

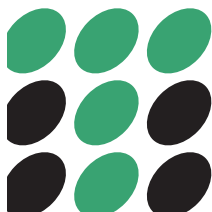
**Tecnofilm**<sup>®</sup>  
*thermoplastic compounds*

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# TECNOFILM SPA

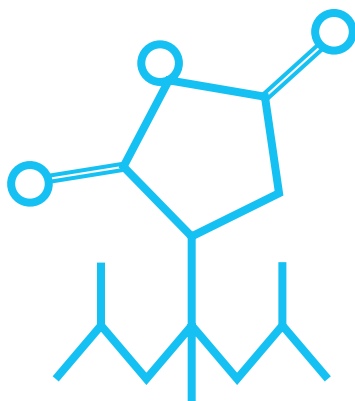
## Company



## Mission



## Introduction



Founded in 1972, **TECNOFILM** is a leading producer of thermoplastic compounds for the shoe industry and technical articles and functionalized polyolefins.

We aim to satisfy all our client's needs, focusing on product innovation and service quality.  
Our guiding principals are:

- preeminent customer service
- quality products
- industry knowledge
- product innovation

Our success is based on intense research and development, into new products, production processes and applications, based on the background and experience of our collaborators and technicians. Our team of marketing and product specialists continuously monitors industry events to be proactive and solution oriented with our customers.

Polyolefins are the most important class of commercial polymers and are used in a wide range of applications. Despite their versatility, they suffer from certain drawbacks that exert a limiting influence on their fields of applications.

Because their non polarity they have a poor dispersibility with inorganic fillers, poor miscibility in blends and alloys with polarity, polymers and poor adhesion to metals.

Free radical grafting of maleic anhydride (MAH) onto polyolefins has gained wide industrial applications; MAH modified polyolefins are an essential part of many industrial formulations.

The main field of applications of polyolefins functionalized by maleic anhydride are:

- chemical coupling agents between polyolefins and mineral flame retardant fillers in halogen free compounds
- impact modifiers in engineering thermoplastic (PA, PET etc) formulations
- compatibilizers in reinforced systems as PP and glass fibers
- adhesives in multilayers pipes
- compatibilizers in composites between wood an polyolefins.

# TECNOBOND CFA-S

## Description

**TECNOBOND CFA-S** is a LLDPE modified by maleic anhydride through a new continuous process of high grafting efficiency which guarantees a very low content of free maleic anhydride and the absence of crosslinked material.

## Applications

**TECNOBOND CFA-S** is particularly recommended for the production of halogen-free flame retardant compounds for wires and cables where high stiffness is required and when fillers as magnesium hydroxide and aluminium trihydrate are used.

**TECNOBOND CFA-S** is used as coupling agent in many compounds between polyolefins polymers and high content of inorganic fillers as magnesium and calcium carbonate, talc and kaolin ect.

## Properties

	Typical values	Test method
Melt flow index (g/10 min) 190°C; 2,16 kg	1,0 - 1,5	ASTM D 1238
Anhydride maleic content % W/W	0,8 - 1,0	INTERNAL METHOD
Density (gr/cm <sup>3</sup> )	0,920 ± 0,002	ASTM D 792 Method A

# TECNOBOND CEL

## Description

**TECNOBOND CEL** is a blend of ethylene semicrystalline copolymers modified by maleic anhydride through a new process of high grafting efficiency which guarantees a very low content of free maleic anhydride and the absence of any crosslinked material.

## Applications

**TECNOBOND CEL** is particularly recommended for the production of halogen free flame retardant compounds for wires and cables where high flexibility is required and when fillers such as magnesium hydroxide and aluminium trihydrate are used.

**TECNOBOND CEL** is used as a coupling agent in many compounds of polyolefin polymers and high content of inorganic fillers such as magnesium, calcium carbonate, talc, kaolin etc.

## Properties

	Typical values	Test method
Melt flow index (g/10 min) 190°C; 2,16 kg	1,0 - 2,0	ASTM D 1238
Anhydride maleic content % W/W	0,6 - 0,8	INTERNAL METHOD
Density (g/cm <sup>3</sup> )	0,883 ± 0,005	ASTM D 792 Method A

# TECNOBOND PP

## Description

**TECNOBOND PP** is a polypropylene functionalized by maleic anhydride through a new process of high grafting efficiency.

## Applications

**TECNOBOND PP**, because of its good dispersion in the polypropylene matrix and high reactivity with functional groups, is used as a coupling agent to improve the adhesion between glass fibres and polypropylene as a dispersant agent in compounds of polypropylene and mineral fillers (talc, calcium, carbonate, etc.).

**TECNOBOND PP** is recommended to compatibilize polypropylene and polyamide alloys and improves the adhesion properties of polypropylene to metal in plastic coatings as well as in tie layers for film applications.

## Properties

	Typical values	Test method
Melt flow index (g/10 min) 230°C; 2,16 kg	40 - 60	ASTM D 1238
Anhydride maleic content % W/W	0,6 - 0,8	INTERNAL METHOD
Melting point (°C)	160 °C	DSC

# TECNOBOND PA

## Description

**TECNOBOND PA** is a blend of ethylene semicrystalline copolymers modified through a new process of high grafting efficiency.

## Applications

**TECNOBOND PA**, if well dispersed in a polyamide matrix, acts as an effective stress concentrator leading to excellent impact properties up to -20°C.

**TECNOBOND PA** is recommended to improve the toughness of some engineering thermoplastic materials such as PET, PBT, PC and compatibilize their blends.

## Properties

	Typical values	Test method
Melt flow index (g/10 min) 190°C; 2,16 kg	1,0 - 3,0	ASTM D 1238
Anhydride maleic content % W/W	0,6 - 0,8	INTERNAL METHOD
Glass transition temperature (°C)	< - 45	DSC

# TECNOBOND PA-LT

## Description

**TECNOBOND PA-LT** is a blend of ethylene elastomers and plastomers modified by maleic anhydride through a new process of high grafting efficiency.

## Applications

**TECNOBOND PA-LT**, if well dispersed in a polyamide matrix, acts as an effective stress concentrator leading to excellent impact properties up to  $-30^{\circ}\text{C}$ .

**TECNOBOND PA-LT** improves the toughness of engineering thermoplastic materials such as PET, PBT, PC and compatibilizes their blends.

## Properties

	Typical values	Test method
Melt flow index (g/10 min) 230°C; 2,16 kg	4	ASTM D 1238
Anhydride malieic content % W/W	0,6 - 0,8	INTERNAL METHOD
Glass transition temperature (°C)	< - 50	DSC

# TECNOBOND PE-MLP

## Description

**TECNOBOND PE-MLP** is a PE modified by maleic anhydride through a new continuous process at high grafting efficiency suitable to assure a very low content of free maleic anhydride, the absence of crosslinked material and a completely random distribution of maleic anhydride inside the polyethylene chains.

## Applications

Crosslinked polyethylene (PEX) is a non-corrosion, elastic, resistance to stress and chemicals material; aluminum has a minimal thermal expansion, good resistance to high temperature and pressure and dimension stability. The combination of PEX and aluminum provides many advantages. Unfortunately PE does not adhere to aluminum.

**TECNOBOND PE-MLP** is used as high performance adhesive layer in the composite pipe applications (multilayer pipe) based on crosslinked polyethylene (PEX) and containing aluminum as barrier layer.

**TECNOBOND PE-MLP** guarantees a very good adhesion to PEX as by a diffusion of polymer chains into the other materials (entangled chains) and a co-crystallization of two materials being both semi-crystalline. The adhesion of **TECNOBOND PE-MLP** to aluminum layer is essentially due to a chemical interaction between polar groups of tie layer and metal substrate.

## Properties

	Typical values	Test method
Melt flow index (g/10 min) 190°C; 2,16 kg	2,5	ISO 1133
Anhydride maleic content % W/W	0,3 - 0,5	INTERNAL METHOD
Vicat softening point (°C)	80	ASTM D 1525
Density (gr/cm <sup>3</sup> )	0,91	ASTM D 1505

A process melting temperature above 210°C is recommended to assure a good adhesion between adherents. All the chemical products content in **TECNOBOND PE-MLP** are listed as authorized in monomers/additives in the EU plastics directive 2002/72/EC and its amendments.