

## Masterbatches for BOPP Films - Mexico

High reliability; easy processing; customized film properties



## Masterbatch solutions for the BOPP film market

BOPP films have a unique combination of properties such as high clarity, stiffness, fast heat-sealability, and barrier protection. The BOPP process allows the production of highly transparent, white or pearlescent films. BOPP films are also an ideal substrate for printing, lamination, and other converting processes.

BOPP film is used in a variety of applications including:

- Transparent, white and pearlescent heat-sealable films for packaging food and non-food products
- Metallized and high-barrier films
- Labels and synthetic paper
- Printing and lamination films for plastic substrates, paper, and cardboard
- Adhesive tapes
- Tobacco packaging films
- Cable wrap and insulation
- Capacitor films

LyondellBasell is a leading international producer of masterbatches and compounds for Biaxially Oriented Polypropylene (BOPP) films. Our Technology Centres allow new products and applications to be developed in close collaboration with suppliers and customers.

A laboratory stretching frame and a 5-layer BOPP pilot line were installed at our Bornem Technical Center (BTC) and new KARO V equipment at our Akron Technical Center (ATC). LyondellBasell's latest analytical equipment, technical expertise, and direct technical services show that we are clearly committed to the BOPP film market.

LyondellBasell is your partner for Masterbatch Solutions in a changing world.



### YOUR BENEFITS

- Discover a broad range of masterbatches
- Profit from our extensive experience in BOPP processes and applications
- Benefit from thinner films, faster processing, higher output



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# 1. Anti-blocking Masterbatches

Thin plastic layers have a tendency to stick together (blocking). Because of this, the addition of anti-block agents is recommended for the handling, conversion, and commercialization of packaging films (e.g. wind-up/unwind, slitting, etc.). The selection of the anti-block agents depends on the required film properties (e.g. anti-block performance, haze and gloss, surface roughness, and scratch resistance). Specific masterbatches are available for metallisable films and some anti-block agents can also act as non-migrating slipping agents.

Polybatch	Carrier	Product Family	Comment
<b>1.0 Standard Non-migratory Grades</b>			
<b>PBH ABVT 22 NG SC</b>	PP Raco	Anti-block	Organic product
<b>PBH ABPP 05 SC</b>	PP Raco	Anti-block	Inorganic Product
<b>PBH ABPP 05</b>	PP Homo	Anti-block	Inorganic Product
<b>1.1 Standard Grades</b>			
<b>PBH BFM-01</b>	PP Homo	Anti-block	Improves AB properties on skin layers with terpolymer resins
<b>PBH ABVT 23 SC</b>	PP Raco	Anti-block	For thin skin layers < 1 um
<b>PBH ABVT 24 SC</b>	PP Raco	Anti-block	For thick skin layers > 1.5 um
<b>PBH ABVT 0502 SC</b>	PP Raco	Anti-block	Improves AB/slip properties on skin layers with terpolymer resins
<b>PBH ABVT 19 NSC</b>	PP Raco	Anti-block	Base Metallized film, improves the anchorage of the aluminum
<b>PBH ABVT 30 SC</b>	PP Raco	Anti-block	Improves AB/slip properties for heat-sealable film, for thick skin layers > 1.2 um
<b>PBH ABVT 33 SC</b>	PP Raco	Anti-block	Improves AB/slip properties for heat-sealable film, for thin skin layers < 1.2 um
<b>PBH ABVT 34 SC</b>	PP Raco	Anti-block	Improves AB/slip properties for heat-sealable film, for thin skin layers < 1 um





## 2. Slip & Combined Slip / Antiblocking Masterbatches

Plastic films have a tendency to create a high coefficient of friction against metal surfaces and other film surfaces. This can be a limiting factor for high-speed processing during the handling of films, packaging, printing, etc. In these situations, slip additives can reduce this coefficient of friction, thus enhancing either the processing procedure or the end use. A practical choice of slip agents is needed to ensure that the coefficient acts at the right speed. It is essential that these agents properly influence the final performance of the film. And that depends on the intended application and the geographical area where it will be used. LyondellBasell offers combined anti-block/slip masterbatches that facilitate the handling of raw materials and guarantee accurate dosing in the final application.

<i>Polybatch</i>	Carrier	Product Family	Comment
<b>2.0 Standard Migratory Grades</b>			
<b>PBH SPER 6</b>	PP Homo	Slip	For cold climates
<b>PBH KER 5</b>	PP Homo	Slip	For hot climates
<b>2.1 Specialty Migratory Grades</b>			
<b>PBH SPER 6 TS</b>	PP Homo	Slip/AB	Highly purified amide, high thermal stability, long lasting performance
<b>2.2 Standard Migratory Grades</b>			
<b>PBH ABER 11 SC</b>	PP Homo	Slip/AB	Combination of AB agent and Amide, for the skin layer



### 3. Antistatic Masterbatches

Electrostatic charges are typically caused by friction between two materials. Static charges can disturb the continuity of many processes and, for example, hinder film handling during packaging processes. Often the static charge is the factor that determines what speeds are achievable in these processes. For this reason, internal anti-static additives are incorporated in the polymer matrix. Their controlled incompatibility causes migration to the surface, thus forming a polar layer that absorbs water from the atmosphere. This layer is able to conduct and dissipate the static charges (higher conductivity/lower resistance and a shorter charge-decay time). A reduced static charge also avoids dust pickup by the packed goods.

Polybatch	Carrier	Product Family	Comment
<b>3.0 Standard Migratory Grades</b>			
<b>PBH ASPA 2485</b>	PP Homo	Anti-static	Combined antistatic agents with Low / high molecular weight
<b>PBH ASPA 2446</b>	PP Homo	Anti-static	Combined antistatic agents
<b>PBH ASB 10 G</b>	PP Homo	Anti-static	Antistatic agent standart concentration
<b>PBH ASB 20 G</b>	PP Homo	Anti-static	Antistatic agent doble concentrated
<b>3.1 Specialty Migratory Grades</b>			
<b>PBH HK 10 N</b>	PP Homo	Anti-static	For tobacco films
<b>PBH ASPA 2485 S</b>	PP Homo	Anti-static	Low haze – good surface tension retention after corona or flame treatment
<b>PBH AST 500</b>	PP Homo	Anti-static	Long term anti-static – slow migration

### 4. Combined Slip / Antistatic Masterbatches

Combined Slip/Anti-Static Masterbatches facilitate the handling of raw materials and guarantee accurate dosing in the final application. The ratio and types of additives are selected to achieve the food approvals and highest performance in the final application.

Polybatch	Carrier	Product Family	Comment
<b>4.0 Standard Migratory Grades</b>			
<b>PBH ASPERA 2358</b>	PP Homo	Slip/Anti-static	Combined standard anti-static and slip agents
<b>PBH FASPS 2950 W</b>	PP Homo	Slip/Anti-static	Combined standard anti-static and slip agents, cold climate
<b>PBH FASPS 2950</b>	PP Homo	Slip/Anti-static	Combined standard anti-static and slip agents, hot climate
<b>4.1 Specialty Migratory Grades</b>			
<b>PBH ASPERA 2395</b>	PP Homo	Slip/Anti-static	Highly purified active ingredients, high thermal stability, low blooming

## 5. White Masterbatches

LyondellBasell offers a wide range of white masterbatches that are based on homopolymer and copolymer PP. These masterbatches are appropriate for labels, lamination films, protective films, solid-white films for printing, and many other applications

Polybatch	Carrier	Product Family	Comment
<b>5.0 Standard Grades</b>			
<b>PBH P8562</b>	PP Homo	White	TiO2 Premium grade with highest gloss, improvement in uniform dispersion

## 6. White Pearlescent Masterbatches

Pearlescent BOPP films are the result of cavitation – caused by inorganic particles or polymeric agents in the core layer – that occurs during orientation. The well-defined voids create a lower density and an improved dead fold. Pearlescent films have a high-gloss surface. LyondellBasell offers different PF grades for applications such as labels, candy and chocolate bar wrappers, ice cream packages, and general overwrap film. Combined masterbatches of TiO<sub>2</sub> and pearlescent agents are available in order to satisfy specific customer and market demands.

Polybatch	Carrier	Product Family	Comment
<b>6.0 Standard Grades</b>			
<b>PBH PF 97N</b>	PP Homo	Pearlescent	Normal Achievement in density (0.62 g/cc)
<b>PBH PF 98K</b>	PP Homo	Pearlescent	Normal Achievement in density (0.60 g/cc), improved processing, highest concentration
<b>6.1 Specialty Grades</b>			
<b>PBH PF 882 T</b>	PP Homo	Pearlescent	Specific for medium-density film (0.58 g/cc)
<b>PBH PF 97 OG</b>	PP Homo	Pearlescent	Specific for low-density film (0.53 g/cc)
<b>PBH PF 124</b>	Compound	Pearlescent	Special pearlescent agent for films with high opacity, high gloss and high stiffness
<b>6.2 Combination CaCO<sub>3</sub> / TiO<sub>2</sub> Grades</b>			
<b>PBH PF 52N</b>	PP Homo	White/pearlized	Combined TiO <sub>2</sub> & CaCO <sub>3</sub> , premium grades in active ingredients

## 7. Matte Compounds

Articles with an attractive matte appearance – or a soft-touch feel – can create a significant product differentiation. A full range of matte compounds is offered for lamination and heat-sealable films with different Seal Initiation Temperatures (SIT). Applications involving a co-extrusion process require no extra equipment.

Polybatch	Carrier	Product Family	Comment
7.0 Standard Grades			
PBH DUL 3636 DP20	Compound	Matte	Higher matte effect – SIT 125°C
PBH DUL 3636 LTX4	Compound	Matte	Heat-sealable – SIT 105 °C

## 8. Synthetic Paper Compounds

Synthetic paper looks like paper, but acts like plastic. In BOPP films, a multi-component system of specialty additives and mineral fillers in the core layer are combined with a matte finish *Polybatch* DUL 5050 compound to impart qualities that resemble and feel like paper. These qualities include: increased stiffness, dead fold capacity, printability, whiteness, and film density. The compounds are suitable for a variety of applications, such as brochures, labels, banners, posters, book covers, maps, etc.

Polybatch	Carrier	Product Family	Comment
8.0 Standard Grades			
PBH DUL 5050 HF 1	Compound	Synthetic paper	Standard
PBH DUL 5050 HF 3	Compound	Synthetic paper	Higher surface roughness







## 9. Anti-fogging Masterbatches

Fogging refers to the condensation of water vapour on the surface of a plastic film. It results in the formation of water droplets. In food packaging films, the droplets make the content less visible and may decrease the quality of the packaged product. The addition of internal anti-fog additives spreads the water out as a thin film, thus preventing large drops from forming. The primary applications are overwrapping films used for fresh, pre-cut vegetables and fruit.

Polybatch	Carrier	Product Family	Comment
9.0 Standard Grades			
PBH ATF 3066 PP SC	PP Raco	Anti-fog	Cold Fog

## 10. Processing Aid Masterbatches

*Polybatch* AMF masterbatches contain fluoropolymer-based Polymer Processing Additives. The fluoropolymers' incompatibility with plastic and high affinity for metal forms a thin coating in the extruder die. As friction between the molten plastic and the metal die wall decreases, stress on the plastic is reduced. This eliminates high shear rate melt fractures during the extrusion. Higher output can be achieved by a decrease of filter pressure. The films have a higher gloss and an improved thickness profile. In cast film processes, the addition of processing additives will minimise die lip build-up. Fewer stops will be required for cleaning the die lips, resulting in higher productivity and reduced costs.

Polybatch	Carrier	Product Family	Comment
10.0 Standard Grades			
PBH PAMF 905 SC	PP Raco	PPA's	Polymer processing aid skin layer and core layer

## 11. Polymer Modifier Masterbatches

*Polybatch* masterbatches contain hydrocarbon resins. Adding *Polybatch* BOPP films improves haze, gloss, stiffness, and barrier properties. Enhanced shrinkability is obtained upon orientation. Tight-pack overwrap films required by tobacco products represent the main application for these masterbatches.

<i>Polybatch</i>	Carrier	Product Family	Comment
11.0 Standard Grades			
<b>PBH HC 50</b>	PP Homo	Hard resin	Enhancement of film properties - shrinkage for cigarette film - stiffness - twist - optics - barrier - processability

## 12. UV Light Stabilizer Masterbatches

Plastics are sensitive to UV light degradation and must be protected when exposed to solar radiation. The extent and rate of this degradation is influenced by parameters such as climatic conditions, the thickness of the article, polymer type, or the presence of other additives. LyondellBasell offers a wide range of UV stabilizer masterbatches. From standard grades to high-performing stabilizer packages based on the latest technology of UV stabilizers, these masterbatches are appropriate for agricultural, industrial, and food packaging applications, amongst others. LyondellBasell's expertise in this field also means that you will always be provided with tailor-made, cost-effective masterbatch solutions to your particular needs.

<i>Polybatch</i>	Carrier	Product Family	Comment
12.0 Specialty Grade			
<b>PBH PAC 10537 SC</b>	PP Raco	UV Protection	UV Light Stabilization



## 13. Heat & Processing Stabilizer Masterbatches

Antioxidants are used to protect polymers from degradation, both during processing (short-term stabilisation) and during use (long-term stabilisation). Polymer degradation generally results in gel formation and changing melt-flow indices, loss of mechanical and aesthetical properties (crazing, gloss reduction, chalking), and discoloration. Heat stabilisers are typically applied for extra polymer stabilisation, for reclaim upgradings, and for shutdowns.

Polybatch	Carrier	Product Family	Comment
13.0 Specialty Grade			
PBH PAO 3360 SC	PP Raco	AOX	Special combination for stabilization of polymer - upgrading of reclaim - shut downs

At LyondellBasell of San Luis Potosí, we have the capability of making customized products, attending to the special needs of the market, for example:

- Flame retardant additive concentrates according to ISO 15025, UL 94, or other standards required by the electronics, construction, or industrial industry.
- Weather-resistant inorganic pigment concentrates.
- Terpolymer grade compounds: a range of products developed for the custom sealing start temperature, with the possibility of additivation for the desired CoF, blocking and electrical decay properties, and guaranteeing the perfect balance of the structure.

# ABOUT US

As a leader in the global chemical industry, LyondellBasell strives every day to be the safest, best operated and most valued company in our industry. The company's products, materials and technologies are advancing sustainable solutions for food safety, access to clean water, healthcare and fuel efficiency in more than 100 international markets. LyondellBasell places high priority on diversity, equity and inclusion and is Advancing Good with an emphasis on our planet, the communities where we operate and our future workforce. The company takes great pride in its world-class technology and customer focus. LyondellBasell has stepped up its circularity and climate ambitions and actions to address the global challenges of plastic waste and GHG emissions reduction. For more information, please visit [www.lyondellbasell.com](http://www.lyondellbasell.com) or follow @LyondellBasell on LinkedIn.

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