



HIGHADD[®]

Masterbatches for BOPP & CPP Films



HIGH GRADE INDUSTRIES

www.highgrade.in



“ Our Mission is to be a leading solution provider for the stabilization of Plastics & to engage in the development of products for the Polymer Processing, Packaging & Textile Industries. ”

ABOUT US

We are a group of technocrats and professionals engaged in the business of Polymer Stabilization & providing Industrial solutions for Plastics in the form of Additives and Concentrates.

M/s High Grade Industries (I) Pvt. Ltd. is a manufacturing company founded by Mr. G. S. Kohli in the Year 2000, engaged in the manufacturing of Plastic Additives and Plastic Masterbatches/Compounds with an annual manufacturing capacity of 3000 MT per annum of Additives & 45,000 MT per annum of Masterbatches/Compounds.

We are based in Mumbai with manufacturing facilities in Silvassa, D&NH, ably supported by a sales network across India.

Our current major markets are the domestic market of India and exports to over 14 countries encompassing Asia, South East Asia, Africa & Europe.

Our group company, **M/s Solaris Speciality Chemicals Pvt. Ltd.** is also engaged in the manufacturing of masterbatches.

All the operations of the group viz, the Corporate offices, Manufacturing facilities are fully owned by the founder promoters – the Kohli Family.

Our total group revenue in the year 2022-23 was 60 million USD.

MASTERBATCH SOLUTIONS FOR THE BOPP FILM MARKET

Biaxially oriented polypropylene (BOPP) film is film stretched in both machine and transverse directions, producing molecular chain orientation in two directions. Biaxial orientation results in increased toughness, increased stiffness, enhanced clarity, improved oil and grease resistance, and enhanced barrier properties to water vapor and oxygen. Impact resistance, low-temperature impact resistance, and flexcrack resistance are substantially modified.

Due to its advantages this film has become one of the most popular and highly demanded films all across the globe.

BOPP films have a unique combination of properties such as high clarity, stiffness, fast heat-sealability, and barrier protection. 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
- Metallised 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

High Grade Industries is a leading manufacturers of masterbatches and compounds for Biaxially Oriented Polypropylene (BOPP) films. Our State of the Art Technology Centre studies varies applications for packaging films and aids in the development of new products with close collaboration with customers and suppliers.

We have an inhouse Cast Film line (CPP) and 2 Blown film lines, where various critical properties of impact of masterbatches/compounds in packaging films is studied in detail.

High Grade Industries manufacturers the following products for BOPP film industry:

- Anti-Blocks
- Slips
- Anti-Static
- Anti-Static & Slip Combinations
- Anti-Block & Slip Combinations
- Stiffener/Polymer Modifiers
- Matt Compounds
- White
- Anti-Oxidants
- UV Stabilizers
- Processing Aids
- Optical Brighteners
- Anti-fog

We sell the above Additive masterbatch products under our brand name HIGHADD.

*As of March 2022, our **HIGHADD**® products are listed in the “Approved” Category of the Brüeckner Maschinenbau GmbH Recommendation list for BOPP Film Raw Materials, making us the 1st and Only Indian Company and only the 4th Company Globally to be given this recognition.*

ANTIBLOCK MASTERBATCHES

Antiblocking masterbatches are necessary to avoid film blocking on the reel. Furthermore these masterbatches have a relevant effect on other properties of the film such as, for instance, optical properties, coefficient of friction, printing and metallization quality.

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.



Grades	Active Content	Base Polymer	Description
BLOCK 05A	5%	Homo PP	Synthetic Silica Anti-Block for Plain Film
BLOCK 102A	10%	Homo PP	Synthetic Silica Anti-Block for Plain Film, Double Concentration
S-BLOCK 101AA	5%	Co PP	Synthetic Silica Anti-Block for Heatsealable Film
S-BLOCK 102AA	10%	Co PP	Synthetic Silica Anti-Block for Heatsealable Film, Double Concentration
BLOCK 3301A	5%	Homo PP	Low Haze Anti-Block for High Transparent film, Printing Film
BLOCK S-3301AA	5%	Ter PP	Low Haze Anti-Block for High Transparent film, Printing Film, Metallizable film
BLOCK 2C221A	5%	Co PP	Non migratory Slip/Antiblock for very thin skin layer, Metalizable and Heatseal film
BLOCK 2C01A	5%	Co PP/ Ter PP	Non migratory Slip/Antiblock for standard skin layer, Metalizable and Heatseal film
BLOCK 2C41A	5%	Co PP/ Ter PP	Non migratory Slip/Antiblock for thick skin layer, Metalizable and Heatsealable film
BLOCK 2C74A	7.5%	Co PP/ Ter PP	Non migratory Slip/Antiblock for thick skin layer, Metalizable and Heatsealable film
BLOCK 2C811A	5%	Co PP/ Ter PP	Non migratory Slip/Antiblock for very thick skin layer, Metalizable and Heatsealable film
BLOCK MT 2A	10%	Co PP	Special Anti-Block for Metallized Film
BLOCK OJ 6AA	6%	Co PP	Special Anti-Block for Metallized Film
BLOCK 5011AA	5%	Co PP	Low COF Antiblock for Heatsealable Films
BLOCK 5031AA	10%	Co PP	Low COF Antiblock for Heatsealable Films, Double Concentration

SLIP & SLIP-ANTIBLOCK MASTERBATCHES

Slip masterbatches are used to modulate the coefficient of friction (COF) of BOPP films. Besides the COF modulation other factors as optical properties and printability also have to be considered.

Slip-Antiblocking masterbatches combine established ratios of slip agents and antiblocking particles in one masterbatch.

In order to achieve the desired targets for each specific application, we can offer a full range of masterbatches containing migrating or nonmigrating slip additives.



Slip Grades

Grades	Active Content	Base Polymer	Description
SLIP X6A	6%	Homo PP	Standard Slip agents for Core Layer
SLIP X12A	12%	Homo PP	Standard Slip agents for Core Layer, Double Concentration
SLIP X66AA	6%	Co PP	Standard Slip agents for Skin Layer, Low COF
SLIP 3101A	5%	Homo PP	High Molecular weight Slip agents, Long lasting effect

Slip-Antiblock Grades

Grades	Active Content	Base Polymer	Description
BS 111AA	10%	Co PP	Combination of Synthetica Silica & Standard Slip Agents for Skin Layer
BS 122AA	20%	Co PP	Combination of Synthetica Silica & Standard Slip Agents for Skin Layer, Double Concentration

ANTISTATIC MASTERBATCHES

Antistatic masterbatches are used to avoid static charging of BOPP films. Each application, for instance labels, packaging films, industrial films, requires different antistatic performance.

Antistatic additives migrate 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. A reduced static charge also avoids dust pickup by the packed goods. In order to achieve the desired targets for each specific application, we can offer a full range of antistatic masterbatches.



Grades	Active Content	Base Polymer	Description
ASC 512A	12.5%	Homo PP	Short and Long term Antistatic Blend for Balanced properties, Good Slip Properties
ASC 106A	30%	Homo PP	Short and Long term Antistatic Blend for Balanced properties, Good Slip Properties, Higher Concentration
ASC 106A-OBA	30%	Homo PP	ASC 106A with Optical Brightener for improved UV-curing
ASC 951A	24%	Homo PP	Short and Long term Antistatic Blend for Balanced properties, Higher concentration
ASC 2321A	12%	Homo PP	Antistatic Blend for Long term effect
ASC 7312A	12.5%	Homo PP	Antistatic Blend with Good Optical properties, Long term effect
ASC 7330A	30%	Homo PP	Antistatic Blend with Good Optical properties, Long term effect, Higher concentration

SLIP-ANTISTATIC MASTERBATCHES

Slip-Antistatic masterbatches combine established ratios of slip and antistatic agents in one masterbatch. This overcomes the necessity to add slip and antistatic masterbatches separately during film extrusion.



Grades	Active Content	Base Polymer	Description
COBLASC 103A	15%	Homo PP	Slip and Antistatic Blend for Hot Climate, Low COF, Heatsealable and Plain Film
COBLASC 206AA	30%	Homo PP	Slip and Antistatic Blend for Hot Climate, Low COF, Heatsealable Film, Double Concentration
ASIP 4002A	24%	Homo PP	Combined Slip and Antistatic Agents, Plain Film
COBLASC 603AA	30%	Homo PP	Slip and Antistatic Blend for Cold Climate

STIFFENER/POLYMER MODIFIER MASTERBATCHES

These masterbatches contain hydrocarbon resins. Adding these masterbatches in BOPP films improves haze, gloss, stiffness, and barrier properties. Enhanced shrinkability is obtained upon orientation.

Apart from well established applications such as shrinkable BOPP tobacco films, stiffener/ polymer modifier masterbatches can also be used for other applications like label films, metallisable films and transparent food packaging where enhanced mechanical and optical properties, increased gas barrier, or when better processability is required.



Grades	Active Content	Base Polymer	Description
STF C5010A	50%	Homo PP	C5 Hydrocarbon resin, Improves Stiffness & Barrier Properties
STF C9010A	50%	Homo PP	C9 Hydrocarbon resin , Cigarette Film, Twist wrap, Improves Stiffness & Barrier Properties, High Transparency
STF C9012A	60%	Homo PP	C9 Hydrocarbon resin , Cigarette Film, Twist wrap, Improves Stiffness & Barrier Properties, High Transparency

MATT COMPOUNDS

Matt Compounds are mainly used to achieve special aesthetic effects as matt/ silky appearance. We offer a range of matt compounds to obtain different targets for haze, gloss and sealability.

Grades	Description
MATTE N-3546	Good Matt Properties, High Haze(>70), Low Gloss, Excellent runability
MATTE i-2020	Excellent Matt Properties, High Haze(>75), Low Gloss, Good runability
MATTE N-7709	Excellent Matte Properties, Heatsealable Film, Low SIT



ANTI-OXIDANT MASTERBATCHES

Antioxidants are used to protect polymers from degradation, both during processing (short-term stabilisation) and during use (long-term stabilisation).

Oxidation effect degrades all polymers. As a result, Anti-Oxidants are added in Polymers to reduce the degradation effect & control flow behaviour.



Grades	Active Content	Base Polymer	Description
AO 1602A	10%	PP Homo	Stabilization of resin during processing, General purpose application
AO 1604A	20%	PP Homo	Stabilization of resin during processing, General purpose application, Double Concentration

UV STABILIZER MASTERBATCHES

Polymers 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.

To protect the polymers from the effect of UV light degradation, it is recommended to use UV/Light Stabilizers. Stabilization is achieved by incorporation of HALS or UV Absorbers or combination of both. HALS are very efficient and effective stabilizers for polyolefins.



Grades	Active Content	Base Polymer	Description
UV 104A	20%	PP Homo	UV light stabilization, General purpose, limited food approvals
UV 404A	20%	PP Homo	UV light stabilization, General purpose, FDA complaint

CAVITATING MASTERBATCHES

Cavitating masterbatches are used to produce voided films with reduced density and high opacity, which represents a great opportunity to enhance the appeal of packaging.

Organic Cavitating masterbatches contain polymer agents that impart pearl properties to BOPP films.

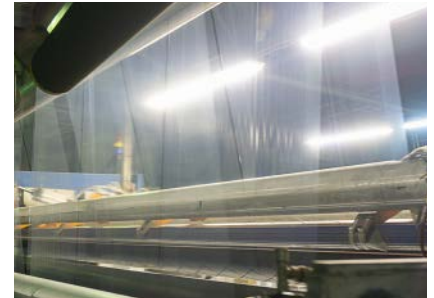


Grades	Active Content	Base Polymer	Description
CAV 3700	30%	Homo PP	Organic cavitating masterbatch, improved gloss, higher whiteness compared to standard cavitating masterbatches
CAV 7400	40%	Homo PP	

PROCESSING AID MASTERBATCHES

These masterbatches contain fluoropolymer-based Polymer Processing Additives. During the extrusion process, Processing Aids coat the inner surface of the die, reducing the friction between the melt and metal & thereby allow polymers to extrude more easily.

Higher output can be achieved by a decrease of filter pressure. The addition of processing additives minimises die lip build-up.



Grades	Active Content	Base Polymer	Description
PPA2 X2AA	2%	Co PP	Polymer processing aid for core layer and skin layer, General Purpose, Matt films
PPA 2030A	3%	Homo PP	Polymer processing aid for core layer and skin layer, General Purpose, Matt films
PPA 2050	5%	Homo PP	Polymer processing aid for core layer and skin layer, General Purpose, Matt films

ANTI-FOG MASTERBATCHES

Foodstuff with a high moisture content can cause undesirable deposition of water called “fogging” on the inside of their packaging when stored at low temperatures.

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.



Grades	Active Content	Base Polymer	Description
AFG 604A	20%	Homo PP	Excellent Anti-fog properties, Cold fog and Hot fog

NUCLEATING AGENT MASTERBATCHES

Nucleating Agents are added to increase clarity and improve mechanical properties. The addition of nucleating agents to the semi-crystalline polymers reduces the crystallinity rate thereby improves transparency. Mechanical properties like flexural modulus, strength, heat distortion temperature and hardness will improve.



Grades	Active Content	Base Polymer	Description
NUC 1014A	10%	Homo PP	High Clarity in films, Improved Mechanical properties, Transparent Labels

OPTICAL BRIGHTENER MASTERBATCHES

Optical Brighteners are added to camouflage the yellowness of the polymer due to catalyst residue/effect in polymerization and also to retain the colour of Polymer due to heat & shear degradation during.

Optical brighteners are applied to reduce the yellowish colour of BOPP films. They give the films a slightly bluish tint, thus making transparent, white, and white-pearlescent films look more attractive.



Grades	Base Polymer	Description
OBA X25A	Homo PP	Blueish Tint in Film - Anti -yellow effect
OBA X2AA	Co PP	Heatsealable Film, Blueish Tint in Film

WHITE MASTERBATCHES

We offer a wide range of white masterbatches (with up to 70% titanium dioxide) 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.



Grades	Active Content	Base Polymer	Description
W 11AA	55% TiO ₂	Co PP	Skin Layer of Heatsealable film
W 12A	60% TiO ₂	Homo PP	White Films & Labels
W 14A	70% TiO ₂	Homo PP	White Films & Labels

This product is sold under our BRAND - HIGHPURE (WHITE MASTERBATCHES)

TECHNOLOGY CENTRE

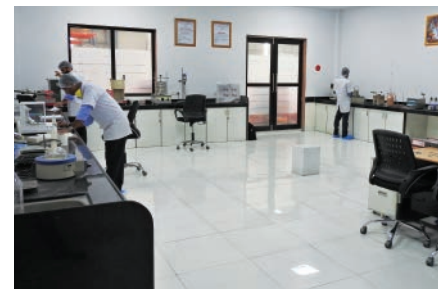
The Technology Centre is at our factory in Silvassa, India where we innovate, test and certify our products. It comprises of 3 Laboratories:

- Quality Control
- Application Development
- Analytical

QUALITY CONTROL

Our Quality Control department comprises of standard procedures to test basic quality measures of both our Raw Materials and Finished Products.

Our quality measuring system comprises of Chemical, Physical and Application based testing to ensure the customer gets the desired quality and performance with each lot of material dispatched. This helps us in maintain a company policy of “Zero” Quality Issues.



ANALYTICAL

The analytical laboratory evaluates help us to evaluate our products in depth with instruments such as Spectrophotometers, COF tester, Polarizing Microscope, Haze Meter, DSC, TGA, Potentiometric Titrators and Moisture Karl Fischer testers among others.



APPLICATION DEVELOPMENT

Our application developmental laboratory caters to variety of applications such as Textiles, Packaging Films (BOPP, CPP, BOPET, PE films) , Molding, Rigid Packaging, & Automotive.

This Laboratory consists of various equipments intended to check the suitability of our products in the final application.



Cast Film Line

At High Grade Industries we have invested USD 2 Million in the last 5 years to enhance our R&D facilities and continue to look at various avenues to further improve our facilities.

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