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Mylar[®]
Specialty Films



Product Information Sheet

Mylar[®], Melinex[®] and the Environment

What are Mylar[®] and Melinex[®]?

Mylar[®] and Melinex[®] are Mylar Specialty Films trademarks for biaxially oriented film produced from the polymer polyethylene terephthalate (PET). PET is manufactured from dimethyl terephthalate, or terephthalic acid, and monoethylene glycol, both of which are derived from petroleum feedstocks. The range of Mylar[®] and Melinex[®] films available is wide, reflecting the large number of end use applications. The range includes optically clear films, plain films, pre-treated films and co-extruded films.

What are they used for?

Mylar[®] and Melinex[®] films are used for applications in a wide variety of industries. They are ideal bases for photographic films and also for drafting and reproduction film. They may be used for electrical applications like cable wraps where high quality electrical insulation is required. Melinex[®] film can be incorporated into the structure of credit cards, bank cards and cheque cards, Mylar[®] and Melinex[®] films are used as supporting carriers in magnetic tapes. They can also be used in the packaging and conversion industry for printing, lamination and metallising. Typical applications in the packaging of foodstuffs are for coffee and dried foods, confectionery snackfoods and nuts; liquid packaging; freezer to oven ready meals and various lidding applications.

Why are Mylar[®] and Melinex[®] films used for packaging?

Mylar[®] and Melinex[®] films are light and strong and are dimensionally stable at both freezer temperatures and hot oven temperatures. Packaging converters value their thermal stability, clarity and durability and often use them in laminates with polyolefinic films to produce strong, stiff heat sealable packs for packaging, for instance of dried foods or portion control liquids. Metallised Mylar[®] and Melinex[®] films are used in the packaging of coffee provides an excellent barrier to oxygen so keeping the product fresh. Certain coated Mylar[®] films and coextruded Melinex[®] films offer excellent heat sealability which, combined with their thermal stability and odour barrier make them the ideal choice for the lidding of freezer to oven ready meals and for example overwrap of bake in the bag garlic bread.

The protection of foodstuffs by such films and structures has helped to reduce the spoilage of fresh food to 2-3% in Western Europe compared to 30-50% in developing countries.

Are they wasteful of resources?

Mylar[®] and Melinex[®] films provide a high performance to weight ratio and are therefore not wasteful of resources. They are derived from petroleum based feedstocks with favourable energy consumption at high conversion efficiencies. Plastics as a whole only utilise 4% of Western Europe's petroleum feedstock and PET films only use a small fraction of this percentage.

Are they toxic?

PET has wide acceptance for use in direct contact with foodstuffs. Mylar[®] and Melinex[®] film grades suitable for use in food packaging comply with major food contact regulations including those of the Food and Drug Administration (USA), the Bundesgesundheitsamt (FRG) and EU Commission Directive 90/128/EEC. For full details concerning Mylar[®] and Melinex[®] film applications in contact with foodstuffs please contact Mylar Specialty Films.

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Can Mylar® and Melinex® be processed and used safely?

Mylar® and Melinex® films present no major health and safety problems when being processed, however in common with all industrial processes, due care and attention should be paid to ensure correct working procedures are being utilised. When working with thick grades of film it is advisable to wear industrial gloves to protect hands from the sharp edges of the film. Some processes such as cutting, stamping or perforation often produce film debris. Extraction hoods to prevent fragments of film being released and causing a hazard to eyes are therefore recommended. For further information please refer to the Product Information Note 1 "Product Safety Data" range and "PET Films - Safety in Handling and Use".

Are Mylar® and Melinex® films biodegradable?

Mylar® and Melinex® films are not biodegradable. Their durability, strength and resistance to attack from bio-organisms mean that they are specially suited to the packaging of foodstuffs

Can Mylar® and Melinex® films be recycled?

In the manufacturing process, film may be routinely reprocessed to maximise utilisation of PET polymer.

Where non-PVdC coated Mylar® and Melinex® film waste occurs in a clean uncontaminated form, that cannot be reused in the film process, it can be recycled into, for example, polyester fibre for use as clothing and a filling for sleeping bags.

However, in the majority of Mylar® and Melinex® film applications, the film is used in conjunction with many other substances, either in multi layer structures with other plastic materials, in laminates with aluminium and/or coated with a variety of organic and inorganic compounds. The opportunities for mechanically recycling such structures will depend on the development of collection, separation and cleaning techniques capable of recovering the PET film to the purity required.

It is essential that the total environmental impact of any such operation remains less than that of using virgin raw materials.

In many circumstances energy balance studies show that incineration with Energy Recovery is the most environmentally efficient recovery route for contaminated Mylar® and Melinex® film waste.

Can Mylar® and Melinex® film be incinerated?

On controlled incineration non-PVdC coated Mylar® and Melinex® film behaves in a similar manner to common natural cellulosic materials such as wood and paper. Gases, mostly carbon dioxide and water are produced and the small quantities of catalyst residues remain in the ash.

Mylar® and Melinex® films have approximately the same energy content as soft coal and are thus a useful component of mixed domestic refuse for incineration as they assist the combustion of wet paper and vegetable matter. The valuable energy released can be recovered and used in heating of municipal buildings, homes and industrial facilities. This benefit is widely practised in Japan, Switzerland and Sweden.

What happens if Mylar® and Melinex® films are landfilled?

In common with other plastics used for durability and inertness Mylar® and Melinex® films will remain virtually unchanged when buried for very long periods, thus aiding the stability of the landfill site as a whole. They are also unaffected by either alkaline or mild acid conditions and will not contaminate water tables or run off into rivers or other water courses.

Do Mylar® and Melinex® films cause litter?

Litter is caused by the thoughtless actions of people. Once Mylar® and Melinex® films enter the waste stream they can be dealt with through recycling, incineration or landfill.

What is the Environmental Impact of Mylar® and Melinex® films?

Mylar® and Melinex® films are stable and inert on exposure to the environment.

Mylar® and Melinex® films protect foodstuffs and help preserve their freshness, reducing food spoilage.

Their strength, durability and thermal stability allow a minimum amount of packaging to be used so reducing the amount of solid waste. A respected German study ("Verpacken Ohne Kunststoff" - Packaging Without Plastics - Gesellschaft Fur Verpackungsmarktforschung 1987) indicates that if plastics were to be replaced as a packaging material then;



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⊗	Volume of waste would increase by	150%
⊗	Weight of packaging materials would increase by	300%
⊗	Energy consumption by packaging materials would increase by	100%
⊗	Cost of packaging materials would increase by	100%

We hope this statement answers some of your questions regarding the generalised use of Mylar® and Melinex® films and their impact on the environment. For more specific information, please refer to grade specific technical data sheets or contact your Mylar Specialty Films Representative.

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