

Choosing Films for Self Adhesive Labels

HOW SAM (UK) CAN HELP

SAM (UK) can help you with expert advice on the correct film to use. We have in stock a wide range of films including both standard and special vinyls for offset printing as well as BOPP films which are available in a range of finishes including Gloss White, Gloss Clear and Matt White. In addition to our comprehensive range of litho printable films, SAM also stocks an extensive selection of films suitable for all digital printing technologies.

THE FILMS - THEIR ADVANTAGES AND DISADVANTAGES

Polyvinyl Chloride (PVC or Vinyl)

Advantages

- Soft and conformable
- Manufactured in clear and various colours and thicknesses
- Indoor and outdoor uses (depending upon the grade and adhesive, guaranteed for up to seven years)
- Reasonable resistant to chemicals or oils

Disadvantages

- Not stable in warm or hot conditions
- Needs special vinyl inks to print or fully oxidising inks if litho printing.
- Not clear - hazy and can be distorted
- Not environmentally friendly during manufacture or recycling
- Requires special dies to die cut shapes successfully
- Cannot be used in proximity to food packaging due to possible plastizer migration.

Typical Applications

PVC has many unique features particularly in outdoor or point of sale applications that require longevity. Typical uses include advertising posters (both indoor and outdoor - depending on the grade), banners produced on plotter or wide format printers, commercial signage, automotive applications such as car and truck body stripes or decals.

Low and High Density Polyethylene (PE, LDPE and HDPE)

Advantages (Low Density Polyethylene)

- Soft and conformable
- Manufactured in clear and white
- Much thinner films available compared with vinyl
- Can be printed with standard fully oxidising water based or UV inks

- Recyclable

Disadvantages (Low Density Polyethylene)

- Tears easily in both cross and machine directions
- Low temperature resistance
- Tensile strength low and the film can distort during the printing process
- Not as clear as HDPE

Typical Applications:

Used more in packaging than labels

Advantages (High Density Polyethylene)

- Reasonable tensile strength medium
- Image quality is good
- Product clarity is good
- Reasonable life span when stored under the recommended conditions both prior to and after printing and converting.
- Reasonable resistance to chemicals or oils

Disadvantages (High Density Polyethylene)

- Tears easily in a cross machine direction if the edges are 'nicked' or damaged
- Requires a print receptive coating (normally applied by the manufacturer)
- Requires a specific filmic die to die cut properly (dies used to cut paper, if they work at all, will have their useful life considerably shortened if used to die cut films)

Typical Applications:

Used where conformability, flexibility or squeezability are required, particularly on plastic bottles or containers and household or personal care products where the container may be of an irregular shape and require squeezing to dispense the contents.

Biaxially orientated polypropylene (PP or BOPP)

Advantages

- Available in both clear and white
- Good sheet stability
- Reasonable tensile strength
- Reasonable temperature resistance
- No image distortion
- Good print image quality
- "Touch clear" after application - if the material is viewed through the film and adhesive (after the backing sheet has been removed but prior to application) it appears cloudy and not clear; however, once applied, the film becomes fully clear or "touch clear".

- Reasonable shelf life if stored under the recommended conditions both prior to and after printing and converting.
- Recyclable

Disadvantages

- Tears in the cross direction if 'nicked' or cut
- Non conformable
- Low to medium resistance to chemicals or oils. Testing should take place prior to any printing or application process to ensure that the product inside the container to be labelled has no effect on either the print surface or the stability and adherence of the label itself.
- Requires a print receptive coating prior to printing
- Requires a specific filmic die to die cut properly. Paper dies, if they work at all, will have their useful life considerably shortened if used to die cut films

Typical Applications:

Food and beverage packaging and labels, medical packaging and labels, personal care product packaging and labels, tamper-proof films - printed or clear

Polyester (common reference for polyethylene terephthalate or PET)

Advantages

- Does not tear easily even if 'nicked' or cut
- Available in clear, white and silver
- Due to its inherent strength, significantly reduced thicknesses of film can be used than with vinyl, PE or BOPP films
- Very high clarity (with the clear versions)
- Excellent print image quality
- No distortion of image
- Very high tensile strength in both cross and machine directions
- Very high resistance to temperature
- Very high resistance to chemicals and oils
- Requires no print receptive coating prior to printing
- Good shelf life if stored under the recommended conditions prior to and after printing and converting.
- Recyclable

Disadvantages

- Cost high versus PE or BOPP films and vinyl
- Not conformable
- Requires a specific high quality die to die cut shapes due to its high tensile strength. The normal life of the die is also shortened for the same reasons.

Typical Applications:

Its resistance to heat makes PET the best choice for high temperature printing such as toner machines. PET is regularly used in top end packaging applications such as cosmetic labelling (for small, round cosmetic dispensers that require both high end graphics and clarity). It is also used in pharmaceutical packaging and labelling, tamper-proof packaging and labels, labelling chemical drums and automotive applications - both outside and inside the engine compartment - where longevity is required. Similarly, the labelling of white goods (technical specification labels which replace the original metal labels) and computer technical labels (front and reverse side) that require clear information, graphics and longevity despite the small size are ideal applications for PET.

PRINTING CONSIDERATIONS

Non-absorbent materials such as plastic films and metal foils cannot be printed with conventional litho inks as these inks are only designed to work with absorbent or porous printing substrates like paper. If conventional litho inks are used on non-absorbent surfaces, they will not dry.

Printing on films demands inks that dry primarily through oxidisation and are referred to as oxidising inks or fully oxidising inks. Prior to printing, always ask your ink supplier about the selection of the correct inks and best press conditions.

Many films today are printed digitally and it is important to select the correct film for the specific digital printing process. If long print runs are required at high temperatures (typically associated with some digital toner machines), polyester should be used as it is more tolerant to the temperature extremes involved.

Printing self-adhesive films digitally is not the same as printing paper or plastic without adhesive and there may be some initial curling of the sheet which normally settles down after a period of time. It is also important to fan the material prior to loading the feeding unit in order to get as much air as possible into the material. The minimum temperature necessary should be used to avoid subjecting the labels to excessive heat.