



**Attachment**

# **Materials: Plastics**

# Types

## a. PVC

PVC is used for a wide range of hard plastic parts, such as pipes and casing. PVC can, with added plastitziers, be used to create coated or laminated fabrics. PVC coated or laminated fabrics can be printed, and used in billboards, tarpaulins or other applications.

## b. TPU

TPU is a plastic often used to manufacture phone cases, fitness tracker bracelets, shoe insoles and as a coating on fabrics.

## c. ABS

ABS plastic is often used to make injection molded parts, such as plastic cases (i.e., power bank cases), lighting, rods and other products.

## d. PE

PE plastic is often used to make injection molded products and parts, such as pallets, trays, pipes and kitchen utensils. PE can also be used to coat or laminate fabrics. There are two types of PE that you must be aware of:

- HDPE (High Density)
- LDPE (Low Density)

## e. EVA

EVA is a foam plastic that is often used to make fitness products, such as yoga mats and foam rollers.

# Tooling

## a. Injection Molding

Melted metal (i.e., stainless steel) is inserted into a cavity. The metal cools down and forms a solid component, for example a watch case. An injection mold cannot be modified, and is generally only used for a certain type of metal.

## b. 3D Printing

A 3D printer prints thin layers of plastics into objects. Today, relatively few manufacturers in China use 3D printers. However, as 3D printers are becoming relatively cheap, some suppliers adopt 3D printing when making prototypes. However, a 3D print is only a model, and cannot be used for mass production or replace an injection mold.

# Specifications

## a. Weight

Plastic coated or laminated fabrics are measured by grams per square meter (gsm). However, other plastic products are defined by the density, in terms of kilograms per cubic meters (X kgs / m<sup>3</sup>).

## a. Thickness

Plastic sheets, for example used in product packaging, are measured in Mu ( $\mu$  = micron / mic).

$\mu = 1 / 1000000$  meters

## c. Color system

Plastics can generally be colored according to a pantone color. It's important that you always specify the correct pantone code to your supplier. However, notice that 'custom colored plastics' (according to a certain pantone colors) often results in a higher MOQ - compared to if you buy a plastic in one of the suppliers standard colors.

## d. Printing

### Screen printing

Screen printing is a common printing type for various materials, and can be used for both light and dark plastic surfaces.

### Offset printing

Often used to print plastic bags, plastic packaging and plastic sheets.

### Heat / thermal transfer printing

Heat transfer printing is a low cost method that adds a layer to the plastic surface. It is more common when printing textiles, compared to plastics.