



# Common Properties of TPU Film

**Dingzing**

Thermoplastic polyurethane (TPU) film is being increasingly used as an alternative to rubber and traditional plastic materials. As TPU films continue to be found in more and more products and applications, it is important to have a basic understanding of their common properties and characteristics.

To begin with, there are 2 basic types of TPU film—polyester-based and polyether-based. Both are available in different levels of hardness, strength, transparency, flexibility, and elasticity, which can all affect the films' characteristics and behavior.

*Below are just some of the properties that define the characteristics and behavior of polyester-based and polyether-based TPU film.*

## No.1

### **Abrasion Resistance**

Abrasion resistance refers to the ability to withstand certain forces, such as friction, scratching, and corrosion, while maintaining the original appearance of the material. When high abrasion resistance is needed, polyester-based TPU film is an excellent choice, although polyether-based TPU film also performs well in this area.

Polyester-based TPU Film	+++
Polyether-based TPU Film	+

## No.2

### **Heat Resistance**

Heat resistance refers to the ability to withstand the harshness of the weather, especially in high temperature conditions where materials are often degraded by the heat and UV radiation. Polyester-based TPU film can withstand higher temperatures and is, therefore, a better choice for applications used in hot climates or high-heat conditions.

Polyester-based TPU Film	++
Polyether-based TPU Film	+

# No.3

## **Low Temperature Flexibility**

Low temperature flexibility refers to the ability to withstand the harshness of sub-zero environments, where materials often become brittle and crack. For extreme low temperatures, polyether-based TPU film provides a better solution than polyester-based TPU film.

Polyester-based TPU Film	+
Polyether-based TPU Film	+++



# No.4

## **Hydrolysis Resistance**

Hydrolysis resistance refers to the ability of materials to withstand decomposition from water, moisture, or humidity over time at normal temperature. For applications that are constantly in contact with water or in a high-humidity environment, polyether-based TPU film is the best choice.

Polyester-based TPU Film	+
Polyether-based TPU Film	+++



# No.5

## **Microbial Resistance**

Microbial resistance refers to the ability to protect materials from microbial attacks and degradation by bacteria and mildew. For medical and other applications where materials are reused, polyether-based TPU films are the best choices, especially when hygiene is a concern.

Polyester-based TPU Film	+
Polyether-based TPU Film	+++



# No.6

## Gas Permeability

Gas permeability refers to the ability to hold gas, once two different materials are sealed together. For inflatable products, polyester-based TPU films are a better choice, compared to polyether-based TPU films.

Polyester-based TPU Film	+	+	+
Polyether-based TPU Film	+		

To select the right TPU film for your application, the film's basic characteristics and behavior must be considered. Get in touch with us today to find out more about our technical films. Visit [www.dingzing.com](http://www.dingzing.com) and be sure to check out our Innovation Playground, too.

# DingZing

Science. Innovation. Collaboration.

DingZing is a leader in the development and production of high-performance polymers. We specialize in thermoplastic polyurethane and polyurethane products and solutions, with a focus on advanced technical films.

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