

Optimizing film production with CONSTAB GER Masterbatches and Compounds

# BOPP Polypropylene Cast and Calender Films







Kafrit Group is a leading producer of Masterbatches and Compounds for the plastics industry and currently employs more than 800 people. In 2024, the Group achieved ~350 million \$ turnover with an available capacity of more than 165,000 MT. Moreover, the company is active on a global scale and has set up production sites all over the world.

All of this began in 1973 when the company was founded in Israel. Since then, the company has grown primarily via acquisition.

Today, the Kafrit Group incorporates **Kafrit Industries (1993) Ltd. in Israel, CONSTAB Polyolefin Additives GmbH and Delta Kunststoffe AG in Germany, China's Suzhou Constab Engineering Plastics Co. LTD, Polyfil Inc. and Badger Color Concentrates Inc. in the USA, the Canada-based Kafrit NA Ltd. and ABSA Resin Technologies Inc., Addvanze AB in Sweden and 51% of Plastics- App in Israel.** With more than 50 years of experience in the plastics processing industry, the company can draw on high levels of expertise and technical know-how. Kafrit Group places a high value on sustainability and has made it to one of the cornerstones of our corporate strategy.

Our unbridled dedication to environmental, social and financial issues makes us to one of the leading business partners in the plastics industry. Our customers value our passion and appreciate our ecological awareness and social commitment. Moreover, they recognize our world leading services and consider our products as among the best within our industry.

We develop and produce cost-efficient solutions which will enhance the completion of high-quality end products in many areas of the plastics industry, such as packaging films (BOPP, BOPE, CPP, PE), PC sheet, agricultural films and derivatives, biopolymers, flame retardant applications, PEX, pipes, fibers and nonwovens.



# **Our Purpose**

Unite talent and technology to drive the future of plastics, together.

This purpose is the driving force of our organization.

The reason we do what we do, why we come to work every day. And although our group is made of many different Companies around the world, our purpose unites us.







The world doesn't stand still, and nor do we. We're always looking ahead, searching for new ways to sustainably grow and thrive. To push our technology and keep working on the next generation of solutions to benefit our customers. Working together in perfect synergy to achieve something great, today and tomorrow.



Around the world, we have hundreds of talented colleagues and partners. All with unique skills, multidisciplinary knowledge, and deep industry experience. Innovators with brilliant ideas and the drive to see them through. People striving for excellence in everything they do.

#### **TECHNOLOGY**

After decades in the plastics industry, we have more than high levels of expertise, a strong focus on customer service, and vast technical knowledge. We also have a burning passion for innovation and transformation. A passion that drives us to seek out new solutions, new machinery, and fresh ways to give our customers just what they need.

Together we have the power to drive the future of plastics – within our community and around the world. And we'll keep doing it, today, tomorrow and always.

But the real magic happens when we work together. There's a spark, an energy. A belief that anything is possible. And that's how we provide the best solutions for our customers.

And with the latest technology in our hands and new innovations within our grasp, there's only one question. How far can we go?



# Defining new production goals

# Experience the new high performance products

# Research that takes us to the top

Throughout our company history, research and development has always been a key area of our expertise. Kafrit Group employs a staff of more than 800 people who work on innovative products an make use of our vast pool of knowledge developed over 50 years in the plastics industry. Our experts optimize and develop additive concentrates, flame retardants, color concentrates, and compounds for various applications.

Kafrit Group enjoys a close partnership with renowned research institutions such as the Shenkar University in Israel and various universities in Germany. Moreover, we maintain a strong cooperation with well-known suppliers including machine manufacturers who recommend our products for use in combination with their machines.

# Looking for specific masterbatches?

We can produce tailor-made solutions for you – reliable, precise, and exactly as you need them.

Acid Scavenger Ecocell® (foaming agent) Flame Retardant Antiblock Antidust Filler IR Absorber Antifog Antiglare Light Stabilizer Antimicrobial Liquid Color Antimist Lubricant Antioxidant Matt Metal Deactivator Antislip Modifier Antistatic

Barrier MB

Nucleator Cavitating Agent Optical Brightener Color Concentrate Odor control/Odor absorber

Release Slip-Antiblock Slip-Antistatic Slip **UV** Absorber **UV** Blocker White Masterbatch White Cavitated

Paper-like Compound

Peel Compound

Processing Aid

Purge

We offer a wide range of masterbatches and compounds. This gives you the opportunity to equip your products with a wide range of tailor-made functionalities. But we don't rest on our laurels: we are constantly developing new properties in close cooperation with research institutions, manufacturers, and other partners. If you have any questions, we are happy to assist you with all functions — from anti-blocking to white cavitation.



# 1. BOPP

# Industrial and Food Packaging Film

#### 1 Antiblocking

Throughout our company history, research and development have always been a key area of our expertise. Kafrit employs a staff of more than 470 people that work on innovative products and make use of our vast pool of knowledge that we developed in 50 years of experience in the plastics industry. Our experts optimize and develop additive concentrates, flame retardants, color concentrates, and compounds for various applications.

| 0.1.                  | B   | <b>D</b> 0/   | 0   |       |         |              |                                      |      |
|-----------------------|---|---------------|---|-------|---------|--------------|--------------------------------------|------|
| Code                  | Description   | Dosing %      | Special<br>Feature  | Haze  | COF     | Printability | High Barrier<br>Metallizable<br>Film | Haze |
| AB 06001 PP           | 10% synthetic silica (5 µm) in homopolymer.         | 0.5 – 1.5     | cost saving   | 0     | 0       | +            | -                                    | -    |
| AB 06019 PP           | 5% synthetic silica (5 μm) in homopolymer.          | 1.0 - 3.0     | easy dosing   | 0     | 0       | +            | -                                    | -    |
| AB 06019 PPR          | 5% synthetic silica (5 μm) in terpolymer.           | 1.0 - 3.0     | easy dosing   | 0     | 0       | +            | -                                    | -    |
| AB 06089 PPR          | 6% synthetic silicate (3 μm) in copolymer.          | 1.0 - 3.0     | metallizable<br>film  | +     | +       | ++           | 0                                    | +    |
| AB 06095 PP           | 5% synthetic silicate (3 μm) in homopolymer.        | 1.0 - 3.0     | low haze plain film   | ++    | 0       | ++           | 0                                    | +    |
| AB 06059 PPR          | 5% PMMA (2 μm) in copolymer.                        | 2.0 - 6.0     | for thin skin<br>layer  | +     | +       | ++           | +++                                  | +++  |
| AB 06060 PPR          | 5% PMMA (4 μm) in copolymer.                        | 2-0 - 6.0     | easy dosing   | ++    | ++      | +            | +                                    | ++   |
| AB 06090 PPR          | 7.5% PMMA (4 µm) in copolymer.                      | 2.0 - 4.0     | cost saving   | +     | ++      | +            | +                                    | ++   |
| AB 06084 PPR          | 7.5% PMMA (6 µm) in copolymer.                      | 2.0 - 4.0     | for thick skin<br>layer and high<br>roughness, e.g.<br>matt layer | ++    | ++      | 0            | 0                                    | 0    |
| AB 06062 PPR          | 5% x-linked siloxane (2 μm) in copolymer.           | 2.0 - 5.0     | for thin skin<br>layer  | ++    | ++      | ++           | +++                                  | +++  |
| AB 06064 PPR          | 5% x-linked siloxane (4 µm) in copolymer.           | 2.0 - 5.0     | excellent COF<br>modulation                                       | +++   | +++     | +            | ++                                   | ++   |
| AB 06066 PPR          | $7.5\%$ x-linked siloxane (6 $\mu$ m) in copolymer. | 2.0 - 5.0     | for thick skin<br>layer   | +++   | +++     | +            | ++                                   | ++   |
| Evaluation: excellent | +++ recommended ++ good                             | l + basic 0 ı | not recommended -   | not a | pplicab | le n.a.      |                                      |      |

#### 2 Slip

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

| Code                  | Description   | Dosing %     | Special<br>Feature             | COF       | Hot Slip | Low<br>Blooming | Printability |
|-----------------------|---|--------------|--------------------------------|-----------|----------|-----------------|--------------|
| SL 05035 PP           | 6% erucamide in homopolymer.  | 1.0 - 3.0    | general<br>purpose             | ++        | -        | -               | +            |
| SL 05068 PP           | 10% erucamide in homopolymer.                                       | 0.5 – 1.5    | cost saving                    | ++        | -        | -               | +            |
| SL 05005 PP           | 5% high molecular weight amide in homopolymer.                      | 1.0 - 3.0    | low blooming                   | +         | +        | +               | ++           |
| SL 05080 PPR          | 10% silicone oil in copolymer.                                      | 5.0 - 10.0   | easy dosing,<br>long term slip | +++       | +++      | n.a             | -            |
| SL 05095 PPR          | 20% silicone oil in copolymer.                                      | 2.5 - 5.0    | cost saving,<br>long term slip | +++       | +++      | n.a             | -            |
| Evaluation: excellent | +++ recommended ++ good   | + basic 0 no | t recommended -                | not ap    | plicable | n.a.            |              |
| REMARKS               | Depending on the final application Please contact us for more infor |              | of dosing levels is ir         | ndicated. |          |                 |              |

# 3 Slip-Antiblocking

Slip-Antiblocking masterbatches combine established ratios of slip agents and antiblocking particles in one masterbatch. This eliminates the necessity to add slip and antiblocking masterbatches separately during an extrusion process. It is an easy and comfortable way to reduce costs and efforts in many standard BOPP film applications.

|      | Code                  | Description  | Dosing %      | Special<br>Feature  | COF     | Hot Slip         | Printability   | Metallizable | Low Blooming  |
|------|-----------------------|--|---------------|---|---------|------------------|----------------|--------------|---------------|
| NEW! | SAB 065410<br>PPR     | NEW! Organic antiblocking agent and non-migrating agent in terpolymer. |               |   |         |                  | -              | -            |               |
|      | SAB 06522 PPR         | Synthetic silica and silicone oil in terpolymer.                       | 3.0 - 8.0     | low haze tobacco film                                       | +++     | ++               | -              | -            | n.a.          |
|      | SAB 06554 PPR         | Organic antiblocking agent and non-migrating slip agent in terpolymer. | 3.0 - 10.0    | high speed packaging film                                   | ++      | ++               | +<br>(o.s.)    | +<br>(o.s.)  | n.a.          |
|      | SAB 06553 PPR         | Organic antiblocking agent & non-migrating slip agent in terpolymer.   | 3.0-10.0      | high speed<br>packaging<br>film, improved<br>processibility | ++      | ++               | +<br>(o.s.)    | +<br>(O.S.)  | n.a.          |
|      | Evaluation: excellent | +++ recommended ++ good  | + basic 0 no  | t recommended -   | not app | <b>licable</b> n | .a. <b>opp</b> | osite sid    | <b>e</b> o.s. |
|      | REMARKS               | Customized formulations  | s are availab | le on request.  |         |                  |                |              |               |

#### **4 CONSLIP**

CONSLIP is a new philosophy for permanent slip which is intended to replace existing migrating slip agents Films formulated with CONSLIP provide stable very low COF independent of aging, hot slip properties and is compatible with printing and metallization.

| Code            | Description  | Dosing %   | Special<br>Feature              | COF | Hot Slip | Printability | Metallizable |
|-----------------|--|------------|---------------------------------|-----|----------|--------------|--------------|
| CONSLIP 201 PPR | Permanent slip in terpolymer, antiblock free, low concentrated.  | 3.0 – 10.0 | easy dosing                     | ++  | +++      | +<br>(0.S.)  | +<br>(o.s.)  |
| CONSLIP 202 PPR | Permanent slip in terpolymer, antiblock free, high concentrated. | 1.5 - 5.0  | cost saving                     | ++  | +++      | +<br>(o.s.)  | +<br>(o.s.)  |
| CONSLIP 420 PPR | Permanent slip synergistic blend, formulated with antiblock.     | 3.0 - 6.0  | thin skin<br>layer              | ++  | +++      | +<br>(o.s.)  | +<br>(o.s.)  |
| CONSLIP 440 PPR | Permanent slip synergistic blend, formulated with antiblock.     | 3.0 - 6.0  | standard<br>skin layer          | ++  | +++      | +<br>(0.S.)  | +<br>(o.s.)  |
| CONSLIP 590 PPR | Compound for low sealing and low COF                             | 100.0      | high speed<br>packaging<br>film | +++ | +        | +<br>(0.S.)  | -            |

Evaluation: excellent +++ recommended ++ good + basic 0 not recommended - not applicable n.a. opposite side o.s.

#### **5** Antistatic

Antistatic masterbatches are used to avoid static charging of BOPP films. Each application, for instance labels, packaging films, industrial films, requires different antistatic performance. In order to achieve the desired targets for each specific application, we can offer a full range of antistatic masterbatches.

| Code                    | Description   | Dosing %          | Special<br>Feature                                       | COF      | Printability | Food<br>Contact  | Low<br>Blooming |
|-------------------------|---|-------------------|--|----------|--------------|------------------|-----------------|
| AT 04082 PP *           | Balanced formulation for immediate and long term performance.                     | 1.0 - 4.0         | general<br>purpose                                       | 0        | +            | EU<br>and<br>FDA | 0               |
| AT 04130 PP *           | Recommended for print-/<br>lamination films with<br>excellent optical properties. | 1.0 - 4.0         | stable surface tension                                   | ++       | +++          | FDA              | ++              |
| AT 04061 PP             | Recommended for tobacco film.   | 1.0 - 4.0         | low blooming   | 0        | ++           | EU<br>and<br>FDA | ++              |
| AT 04190 PP             | Recommended for labels and release films.   | 1.0 - 4.0         | low blooming,<br>low conta-<br>mination for<br>cold seal | 0        | +++          | EU<br>and<br>FDA | ++              |
| AT 04139 PP             | Amine-free antistatic agent   | 1.0 - 6.0         | improved<br>Environment-<br>Health-Safety<br>profile     | ++       | +            | EU<br>and<br>FDA | ++              |
| Evaluation: excellent + | ++ recommended ++ good +  | - basic 0 no      | t recommended -  | not app  | plicable     | n.a.             |                 |
| REMARKS                 | * Double concentrated Masterb   | atch available fr | om Suzhou Constal  | b Engine | ering Pla    | stics Co.        | LTD.            |

# "We like working with CONSTAB GER because they are reliable with high competence and very good technical support."

#### **6 Slip-Antistatic**

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. It is an easy and comfortable way to reduce costs and efforts in many standard BOPP film applications.

| Code   | Description   | Dosing %    | Special<br>Feature             | COF     | Hot Slip   | Printability | Low<br>Blooming |  |
|--|---|-------------|--------------------------------|---------|------------|--------------|-----------------|--|
| SAT 04504 PP   | Combined slip- and antistatic agents for medium COF.                            | 2.0 - 5.0   | hot climate,<br>cost efficient | +       | 0          | ++           | ++              |  |
| SAT 04505 PP   | Combined slip- and antistatic agents for low COF (contains optical brightener). | 1.0 - 3.0   | cold climate                   | ++      | -          | +            | 0               |  |
| SAT 04509 PP *   | Combined slip- and antistatic agents for very low COF.                          | 1.0 - 3.0   | cold climate                   | +++     | -          | +            | 0               |  |
| SAT 04550 PP *   | Combined slip- and antistatic agents for low COF.                               | 2.0 - 5.0   | hot climate                    | ++      | +          | ++           | ++              |  |
| Evaluation: excellent +  | ++ recommended ++ good +  | basic 0 not | recommended -                  | not app | olicable r | า.a.         |                 |  |
| REMARKS * Double concentrated Masterbatch available from Suzhou Constab Engineering Plastics Co.  LTD. Customized formulations are available on request. |   |             |                                |         |            |              |                 |  |

#### 7 CONCAVITY®

CONCAVITY® helps to reduce the risk of delamination in white-cavitated films. The usage of CONCAVITY® provides improved optical and mechanical properties compared to conventional cavitating agents. Also films with a lower density can be achachieved.

|      | Code                    | Description   | Target<br>Density | Dosing %     | Special<br>feature                                 | Gloss     | Opacity | Metallizable |
|------|-------------------------|---|-------------------|--------------|--|-----------|---------|--------------|
|      | CONCAVITY<br>600 PP     | 60% Organic cavitating agent; broad density range, advanced optical and mechanical properties.  | 0.55 - 0.7        | 5.0 – 15.0   | excellent<br>dispersion                            | +++       | ++      | +++          |
| NEW! | CONCAVITY<br>WHITE PLUS | White pigment masterbatch<br>for joint use with CONCAVITY<br>600 PP; superior opacity<br>at lower dosage compared<br>to conventional white<br>masterbatches, therefore<br>less impact on mechanical<br>properties | -                 | 5.0 – 15.0   | High opacity.<br>Smooth<br>extrusion<br>operation. | +++       | +++     | +++          |
|      | Evaluation: excell      | ent +++ recommended ++ goo  | d + basic 0       | not recommer | nded – not appli                                   | cable n.a | Э.      |              |

#### **8 Matt Compound**

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

|      | Code              | Description   | SIT          | Dosing %    | Special<br>feature                         | Low Gloss | Haze |
|------|-------------------|---|--------------|-------------|--|-----------|------|
|      | MAT 02440         | Sealable matt compound for packaging applications.                | 110 – 115°C  | 100         | general purpose                            | +         | +    |
|      | MAT 02490         | Sealable matt compound for packaging applications.                | 110-115°C    | 100         | improved<br>processi-<br>bility, high haze | ++        | ++   |
|      | MAT 02495         | Sealable matt compound for packaging applications.                | 70-75°C      | 100         | very low SIT                               | +         | +    |
|      | MAT 02444         | Sealable matt compound for easy stacking.                         | 105 – 110°C  | 100         | anti-slip<br>property                      | +         | +    |
|      | MAT 02450         | Matt compound for graphic arts applications and paper lamination. | >120°C       | 100         | high thermal resistance                    | ++        | ++   |
| NEW! | MAT 02470         | Matt compound for graphic arts applications and paper lamination. | > 125°C      | 100         | high melt flow,<br>good melt<br>reception  | ++        | ++   |
|      | MAT 02420         | Special matt compound for in-mould labels.                        | -            | 100         | high melt flow,<br>good melt<br>reception  | n.a.      | n.a. |
|      | Evaluation: excel | lent +++ recommended ++   | good + basic | 0 not recom | nmended – not app                          | olicable  | n.a. |

# 9 Paperlike Matt Compound

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

| Code              | Description  | SIT          | Dosing<br>% | Special<br>feature                            | Low Gloss | Haze |
|-------------------|--|--------------|-------------|---|-----------|------|
| CON-Paper<br>960  | Skin layer compound for paper-like appearance, labels, graphic arts, packaging |              | 100         | writable surface,<br>suitable for<br>printing | n.a       | n.a  |
| Evaluation: excel | lent +++ recommended ++  | good + basic | not recon   | nmended – not app                             | olicable  | n.a. |

#### **10 Modifier**

With CONSTAB Modifier masterbatches manifold benefits can be achieved. Apart from well-established applications such as shrinkable BOPP tobacco films, modifier masterbatches can also be used for other applications like label films, metallizable films and transparent food packaging where enhanced mechanical and optical properties, increased gas barrier, or a better processability is required.

| Code                  | Description                               | Dosing %     | Special<br>Feature                         | Low haze  | Shrinkage | Stiffness       | Barrier | Processing aid |
|-----------------------|---|--------------|--|-----------|-----------|-----------------|---------|----------------|
| MA 00929 PP           | 60% hydrogenated C9 resin in homopolymer. | 10.0 - 20.0* | high shrinkable<br>films, tobacco<br>films | +++       | +++       | ++              | +       | ++             |
| MA 00930 PP           | 60% hydrogenated C5 resin in homopolymer. | 10.0 - 20.0* | barrier films                              | ++        | ++        | ++              | +++     | ++             |
| Evaluation: excellent | +++ recommended ++                        | good + basic | not recommend                              | ded – ı   | not appl  | <b>icable</b> n | .a.     |                |
| REMARKS               | *Depending on the final a                 |              | de range of dosing                         | levels is | s indicat | ed.             |         |                |

#### 11 Antifog

Fogging is a term used to describe the condensation of water vapor on a transparent plastic film in form of droplets. Antifog additives incorporated into the plastic film migrate to the surface and prevent the formation of water droplets. The result is a clear transparent film.

| Code                  | Description                                    | Dosing %      | Special<br>Feature   | COF       | Printability     | Food<br>Contact | Low Haze |
|-----------------------|--|---------------|----------------------|-----------|------------------|-----------------|----------|
| AF 00238 PP           | Antifog agent for food packaging applications. | 1.5 – 2.5     | cold fog and hot fog | +         | +                | FDA             | +        |
| AF 00240 PP           | Antifog agent for food packaging applications. | 3.0 - 5.0     | cold fog             | 0         | +                | EC              | +        |
| Evaluation: excellent | t+++ recommended++ good+                       | basic 0 not i | recommended - ı      | not appli | i <b>cable</b> n | .a.             |          |

#### **12 CONRELEASE**

Cold seal packaging requires opportune releasing film surface in order to prevent blocking of the reels. We can offer an optimal solution, which is silicone oil free. This prevents any contamination and assures the best seal strength and cold seal anchorage.

| Code                         | Description  | Dosing %   | Special<br>feature                                 | COF | Haze |
|------------------------------|--|------------|--|-----|------|
| CONRELEASE 520 PP            | Releasing agent for production of cold seal release films. | 4.0 - 6.0  | silicone oil free<br>no cold seal<br>contamination | +++ | ++   |
| Evaluation: excellent +++ re | ecommended ++ good + basic                                 | not recomi | nended – not applicable n.                         | a.  |      |

# 2. Polypropylene Cast and Calender Films

Industrial and Food Packaging Film

# 2.1 Antiblocking

| Code         | Description   | Dosing %  |
|--------------|---|-----------|
| AB 06019 PP  | 5 % synthetic silica with 5 μm particle size.                         | 1.0 - 4.0 |
| AB 06001 PP  | 10 % synthetic silica with 5 μm particle size.                        | 1.0 - 2.0 |
| AB 06064 PPR | 5 % organic spherical antiblocking agent for high transparency films. | 2.0 - 5.0 |
| AB 06089 PPR | 6 % inorganic spherical antiblocking agent for metallizable films.    | 2.0 - 5.0 |

# **2.2 Slip**

| Code             | Description           | Dosing %  |
|------------------|-----------------------|-----------|
| SL 05035 PP      | 6% erucamide          | 0.5 – 2.0 |
| CONSLIP® 201 PPR | Permanent slip agent. | 3.0 - 7.0 |

# 2.3 Slip Antiblock

| Code             | Description  | Dosing %  |
|------------------|--|-----------|
| SAB 06527 PPR    | $5\%$ synthetic silica $5\mu m$ and $5\%$ erucamide. | 1.0 - 4.0 |
| CONSLIP® 440 PPR | Permanent slip and organic antiblocking agent.       | 3.0-10.0  |

# 2.4 Antistatic

| Code        | Description  | Dosing %  |
|-------------|--|-----------|
| AT 04145 PP | For long-term antistatic effect                        | 1.0 - 6.0 |
| AT 04143 PP | For short- and long-term antistatic effect.            | 1.0 - 6.0 |
| AT 04139 PP | Amine-free for short- and long-term antistatic effect. | 1.0-6.0   |

# 2.5 Slip Antistatic

| Code         | Description  | Dosing %  |
|--------------|--|-----------|
| SAT 04509 PP | For short- and long-term antistatic effect, with 5% erucamide. | 1.0 - 5.0 |

# 2.6 Processing Aid

| Code        | Description  | Dosing %  |
|-------------|--|-----------|
| PA 00833 PP | Reduces die build-up and extruder pressure; improves surface quality.  | 0.5 - 3.0 |
| PA 00852 PP | Reduces die build-up and extruder pressure especially at very high melt temperatures up to 310 $^{\circ}\text{C}.$ | 1.0 - 5.0 |
| PA 0K060 PP | Reduces die build-up and improves processing in cast PP.   | 1.0 - 5.0 |

# 2.7 Color

| Code        | Description           | Dosing %   |
|-------------|-----------------------|------------|
| CC 18162 PP | 60 % Titanium dioxide | 2.0 - 25.0 |
| CC 18170 PP | 70 % Titanium dioxide | 1.0 - 20.0 |

# 2.8 Antifog

| Code         | Description                        | Dosing %   |
|--------------|------------------------------------|------------|
| AF 00262 PPR | For cold- and hot-fog application. | 7.0 – 15.0 |

# 2.9 Antioxidant

| Code        | Description   | Dosing %   |
|-------------|---|------------|
| ST 03003 PP | For processing and long-term heat stabilization, machine shut-down, rework. | 0.5 – 10.0 |

# 2.10 Nucleating agent

| Code        | Description   | Dosing %  |
|-------------|---|-----------|
| NC 00607 PP | Clarifier for improved optical and mechanical properties. | 1.0 - 2.5 |

# 2.11 Peel Compound

| Code            | Description  | Dosing % |
|-----------------|--|----------|
| CONPEEL® 304 PP | For transparent, printed and colored films with sealing layers up to 20 $\mu m;$ peel force 3 – 6 N/15 mm. | 100      |
| CONPEEL® 308 PP | For printed and colored films with sealing layers up to 20 $\mu m$ , peel force 4 – 8 N/15 mm.             | 100      |
| CONPEEL® 300 PP | For transparent, printed and colored films with sealing layers up to 20 $$ µm; peel force 3 – 6 N/15 mm.   | 100      |
| CONPEEL® 370 PP | For transparent, printed and colored films with sealing layers up to 20 $$ µm; peel force 4 – 8 N/15 mm.   | 100      |
| CONPEEL® 321 PP | For printed and colored films with sealing layers up to 20 $\mu m$ , peel force 6 – 14 N/15 mm.            | 100      |

# 2.12 Barrier

| Code        | Description  | Dosing %   |
|-------------|--|------------|
| BR 02017 PP | Improved barrier against oxygen and water vapour, increased stiffness and gloss, lower melt viscosity. | 5.0 – 20.0 |

# 2.13 Polymer Modification

| Code          | Description   | Dosing %   |
|---------------|---|------------|
| CON-BATCH 30X | For thermoforming film. Allows downgauging of up to 30% of total thickness while retaining its mechanical integrity; improves mechanical, opticals and barrier properties; improves carbon footprint. | 4.0 – 20.0 |

# 2.14 Flame Retardant

| Code          | Description                              | Dosing % |
|---------------|--|----------|
| HFFR 00242 PP | Halogen-free flame retardant masterbatch | 3.5-8.0  |

# 2.15 UV

| Code        | Description                              | Dosing %  |
|-------------|--|-----------|
| UV 01022 PP | 20 % HALS stabilizer                     | 0.5 - 5.0 |
| UV 01370 PP | 20 % HALS stabilizer for extreme demands | 1.0 - 5.0 |

# 2.16 UV Absorbent

| Code         | Description  | Dosing %  |
|--------------|--|-----------|
| UVA 01034 PP | Organic UV absorber applicable in transparent films > 80 µm. | 1.0 - 5.0 |

# 2.17 Antiblock

| Code         | Description                                | Dosing %  |
|--------------|--|-----------|
| AB 060126 PA | Synthetic silica, high quality dispersion. | 1.0 - 6.0 |

# 2.18 Antioxidant

| Code        | Description                          | Dosing % |
|-------------|--------------------------------------|----------|
| ST 00T21 PA | Heat stabilizer for polyamide films. | 1.0-8.0  |

# 2.19 Antifog

| Code         | Description  | Dosing %   |
|--------------|--|------------|
| AF 00T46A LD | Unique AF suitable for Polyamide films, hot and cold applications. | 8.0 – 12.0 |

# 2.20 Recycle

| Code               | Description   | Dosing % |
|--------------------|---|----------|
| GAC-10003          | Gas and odour absorbing for polyolefins, for example waste bags, recycling etc.                                       | 2.0-8.0  |
| ONC-1000<br>PBLL-1 | Odour neutralizing, is specially engineered to neutralize hydrogen sulfides ( $\rm H_2S$ ) and amine based molecules. | 2.0-8.0  |

# 2.21 Foaming

| Code        | Description  | Dosing %  |
|-------------|--|-----------|
| Ecocell® P  | General purpose for PA, PE, PP, PS.                                    | 1.0-2.5   |
| FM 00957 LD | Endothermic foaming agent for a sensity reduction. Thermal insulation. | 1.0 – 4.0 |



#### Please request for further information:



#### BOPP

Optimizing BOPP film production with CONSTAB GER® Masterbatches and Compounds



#### ROPE

Sustainable solutions for flexible packaging films with CONSTAB GER® CON-X® Masterbatches



#### Functionalities: Ecocell® - Lighten up!

A revolutionary foaming agent to reduce material and resin consumption



#### **Functionalities: Kafrit Group Antioxidants**

Reliable protection for your plastic products



#### Flame Retardants

Enlightening solutions with Kafrit Group Masterbatches and Compounds



# Polyethylene Packaging, Polypropylene Cast and Calender Films



Rolling to success with Kafrit Group Masterbatches and Compounds



#### Polycarbonate and PMMA Sheets

for a transparent view with Kafrit Masterbatches and Compounds



#### Pipes and Sheets

Customized solutions with Kafrit Group Masterbatches and Compounds



#### Injection Molding, Blow Molding

Injecting new ideas into your products with Kafrit Group Masterbatches and Compounds



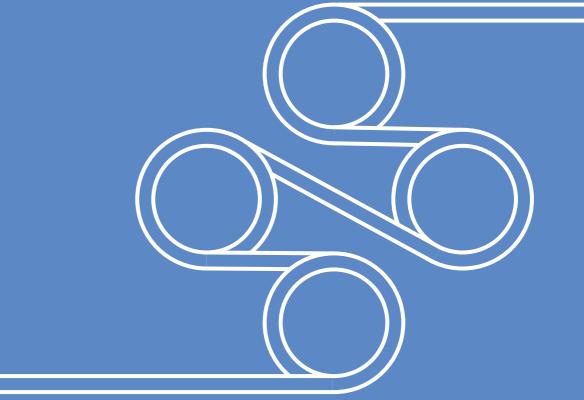
#### Nonwovens

Adding value to Fibers and Nonwovens with Kafrit Group Masterbatches



#### Agricultural Film

Growing success with Kafrit Group Masterbatches and Compounds



# Global supply, local partnership:

# We are where you are.





















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