

THE GLOBAL COLORS NEWSLETTER



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POINTS OF INTEREST:

- **Plastika Kritis launches new color masterbatches for compostable films**
- **A new photo degradable masterbatch is now available**
- **New fillers for breathable and thin films improve the properties of end products**
- **Specialty black masterbatches provide customized solutions to plastics manufacturers**

THE NEW PRODUCT LINE FOR COLORED COMPOSTABLE FILMS IS LAUNCHED

In many countries, there is a debate about the ban or the taxation applied on conventional plastic shopping bags. As this is a part of their environmental policies, some countries or U.S. states have already started to deal with this issue, either by preparing relevant legislation or by applying direct limitations on the use of plastic shopping bags.

This trend creates opportunities about the use of biodegradable and compostable shopping bags. Such bags are made of polymers such as PLA or Ecoflex or they are produced with the use of various compostable compounds. These polymers or compounds can be processed in conventional blown film lines with minor modifications in equipment and processing parameters. Apparently, such films are required to be colored but, on the other hand, they must

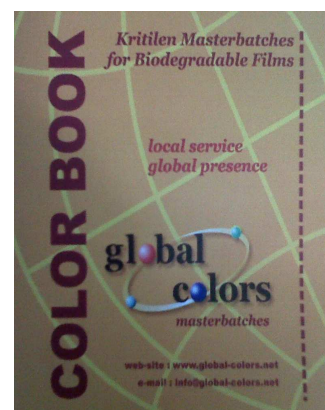
comply with specific requirements related to the maximum content of certain metals, when they are disposed, in the end of their useful life (e.g. EN13432).

Plastika Kritis has developed a number of PLA based masterbatches of various shades (yellow, orange, red, blue, green and brown). Additionally, black and white PLA based masterbatches are available.

These masterbatches impart brilliant and strong colors in films and consist the Global Colors basic portfolio for this specific end application. The colorants used in these masterbatches recipes are approved for food contact applications according to BfR IX Recommendations and meet the purity criteria of Resolution AP (89). In addition, these products comply with the EN13432 requirements.

These masterbatches can be used for the coloration of a variety of biodegradable films, as their PLA carrier is compatible with Ecoflex, Ecovio and other biodegradable compounds.

Color books of these products are available in Global Colors.



Picture 1:
The new color book of PLA based masterbatches is ready

KRITILEN BIO 522: A NEW PHOTO DEGRADABLE MASTERBATCH

Kritilen BIO 522 is a photo degradable additive masterbatch. It is based on a low density polyethylene carrier and contains active ingredients, which, under the influence of light, initiate the degradation of the plastic product.

This additive masterbatch is mainly proposed for use in

films, e.g. shopping bags, garbage bags, packaging films etc. It is supplied in pellets with diameter of 2,5mm-3.0mm and is packed in opaque, internally laminated polyethylene bags. It is added in the film recipe blend in addition rates, ranging from 1%-3%. To be more specific, Kritilen BIO 522, if added at 2% in a HDPE film

with thickness of 40mic, results in a film degradation within approximately three months, if exposed in Central European climatic conditions.

Kritilen BIO 522 has been tested in an independent specialised European laboratory and received a photo degradation certificate.

FILLER 5706 IMPROVES THE PERFORMANCE OF BREATHABLE FILMS

The use of calcium carbonate in the manufacturing of microporous breathable films has allowed major advances in these films, especially as regards to hygiene.

The calcium carbonate is an active ingredient in this case, providing the film with special characteristics that allow it to breath through a network of micropores.

Breathable films can be used in the manufacturing of diapers, medical packaging, food packaging, etc.

Plastika Kritis has developed and launched Kritilen Filler 5706, which is proposed for use in a variety of highly demanding breathable films applications.

It contains 70% of a unique grade of calcium carbonate, which is especially designed for this end application. This is a very fine calcium carbonate powder, with special surface treatment and activated for the production of microporous, breathable films. It has a low particle size, which is strictly

controlled. Furthermore, the masterbatch carrier is a carefully selected polyolefin, ensuring full compatibility of the masterbatch with the basic polymer resin of the film manufacturer.

The maximum Filler 5706 loading in the film can reach 30%.

Filler 5706 completes the range of Kritilen Filler masterbatches, consisting of Filler 5804, 577, 5801, 5701 and 565, that can be used in HDPE or MDPE t-shirt bags at high addition rates.



Picture 2:
Filler 5706 can be loaded up to 30% in a breathable film formulation.

BLACK AND FILLER BIO MASTERBATCHES ENRICH THE GLOBAL COLORS PORTFOLIO

Plastika Kritis has developed two new products based on biodegradable carriers. They have an excellent dispersion and a low moisture content and are suitable for use in a variety of compostable films. These products are presented below:

- Black Bio4417P: It contains 30% of a premium P type carbon black. Its carrier is a special film

grade compostable compound, fully compatible with PLA, Ecoflex, Ecovio and other biodegradable resins. This product has an excellent dispersion and its properly designed rheology makes it suitable for thin mulch films.

- Filler PLA776: It contains 60% of calcium carbonate (with average particle diameter at

3,5mic) and a PLA carrier. It has perfect dispersion, which is <1.0bar/gr (in a DIN3 sieve, according to EN13900-5). It is proposed for use in shopping bags or any other film application, requiring a high calcium carbonate loading.

Both products are packed in aluminum laminated bags.

“These products have an excellent dispersion and a low moisture content and are suitable for use in a variety of compostable films.”

ORGANIC ANTIBLOCK LAUNCHED BY GLOBAL COLORS

As an alternative to inorganic antiblocking agents, Global Colors zao now offers the new masterbatch called 001 П0АБ25.

This masterbatch is designed to impart a visible roughness on the surface of the film, while, at the same time, it has a mini-

mum impact on the mechanical properties of the end products. This minimum influence on the mechanical properties is due to the fact that the masterbatch contains an ultra high molecular weight polyethylene, as an active antiblocking agent, so there is no addition of

inorganic particles in the end product, which potentially reduce the film strength.

The ultra high molecular polyethylene creates visible spots with a diameter of 80-100mic in the end product, increasing its antiblocking and antislip properties.



Picture 3:
The new masterbatch 001 П0АБ25 creates visible antiblocking spots on the polyethylene film.

FILLER 5771, SUITABLE FOR THIN FILMS

There are certain cases, in which the mechanical properties of polyethylene films are a very critical factor. Film processors use “strong” polymers, e.g. mLLDPE etc, in order to have improved mechanical properties.

However, the incorporation of masterbatches in such films may result in the production of “weaker” films. This is mainly caused by the masterbatch carrier, which could be softer than the base film polymer. In addition, the incorporation of inorganic ingredients e.g. fillers in a film makes it weaker. The

higher the filler particle size, the worse the mechanical properties of the film.

For such high strength thin films, containing mLLDPE, Plastika Kritis has developed a masterbatch with unique properties, Kritilen Filler 5771.

Kritilen Filler 5771 has an excellent dispersion of its active ingredients in the carrier resin. It is based on a mLLDPE carrier and contains a specially selected low particle size calcium carbonate. This combination of raw materials imparts a minimum impact

on the mechanical properties of polyethylene films.

Additionally, Filler 5771 contains a polymer processing aid, which contributes to lower melt pressure and friction during extrusion and increases the extruder output and product gloss. The polymer processing aid eliminates surface defects of end product and results in a smoother extrusion process.

The recommended addition rate of Filler 5771 could be at the level of 10%-30%, depending on the film thickness and processing equipment.



Picture 4:
Filler 5771 has a minimum impact on the mechanical properties of mLLDPE films

A UNIQUE UV STABILISING COMPOUND FOR THREE LAYER POLYCARBONATE SHEETS

Polycarbonate sheets are modern materials that supersede traditional materials, such as glass, with a wide range of application.

They are suitable for atria, sun roofs, indoor partitions, sheds, windows, skylights, greenhouses, kiosks, sliding canopies and noise screens. They are lightweight, flexible, resilient, virtually unbreakable, heat insulated, translucent, sound insulated and offer protection against solar and infrared radiation. Also, they are easily cleaned, since they prevent dust deposition and accu-

mulation.

In most of the cases, polycarbonate sheets need UV protection. As they are, mainly, exposed outdoors, the sheet processors must use a carefully selected UV absorber, which will protect the sheet from the sun radiation and increase its useful life.

Polycarbonate sheets are, most of the times, manufactured as a three-layer co-extruded panel.

Plastika Kritis has developed and offers Kritilen UV PC2360, which is a light stabilising compound added in the top layer and, po-

tentially, in the bottom layer of the sheet. UV PC2360 contains a premium UV absorber in its recipe, which can increase the sheet useful life up to ten years.

Depending on the sheet layers thickness and climatic conditions, Plastika Kritis provides specific recommendations for the suitable addition rate of UV PC2360 in the end product.

This product completes the Plastika Kritis range of masterbatches for polycarbonate sheets, consisting of a variety of color and other masterbatches.

“UV PC2360 contains a premium UV absorber in its recipe, which can increase the sheet useful life up to ten years.”

SPECIALTY BLACK MASTERBATCHES OFFER CUSTOMIZED SOLUTIONS

Plastika Kritis is able to offer a number of specialized black masterbatches, suitable for highly demanding applications.

These masterbatches contain premium carbon black grades and can impart outstanding properties in end products. To be more specific:

- **Black 4443:** It is a fiber grade masterbatch based

on a LLDPE carrier. Its rheological properties are designed, so that it is compatible with the polypropylene resin, used during the extrusion of fibers. Its main characteristic is that it contains 40% of a premium, food approved, extra clean and high jetness carbon black, imparting a unique color intensity in polypropylene fibers.

- **Black PT6302:** It is a PET fiber grade masterbatch developed as a cost efficient solution. It contains 30% of a premium P grade carbon black. Its carrier is a mixture of PET and PBT. Its dispersion is excellent (<1bar/gr in a DIN3 sieve, acc. to EN13900-5). Alternatively, Black PT6302 can be used in a variety of PET applications, such as straps, food packaging goods, etc



Picture 5:
Black 4443 imparts a unique bluish tone in polypropylene black fibers.

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SPECIALTY BLACK MASTERBATCHES OFFER CUSTOMIZED SOLUTIONS

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- **Black 3502:** Recently Plastika Kritis has optimised its formulation, making its production process more efficient and stable. It is based on an selected EVA carrier. It is loaded with 50% of a premium SRF carbon black. This masterbatch dispersion is excellent (film grade) and its humidity content is very low. It is proposed for use in cables, shoe soles etc.
- **Black masterbatches for drip irrigation pipes:** Plastika Kritis offers a wide range of black masterbatches for drip irrigation pipes. The use of these products assures good weathering and heat resistance, smooth product surface, even at high production speeds and optimised mechanical properties due to the selection of the

optimum carrier and carbon black. Depending on the end application requirements, Plastika Kritis can give specific proposals to processors, who will be interested in this product portfolio.

- **Black 4402P:** It is based on a LLDPE carrier and contains 40% of an FDA approved P type carbon black. Its excellent dispersion makes it suitable for films, but it can also be used in a variety of other plastic applications.
- **Black 4405P:** It contains 30% of a P type carbon black on a MRS10 high density polyethylene carrier. It is proposed for pipes production.
- **Black A4413P:** It is an excellent choice for long life drip

irrigation pipes. It is based on a LLDPE carrier and contains 40% of a premium P type carbon black, providing the required light stabilization of pipe. It also contains a heat resistant polymer processing aid and a special package of antioxidants, protecting the melt from thermal degradation during extrusion but also from heat during the end product useful life. Its perfect dispersion contributes in less frequent filter changes, thus increased productivity rates, of the pipe extruders and also eliminates any surface defects on the pipe.

The unique experience and know-how that Plastika Kritis has developed in the production of black masterbatches assures that these proposed solutions will meet even the strictest customer requirements.



Picture 6: Black 3502 can be an excellent choice for the coloration of cables.

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GLOBAL COLORS is an international Group serving the plastics industry with high quality color and additive concentrates. It ensures competitive solutions and localized service with a number of modern production plants in strategic locations.

All Group companies share the same technology, know-how, quality standards, economies of scale, financial resources, range of products and new developments. Decentralized management and marketing ensure a high level of responsiveness to customer requirements combined with fast and flexible decision-making.

The Group's annual production capacity exceeds 40000 MT.

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