

# THE GLOBAL COLORS NEWSLETTER



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## POINTS OF INTEREST:

- **Plastika Kritis launches a new range of masterbatches for compostable plastic products**
- **Fragrances for plastics are now offered as masterbatches**
- **The Senkroma solutions for artificial turf are approved by major turf producers**
- **A cost efficient product line for color films is available**

## PLASTIKA KRITIS OFFERS NEW ADVANCED BLACK MASTERBATCHES, SUITABLE FOR DRIP IRRIGATION PIPES

Drip irrigation pipes and tubing is the most convenient, economical and popular way for effective water usage management, ensuring increased crop yields. Irrigation systems can be installed above or under the ground and besides, water can also convey agrochemicals and fertilizers to the plants. Typical diameters vary from 16-25mm, while thicknesses vary from 150-500mic for tubing (tapes) or 0,5-1,3mic for round drip irrigation pipes. Drip irrigation pipes and tubing are operating under low pressure (0,5 - 4,0 bar).

Kritilen® Black masterbatches for drip irrigation pipes tubing and laterals ensure weathering and heat resistance, smooth surface even at high production speeds and optimized mechanical properties, due to carrier resin and carbon black selection.

This basic product line consists of the following masterbatches:

1. **Black 354:** It contains 50% of a specially selected SRF carbon black, having an excellent disper-

sion in a LLDPE carrier. It also contains polymer processing aid ensuring smooth surface finish at high production speeds. Its optimized rheological properties makes it ideal for thin irrigation tapes (150-500mic).

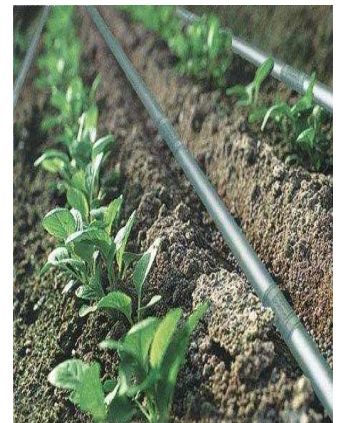
2. **Black A354:** It contains 50% of a specially selected SRF carbon black, a polymer processing aid and a significant antioxidant package, which makes it ideal for thin wall drip irrigation tapes and pipes containing recycleate.

3. **Black A445:** It contains 40% of a low particle size carbon black together with antioxidants and processing aid. It can be used for thicker drip irrigation pipes, ensuring superior weather resistance and mechanical properties.

4. **Black A4413P:** This product contains 40% P type carbon black, together with antioxidants and processing aid. Its excellent dispersion and optimized rheological properties ensure trouble-free production at elevated speeds

and, due to carbon black selection, superior weathering performance.

5. **Black A449:** It contains 40% of a small particle size carbon black together with antioxidants and processing aid on a selected olefin carrier. It can be used for thin drip irrigation tapes, ensuring superior weather resistance and smooth surface finish at elevated extrusion speeds.



Picture 1: The Kritilen® Black masterbatches for drip irrigation pipes offer superior solutions for the pipes manufacturers.

## KRITILEN® PA91 AND PA96: NEW GENERATION POLYMER PROCESSING AIDS OFFER UNIQUE BENEFITS TO POLYETHYLENE FILMS PRODUCERS

Polymer processing aids (PPA) are fluoro-polymer based additives used to increase productivity and quality during extrusion of polyethylene products (films, pipes etc), without compromise on performances. PPA forms a low adhesion layer (coating) between the metallic surfaces of a production machine (extruder) and the melt. This coating will reduce the friction of the molten plastic against metal, resulting in lower stress and lower die pressure. Because of this, the end processor can enjoy the following benefits:

- \* Eliminate melt fracture

- \* Improve gloss and reduce haze
- \* Reduce gels formation during extrusion
- \* Reduce die build up and die lines

Plastika Kritis has developed Kritilen® PA91, which is a more efficient PPA masterbatch, based on a new fluoro-elastomer chemistry. It contains 2% of active ingredient. Thanks to its higher efficiency, similar level of performances can now be achieved at lower concentrations, in comparison to traditional PPAs, without compromising on gels formation and die build up. This masterbatch is particularly recommended in blown films production at addition rates ranging from 0.5%-2%.

Alternatively, Plastika Kritis offers Kritilen® PA96, which contains 5% of the same active processing aid ingredient.

Conventional PPAs, when used together with HALS in the production of films, exhibit a reduced efficiency, as the presence of HALS results in physical/chemical interactions or prevents the PPA bonding to the extruder metallic surfaces. Kritilen® PA91 and PA96 contain an active ingredient, which has no interactions with HALS, enabling the end processor to achieve higher levels of performance at lower PPA concentrations.

Both PA91 and PA96 have been successfully tested and are used by major blown film producers.

## NEW KRITILEN® MASTERBATCHES FOR COMPOSTABLE POLYMERS ENRICH THE GLOBAL COLORS PORTFOLIO

Public concern about the environment, climate change and limited fossil fuel resources are important drivers for governments, companies and researchers to find alternatives to petroleum-based plastic materials.

Poly(lactic acid) (PLA) is the most popular kind of bioplastics, resembling conventional clear commodity plastics with a good aesthetics (gloss and clarity), but stiff and brittle, which needs its formulation and plasticization for most practical applications. Generally, it can be processed on existing standard equipments. PLA is receiving significant attention, as an environmentally friendly resin, being fully compostable in soil. It can be used in blown or cast film, injection moulding, blow moulding or thermoforming processes.

Plastika Kritis offers a wide product line of PLA based masterbatches, suitable for use in end applications involving PLA, Eco-

flex®, Ecovio® or other compostable resins or compounds. This product line includes the following products:

- **Kritilen® Color masterbatches:** A wide palette of color masterbatches, complying with EN13432, has been developed and is offered mainly for films. They are brilliant colors of various shades covering a great variety of customers needs.
- **Kritilen® Black BIO4419P:** It is a black masterbatch containing 35% of premium P type carbon black. This product is particularly successful in the production of mulch films, but can also be used in other film applications.
- **Kritilen® White PL8150:** It is a white masterbatch containing 50% of premium TiO<sub>2</sub>. It can be used in a variety of plastics end applications (film, injection moulding etc).
- **Kritilen® Filler PL776:** It is a filler masterbatch containing 60% of premium CaCO<sub>3</sub>. Similarly to White PL8150, it can be used in many plastics end applications (film, injection moulding etc).
- **Kritilen® SL/AB PL810:** It is a slip and antiblock masterbatch, especially designed for PLA thermoforming applications. It contains a premium synthetic silica grade and a special slip agent, which provide excellent performance in end application.

Additionally, for facilitating the PLA processing, Plastika Kritis can offer special melt strength enhancer and impact modifier masterbatches.



Picture 2: The demand for compostable polymers, such as PLA, is expected to grow in the near future.

## KRITILEN® FRAGRANCE MASTERBATCHES SERVE A WIDE RANGE OF APPLICATIONS

Perfumed plastics are used in garbage bags, toys, air fresheners, promotional items and other applications. They can also be used to counteract malodours of various origins.

Plastika Kritis has developed a wide range of fragrance masterbatches. Typical products of this product line are Kritilen® 0164 Lemon, 0165 Lavender and 0166 Vanilla. Additionally, Plastika Kritis can offer fragrance masterbatches with white floral, rose, apple cinnamon or apple blossom aroma.

These fragrance masterbatches are used in injection molding and film processes, at specified addition rates. The end application polymers include polyethylene, polypropylene, EVA and flexible PVC.

The Kritilen® fragrance masterbatches are a convenient way to add fragrance to plastic molded parts or films. They are mixed with the basic polymer or fed with a separate volumetric or gravimetric feeder, at addition rates of 0.2%-1.0%, depending on the desired aroma effect. As

they are free flowing pellets, the fragrance masterbatches have advantages in terms of handling, versus the liquid fragrances.

Furthermore, Plastika Kritis, being in close collaboration with its fragrance supplier, has developed masterbatches which counteract malodours. Depending on the malodour origin (bathroom, kitchen or pet malodours), Plastika Kritis can offer specific fragrance masterbatches which mask the unpleasant odour and replace it with a desired aroma.

***"The Kritilen® fragrance masterbatches are a convenient way to add fragrance to plastic molded parts or films. They are mixed with the basic polymer or fed with a separate volumetric or gravimetric feeder."***

## HIGHLY CONCENTRATED UV MASTERBATCHES MINIMISE ADDITION RATES AT END APPLICATIONS

Plastika Kritis has developed highly concentrated UV masterbatches, suitable for the stabilization of polypropylene tapes, polypropylene fibers and non woven products.

These highly concentrated UV masterbatches are based on a selected polypropylene carrier and their excellent dispersion assures trouble free extrusion.

The Plastika Kritis long experience and expertise on polymer stabilization, guarantees the UV resistance of the polypropylene tapes and fibers while, due to the high UV

content, the addition rate in end applications is minimised.

The product line consists on the following codes:

- **Kritilen® UV PP957H:** It contains 50% of high molecular weight HALS and is proposed as a general purpose product for the stabilisation of polypropylene fibers and tapes.
- **Kritilen® UV PP9553H:** It contains 50% of high molecular weight HALS and antioxidants. It is recommended for the stabilisation of mainly black polypropylene fibers and tapes.
- **Kritilen® UV PP941H:** It contains 40% of low molecular weight HALS. It is suitable for the stabilisation of mainly white polypropylene tapes.
- **Kritilen® UV PP948H:** It contains 40% of a block oligomeric HALS. It is proposed for highly pigmented or filled tapes, non woven products and fibers. It offers minimum interaction with pigments and optimum melt flow control.



Picture 3: The Kritilen® highly concentrated UV masterbatches are ideal solutions for polypropylene fibers.

## NEW CLARIFIERS AND NUCLEATING MASTERBATCHES ARE LAUNCHED

Plastika Kritis introduces the new clarifier/nucleating masterbatches for polypropylene injection molding and extrusion. This new masterbatch portfolio enables the processors to boost the final product aesthetics, while improving the mechanical properties and the productivity, because of faster cooling. Main applications for the Plastika Kritis clarifier/nucleating masterbatches are polypropylene thermoforming cups and containers and polypropylene injection molded items (e.g paint buckets, food containers, garden furniture, houseware, automotive parts).

Product selection and design criteria are illustrated in the following table:

	Kritilen NC12	Kritilen NC13	Kritilen NC14
Dimensional stability	Highly recommended	Highly recommended	Recommended
Increase of crystallization rate	Recommended	Highly recommended	Highly recommended
Flexural modulus	Highly recommended	Recommended	Highly recommended
Stiffness	Highly recommended	Recommended	Highly recommended
High clarity	Highly recommended	Recommended	Recommended
Sink marks	Highly recommended	Recommended	Highly recommended
Organoleptics	Highly recommended	Highly recommended	Recommended
Vicat softening	Highly recommended	Recommended	Highly recommended
Processing	Highly recommended	Highly recommended	Highly recommended



Picture 4: High clarity is achieved using the Kritilen® clarifying masterbatches

## SENKROMA OFFERS A NEW SERIES OF MASTERBATCHES FOR ARTIFICIAL TURF

Artificial turf is a surface of synthetic fibers made to look like natural grass. It is most often used in arenas for sports that were originally or are normally played on grass. However, it is now being used on residential lawns and commercial applications, as well. The main reason is maintenance—artificial turf stands up to heavy use, such as in contact sports, and requires no irrigation or trimming. Domed, covered, and partially covered stadiums may require artificial turf because of the difficulty of getting grass enough sunlight to stay healthy.

Because of the above mentioned advantages, the use of artificial turf in the future is expected to grow. FIFA, the international football federation,

recognises that in specific locations or climates, artificial turf can become an alternative to natural grass and help to promote football around the world.

The masterbatches used for artificial turf production must be having excellent dispersion, high light and weatherfastness, good processability and impart good mechanical properties and low water carry over in the end product.

Following this trend, Senkroma, the Turkish Global Colors member, has already developed and launched a series of color masterbatches for the coloration of artificial turf. These products are approved by major

artificial turf producers and are already used for the production of artificial turf, either for sport courts or for landscaping.

The excellent quality of raw materials used and the optimum recipes design of the Senkroma masterbatches contribute to the end product compliance with the stricter performance requirements.

In addition, Senkroma offers masterbatches for the light stabilisation of artificial turf. The long experience of the Global Colors Group in the light stabilisation of polyolefines provides confidence in the turf manufacturer, that the proposed solution will meet the strictest quality requirements.

***“Following this trend, Senkroma has already developed and launched a series of color masterbatches for the coloration of artificial turf.”***

## KRITILEN® FD522: A NEW PHOTO DEGRADABLE MASTERBATCH

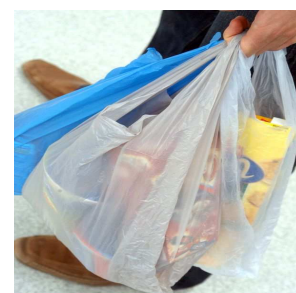
Kritilen® FD522 is a photo degradable additive masterbatch. It is based on a low density polyethylene carrier and contains active ingredients, which, under the influence of light, initiate the degradation of the plastic product.

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® FD522, 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® FD522 has been tested in an independent specialised European laboratory and received a photo degradation certificate.



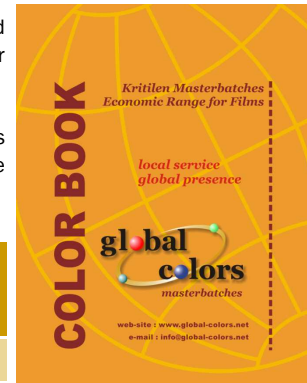
Picture 5: Kritilen® FD522 initiates the photodegradation of plastic shopping bags.

## A NEW RANGE OF COST EFFICIENT COLOR MASTERBATCHES FOR FILMS IS NOW AVAILABLE

Plastika Kritis tries continuously to offer optimum solutions to its customers. These solutions are designed to fit to the customers' specific requirements, offering excellent technical performance but, on the other hand, being cost efficient.

A new product line of cost efficient color masterbatches, suitable for LLDPE, LDPE or HDPE/MDPE films is now offered by Plastika Kritis. These products are based on a LLDPE carrier and contain heavy metal free pigments. This product portfolio is consisting of the following masterbatches:

Kritilen® code	Heat Resistance	Light Fastness	BfR	AP (89) I	Directive 94/62 EC
Yellow 11270	200 °C	6	Yes	Yes	Yes
Yellow 11271	200 °C	6	Yes	Yes	Yes
Yellow 11272	200 °C	6	Yes	Yes	Yes
Orange 20822	200 °C	2-3	No	No	Yes
Orange 20824	200 °C	2-3	No	No	Yes
Orange 20825	200 °C	4	No	No	Yes
Orange 30703	220 °C	4	No	No	Yes
Red 31706	220 °C	6	Yes	Yes	Yes
Blue 40874	260 °C	8	Yes	Yes	Yes
Green 51627	260 °C	8	Yes	Yes	Yes



Picture 6:  
The cost efficient Kritilen® masterbatches color book helps customers to have a visual assessment of shades.

Visit our Global web site:  
[www.global-colors.net](http://www.global-colors.net)



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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 45000 MT.

Members of **GLOBAL COLORS** group are:

- PLASTIKA KRITIS S.A., Greece
- ROMCOLOR 2000 S.A., Romania
- SENKROMA S.A., Turkey
- GLOBAL COLORS POLSKA S.A., Poland
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