

# Choosing The Right Heat Shrink Tubing

## Heat Shrink Tubing Considerations

Because heat shrink tubing protects wiring and electrical lines from the environment, it needs to be able to keep all potential environmental hazards at bay. The exact conditions can vary from location to location, so it's important to keep these heat shrink tubing considerations in mind:

### 01 Abrasion or Flex Damage

Electrical lines and wiring will shift over time. Above-ground installations may be bumped, moved, or pushed against; even below-ground installations may encounter some flex as the ground expands and compresses in the weather. The right heat shrink tubing material will be able to handle the physical hazards in your intended application environment.



### 02 Arc Flash

An arc flash occurs when an electric current leaves its path and travels through the air to the ground, or from one conductor to another. In this case, the proper heat shrink material would encase the wiring and provide sufficient resistance to ensure electrical current stays on course.



### 03 Exposure to Chemicals

Almost no locations are free from the risk of chemical contaminants. Assess the likely chemicals, including solvents, chemical salts, oils, and greases, present in your application environment. You may need specialized materials or multiple/thick layers of protection to ward away particularly caustic or pervasive substances.



### 04 Exposure to the Elements

In outdoor or partially enclosed environments, protection against harsh temperatures isn't enough. The material must also be strong enough to withstand rain, snow, abrasive winds, and direct or indirect UV exposure.



### 05 Exposure to Temperature Extremes

Very cold or very hot climates present different risks to the effectiveness of heat shrink tubing. Even if the line is buried and out of direct exposure, temperatures can reach deep into the ground. Make sure you choose a heat shrink tubing material that can withstand extreme heat and cold, or large variations in temperature.



### 06 Fire Risks

The heat shrink tubing you choose needs to both halt the spread of a fire and mitigate the risk of an external flame from reaching and damaging the wires; this is also referred to as flame-retardancy.



### 07 Moisture

Virtually every environment will have moisture, ranging from ambient humidity to rainfall or even proximity to marine spaces. Determine the amount of water, frequency of exposure, and duration of exposure the heat shrink material needs to be able to protect the wiring against.



## Common Heat Shrink Materials

Now that you know what to look for, consider the properties of commonly used heat shrink materials to find the right fit for your needs. Common material options include:

### Fluoroelastomers

01

This material is flexible, even at cold temperatures. It can also resist diesel and fluid damage.

### Fluoropolymers (PTFE)

02

PTFE has multiple grades, including a medical grade variation. This material can also operate reliably across hot and cold temperatures.

### PET

03

Polyethylene terephthalate is strong, clear, and comes in food-safe options.

### Polyolefins

04

This material is well-regarded for its insulative ability. It can be used in a wide range of manufacturing and industrial use cases.

### PVC

05

PVC is flexible, easy to work with, and can handle physical impact without degrading. However, it does have a relatively low-temperature resistance.

Contact us today to learn more about our products or request a quote to get started.



[www.nationalplastics.com](http://www.nationalplastics.com)