals and other components**
	• Combines the best properties of FEP & EFEP for a dual-layer heats shrink. • Blocks Moisture • Non-flammable	• **Sensor encapsulation** • **Fiber Optic splice encapsulation and boot strain relief** • **Wire splicing/termination**
300 V/Mil	• **Thinnest recovered wall, globally** • Smallest PTFE diameters • High temp resistance • Chemically resistant • Highly lubricious • UV resistant	• Splice for fiber optics • Guide wire coating
300 V/Mil	• High temperature resistance • Chemically resistant • Lubricious • UV resistant • AMS 23053/12	• Insulation • Protective Cover • High temperature shrink
000 V/Mil	• High temperature resistance • Chemically resistant • Lubricious • UV resistant • Long lengths • Non-flammable • **AMS 23053/11 (Excluding 2:1)**	• Insulation • Low temp shrink • Bulb encapsulation • Catheter construction • Catheter manufacturing aids
000 V/Mil	• High temperature resistance • Chemically resistant • Lubricious • UV resistant • Long lengths • **Larger diameters** • AMS 23053/11	• Thicker wall for durable covering of rollers
000 V/Mil	• High temperature resistance • Thin walls combined with large diameters • Long lengths	• **Seamless composite release aid**
800 V/Mil	• **Abrasion resistant** • Chemical resistant • Non-flammable	• Abrasion resistant wire insulation
000 V/Mil	• Temperature resistant • More flexible than PTFE • Melt processable	• **High temperature insulation** • Available in long lengths
N/A	• Low recovery temperature • Quick recovery • Long lengths • Easy shipping • Cost effective	• **Light bulb encapsulation**

beginning the heat shrink process. Caution: Fumes may cause nausea roducts due to their ability to ensure even heating and reduce the risk of king). Heat guns can also be used to recover heat shrink material.

FEP LAY-FLAT™ AND HEAT SHRINK: When aerospace composite engineers need a more efficient alternative to films and tapes, they use ultra-thin FEP Lay-Flat™ heat shrink for composite forming applications. Available in a variety of diameters with wall thicknesses down to 0.004", FEP Lay-Flat™ heat shrink's easy removal increases productivity and leaves an improved surface finish. FEP is also an excellent choice for electrical insulation and has shrink ratios up to 2:1. FEP 1.3:1 and 1.6:1 meet AMS 23053/11 standard.

Heat Shrink Applications

GUIDE WIRE COATINGS: PTFE Sub-Lite-Wall® spiral stripe heat shrink is used to provide a lubricious jacket and indicate movement of guide wires.

LAPAROSCOPIC INSULATION: FEP and PTFE heat shrinks provide insulation to protect the physician and patient during energy based procedures.

BATTERY PACK ENCAPSULATION: Heat shrinks help protect battery packs from moisture and chemicals and offer an additional thermal barrier.

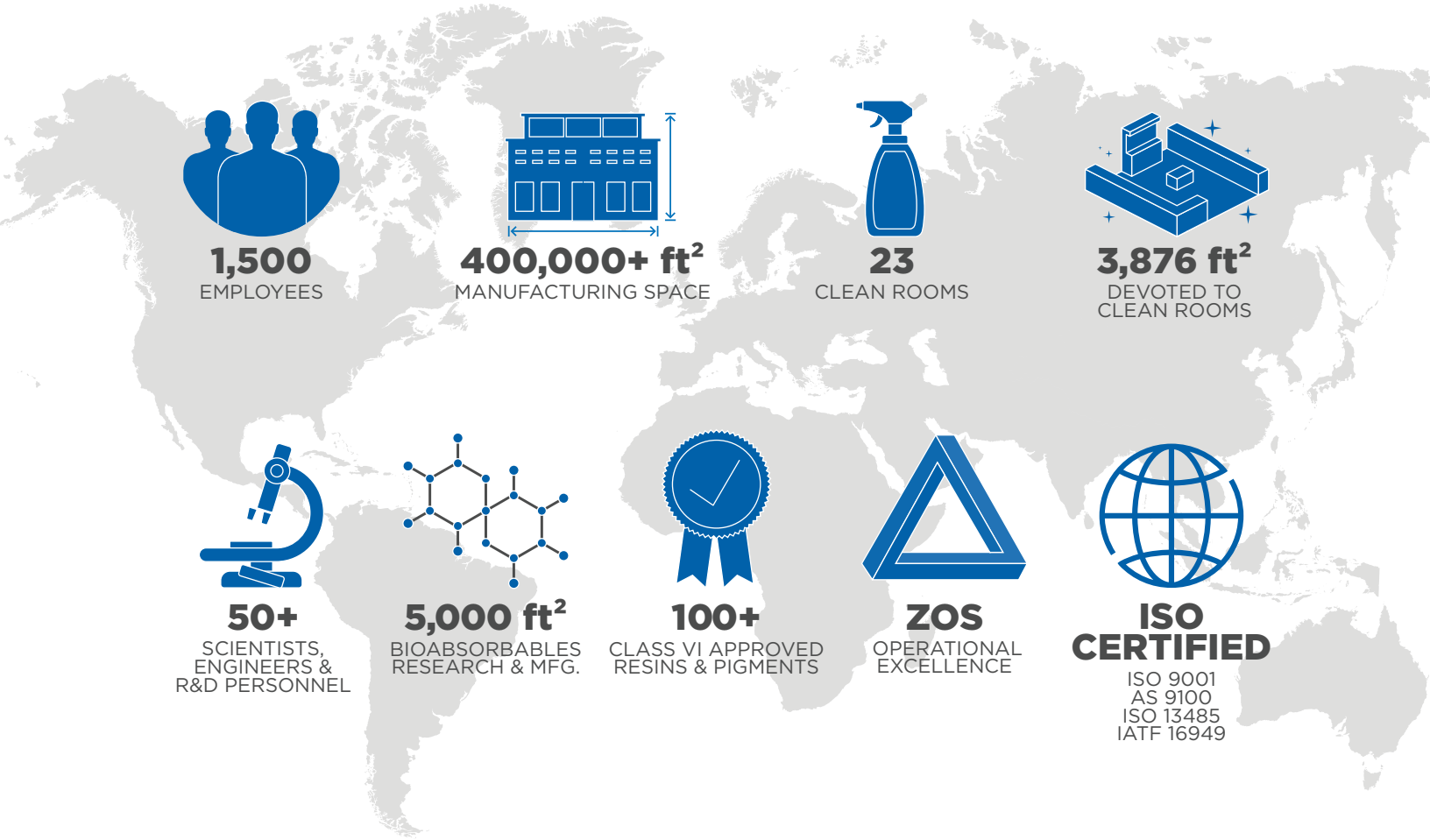
WIRE SPLICING: Use PEEKshrink™ to replace films and tape, turning the weakest point in coil windings into the strongest and most reliable. Dual-Shrink™ is commonly used for wire splicing and provides moisture proof encapsulation.

CORE SAMPLING ENCAPSULATION: Protect core samples and apply a durable skin that is a chemically inert, high-temperature, and transparent jacket.

KAPTON® REPLACEMENT: Applications such as Electrical submersible pumps (ESP) replace Kapton® tape for PEEKshrink™ to splice wire.

LIGHT BULB ENCAPSULATION: Make light bulbs safe by providing a shatterproof encapsulation with PET Lay-Flat™ heat shrink, or utilize FEP Lay-Flat™ heat shrink for germicidal light bulb encapsulation as it withstands ultra-violet (UV) light.

About Zeus.



1,500
EMPLOYEES

400,000+ ft²
MANUFACTURING SPACE

23
CLEAN ROOMS

3,876 ft²
DEVOTED TO CLEAN ROOMS

50+
SCIENTISTS, ENGINEERS & R&D PERSONNEL

5,000 ft²
BIOABSORBABLES RESEARCH & MFG.

100+
CLASS VI APPROVED RESINS & PIGMENTS

ZOS
OPERATIONAL EXCELLENCE

ISO CERTIFIED
ISO 9001
AS 9100
ISO 13485
IATF 16949

- OVER 50 YEARS OF INDUSTRY SOLUTIONS -

Zeus delivers precision polymer solutions that transform businesses, markets, and lives. We have dedicated ourselves to building partnerships, products, and services for the benefit of our customers.

Headquartered in Orangeburg, South Carolina, Zeus employs approximately 1,500 people and operates multiple facilities around the world.

ZEUS®

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