SPECIAL K 2010 EDITION

GLOBAL COLORS SOLUTIONS

ISSUE CONTENTS:

global colors masterbatches

MESSAGE FROM THE CHAIRMAN

This is an important anniversary for GLOBAL COLORS, marking 40 years from the establishment of our Group and 30 years from the start of our masterbatch production activity. With this occasion I wish to express our sincere thanks to all our partners, associates and customers that have supported us over this long and fruitful journey.

Since then, GLOBAL COLORS has grown to be one of Europe's most important producers of color & additive concentrates, with modern production facilities in Greece, Turkey, Romania, Poland and Russia and marketing presence in over 50 countries. Our Agricultural Films division has plants in Greece, France and China and a solid reputation for quality and innovation.

Social contribution and protection of the environment have always been at the forefront of our priorities. We 've invested years ago in green energy and currently produce at our 12 MW Wind Farm double the energy we consume in Crete. Recently we have implemented 3 small photovoltaic units and we participate in a 4 MW project in the north of Greece. Our recycling plant helps relieve the environment from used agricultural films.

This period we implement investments in new plants, in Bucharest (Romania), Saint Petersburg (Russia) and Gaziantep (Turkey). We strengthen our position in areas that are expected to exhibit strong growth in the years to come. International processors can ensure with us a uniform supply of colorants and additives across their plants in Europe, the Middle East and Africa.

Our young and dynamic management team, our emphasis on quality, our dedication to be close to our customers, to satisfy their needs in a flexible, efficient and cost-effective way, to be their advisor for improving the appearance and properties of their products, as well as the constant development of new "solutions", give us the certainty that the next 40 years will be even brighter.

John Lebidakis
Chairman of the Board

global colors masterbatches

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GLOBAL COLORS INVESTS IN NEW PRODUCTION FACILITIES

The Global Colors Group currently implements an investment plan, which aims to strengthen the production basis of its member companies and help them be even more responsive to customer needs, such as high production flexibility and even shorter delivery time of goods.

Romcolor 2000 expands its capabilities for Eastern and Central Europe. The Romanian leader in color and additive masterbatches, continues its investment policy and officially opens a new masterbatches factory near Bucharest, Romania till the end of this year. The plant will double, in the first step, the production capacity with a provision for further expansion in the future.

Laboratories, administration offices, production, logistic center and warehouses will be moved from the current 3500 m2 **Romcolor 2000** facility to the new 10000 m2 site. New twin screw extruders have been added in production and new laboratory instruments are installed. The state-of-the-art manufacturing facility includes the latest environmental and manufacturing technologies to ensure production of high quality masterbatches. The new plant has been set up for serving the East and Central European markets with more flexibility and top quality products along with first class technical solutions and support.

Senkroma, the Turkish member of Global Colors, will start a second masterbatch production site in Gaziantep, Turkey, by January 2011. The area of Gaziantep is well-known for its significant size of production of synthetic yarn and carpet. Since ten years, **Senkroma** has been producing high quality masterbatches in Istanbul for this sector and now, Global Colors has decided to serve this industry by creating a local production site.

The new factory will be located in the Industrial Zone of Gaziantep and will start production in two steps: In January 2011 production will start in Gaziantep site and in July 2011 the production capacity will be expanded, in order to create a strong production basis in this area.

Senkroma expects that the growth of this new factory will be closely associated with the business growth of Gaziantep, as a whole.

Global Colors zao is the youngest member of the Global Colors Group, located in Saint Petersburg, Russia. It mainly serves the Russian market and neighboring countries.

Global Colors zao has recently acquired a 20000m2 land, which includes a 3000m2 building, suitable for industrial activity, located at the outskirts of Saint Petersburg. In 2011, **Global Colors zao** is expected to move to this new facility and expand its production basis with the installation of additional production lines.

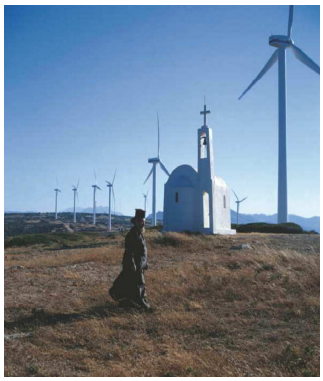
Picture 1:
Romcolor's new plant pattern

Picture 2: Global Color zao new factory

PLASTIKA KRITIS EXPANDS GREEN ENERGY PRODUCTION

Since 2003, Plastika Kritis owns and operates a 12 MW Wind Park in Crete that produces green energy. With 14 x 0,85 MW Vestas turbines, the Park produces approximately 42,000,000 KWH of electricity per year (the power consumption at the Iraklion factory is 26,000,000KWH).

Additionally, three photovoltaic stations of 80 KWH each have been recently installed on Plastika Kritis' plants in Iraklion and at the site of the company's Wind Farm. The company is participating in a 4 MW photovoltaic project in Northern Greece which is expected to be implemented in 2011.



Picture 3: Plastika Kritis Wind Farm

Pictures 4, 5 and 6: Views of Plastika Kritis photovoltaic stations nearby the Wind Farm (top) and at the roofs of its plants in Iraklion (bottom left and right)

ROBOTIC PACKAGING LINE IN PLASTIKA KRITIS

"Hercules" was the powerful demi god of Ancient Greek Mythology, who was serving the public welfare. Hercules is also the robot that is palletizing masterbatch bags in Plastika Kritis, improves greatly the productivity and reduces the physical strain of production employees.

"Hercules" is a robot, part of the Concetti's bagging and palletizing system, recently installed in Plastika Kritis. The system consists of FFS (bagging) machines, conveyor rollers, Hercules palletizing robot and a stretch hooder at the end of this line.

Each FFS is connected to the one of the high output masterbatch production lines and acts as a weighting and bagging machine for it. The FFS machine prints the product label to the bag, then fills it up with masterbatch, seals it and feeds the finished product bag to the conveyor roller. The bag then is guided through the barcode scanner and the weight check to the robot. The robot then places the bag on the pallet, provided that the bag is according to the weight specifications and its barcode is correct, otherwise it rejects the bag. Finally, the finished pallet is covered with a stretch hood.

The system productivity goes up to 600 bags per hour, coming to a total of 360 metric tones of masterbatch per day. The system is packing mainly black, white, filler and additive products. It is fully automatic and needs only one operator to control it.

Picture 7: View of the Concetti packaging robot

COST EFFICIENT BLACK MASTERBATCHES ENRICH THE GLOBAL COLORS PORTFOLIO

Plastika Kritis offers a new set of black recipes, which allow customers to get the same technical advantages at a lower cost, in comparison with the equivalent Kritilen standard black masterbatches.

More specifically, the following products are available:

A) Black 415, 420 and 425: They contain 15%, 20% and 25% HAF type carbon black in LLDPE/LDPE and are proposed fro use in film with thickness of 20-80mic. They have an equivalent tinting strength and opacity as Kritilen Black 325, 331 and 340, respectively.

B) Black 3491: It contains 50% SRF carbon black and CaCO3 in a LLDPE/LDPE carrier and is proposed for use in film with thickness of 20-80mic. It is more cost efficient than Kritilen Black 349 and 350.

C) Black 4404P: It contains 40% P type carbon black and CaCO3 in a LLDPE/LDPE carrier. It is a cheaper alternative of Kritilen Black 440P.

D) Black 340B, 349B, 350B and 360B: They contain 40%, 50%, 50% and 60% of a non European origin SRF carbon black, respectively. Their carrier is LLDPE/LDPE. They are proposed for use in cheap pipes, films (with thickness >30mic) and recycled plastics.

E) Black PPA932P and PP942P: They contain 30% and 40% of a P type carbon black, respectively, in a PP carrier. They are proposed for use, among others, in PET thermoforming applications.

F) **Black PPA9453P:** It contains 40% of P type carbon black in PP and is successfully used in the production of high pressure PP fittings.

G) Black PS7405P: It contains 40% of P type carbon black in PS-GP and is proposed for use in foamed PS.

H) **Black PVC89006:** It contains 30% of a cost efficient RCF carbon black in a PVC compound carrier. It is proposed for PVC cables or other PVC based end products.

Picture 8: Kritilen black masterbatches are destined for a variety of end applications

SINGLE PIGMENT CONCENTRATES FOR POLYPROPYLENE FIBERS

Plastika Kritis offers an extensive range of single pigment concentrates ("monomasters") in pellet form, based on proprietary production technology.

The monomasters product line includes a number of selected pigments, perfectly dispersed and loaded at high concentrations in fiber grade polypropylene. They can be used as a replacement of powder pigments, providing a dust free solution and easier handling.

Typical applications for these monomasters is the manufacturing of tailor-made color masterbatches, fibers and monofilaments. The Plastika Kritis polypropylene based monomasters have been successfully used in the synthetic textile industries in Turkey, Syria, Iran and Egypt.

The basic portfolio consists of the products shown in following table (Plastika Kritis can also produce upon request other monomasters containing different pigment /concentrations or another carrier resin):

Code	Color Index	Pigment Content (%)	Light Fastness	Heat Resistance	Food Approval
PPF979	Pigment White 6	70	8	300°C	Yes
PPFA934P	Pigment Black 7	30	8	300°C	Yes
PPFA935	Pigment Black 7(High jetness)	35	8	300°C	Yes
PPF10343	Pigment Yellow 34 (Middle Chrome)	60	8	260°C	No
PPF10392	Pigment Yellow 139	40	7	280°C	Yes
PPF10551	Pigment Yellow 155	40	7-8	260°C	Yes
PPF10110	Pigment Yellow 110	40	8	300°C	Yes
PPF10191	Pigment Yellow 191	40	7-8	300°C	Yes
PPF10093	Pigment Yellow 93	40	7	280°C	Yes
PPF20104	Pigment Red 104	60	7-8	280°C	No
PPF30480	Pigment Red 48:2	40	6	260°C	Yes
PPF30483	Pigment Red 48:3	40	5	260°C	Yes
PPF30057	Pigment Red 57:1	40	6	240°C	Yes
PPF30214	Pigment Red 214	40	7-8	300°C	Yes
PPF70105	Pigment Red 101 (A type)	60	8	300°C	Yes
PPF70106	Pigment Red 101 (B type)	60	8	300°C	Yes
PPF35233	Pigment Violet 23	25	7	250°C	Yes
PPF40151	Pigment Blue 15:1	40	7	280°C	Yes
PPF40153	Pigment Blue 15:3	40	7	280°C	Yes
PPF40292	Pigment Blue 29	50	8	300°C	Yes
PPF50073	Pigment Green 7	40	7	280°C	Yes

Note : the light fastness and heat resistance values mentioned are related to the full shade of pigments used. If monomasters are diluted, light fastness and heat resistance of pigments included in masterbatch is reduced.

HALOGEN FREE FLAME RETARDANT COMPOUND FOR ELECTRICAL PARTS

Plastic electrical household appliances market is characterized by a high degree of standardization. Compliance to specific standards (e.g. IEC directions) and norms and repeatability of quality characteristics is a must.

Lately, there is also a trend for environmentally friendly products, which also contribute to the safety of buildings, equipment and humans.

Some time ago, Plastika Kritis was asked by a major Greek manufacturer of electrical parts to develop a halogen-free flame retardant, which will be added to a HDPE box, achieving a Glow Wire Ignition Temperature (GWIT) of >750deg. Celsius.

Several experiments have been made in the customer lab, involving the ignition of parts made of HDPE and various Plastika Kritis flame retardant masterbatches. The product that was finally approved is Kritilen FR2104, used at an addition of 50% in HDPE. This combination has given a Glow Wire Ignition Temperature (GWIT) of 780-800deg. Celsius and also achieved a very smooth processing during the injection moulding of end product. Kritilen FR2104 is a HDPE based compound containing a new halogen free flame retardant additive. Many conventional halogen free flame retardants have a relatively high extraction to water during strand cooling and therefore their efficiency is reduced. The new advanced active ingredient used in FR2104 is resistant to water extraction. Additionally, the FR2104 recipe contains a package of synergistic additives, which facilitate extrusion in both compounding and injection molding processes, increasing productivity and improving surface appearance of electrical item.

Picture 9: Electrical parts industry is characterized by a high degree of standardization

SPECIAL BLACK MASTERBATCHES FOR SYNTHETIC FIBERS

Plastika Kritis has launched a variety of black masterbatches for the coloration of polypropylene or PET fibers.

The excellent dispersion of carbon black in the polymer matrix, the controlled rheology of masterbatch and the selected grades of carbon black used in Kritilen fiber grade black masterbatches make them an ideal choice for the fiber producers.

These products are presented below, in detail:

Black 4410P: It is a cost efficient proposal containing 40% of a specially selected P type carbon black, having an excellent dispersion in a LLDPE carrier. Its optimized rheological properties make it ideal for long trouble-free production runs in BCF and CF applications.

Black PPFA934P: It is a cost efficient black masterbatch for polypropylene yarns, containing 30% of a P type carbon black in a PP homopolymer carrier. It has an excellent dispersion and controlled rheology and the presence of an antioxidant package in its recipe protects the end product from thermal degradation during processing or end use.

Black PPFA935: It is a PP based masterbatch containing 35% of a special extra clean and high jetness carbon black. This product aims to provide the following advantages to fiber producers:

- Increased color strength
- Blue tone, as expressed in b* value in CIELab coordinates
- Optimum filterability / spinnability, due to the excellent dispersion of carbon black in PP carrier
- Excellent homogenization of masterbatch with PP / Elimination of melt dripping in spinneret
- Increased resistance to heat degradation, especially in spinning processes reaching 250deg. Celsius of melt temperature

Black PPFA935 is particularly recommended for use in high speed spinning processes and low denier fibers production.

Black PT6301: It is a PBT (Poly – Butylene – Terephthalate) based masterbatch containing 30% of an extra clean and high jetness carbon black (the same type as in Black PPFA935). It has an excellent dispersion and optimum rheological properties, which make it suitable for PET or PBT fibers.

All above masterbatches contain raw materials which are approved for contact with food.

Picture 10:
Plastika Kritis provides a broad portfolio of masterbatches for the coloration of black synthetic fibers

COST EFFICIENT AND BRILLIANT NEW SHADES FOR FILMS

Plastika Kritis has been a supplier of color masterbatches for the film industry for years. Recently a new product line was developed by the Plastika Kritis color specialists, including new color masterbatches for films, which will replace some traditional Kritilen products and have lower cost, brighter and more lively shades. Furthermore, in most of them, heavy metal containing Kritilen products are replaced with non heavy metal recipes.

Film producers can now select color masterbatches from a broad portfolio and enjoy both technical and cost advantages. This new portfolio is presented in the table, on the right, including also the old equivalent Kritilen products and the most important properties of the new masterbatches.

Code	Heat Resistance	Light Fastness	BGA approved	Greek Food Code	Directive 94/62 EC	Diarylide Free
11348	240°C	6	Yes	Yes	Yes	Yes
11349	240°C	6	Yes	Yes	Yes	Yes
11350	200°C	5-6	Yes	Yes	Yes	No
11454	200°C	5-6	Yes	Yes	Yes	No
11453	200°C	5-6	Yes	Yes	Yes	No
20763	200°C	3	No	No	Yes	No
20764	200°C	3	No	No	Yes	No
31357	220°C	6	Yes	Yes	Yes	Yes
30358	220°C	6	No	No	No	Yes
30359	220°C	6	No	No	No	Yes
35976	220°C	6	Yes	Yes	Yes	Yes
41642	260°C	8	Yes	Yes	Yes	Yes
51911	200°C	8	Yes	Yes	Yes	No
75863	300°C	8	Yes	Yes	Yes	Yes
70204	300°C	8	Yes	Yes	Yes	Yes
90604	300°C	8	Yes	Yes	Yes	Yes

MASTERBATCHES FOR BOPP FILM

Plastika Kritis has developed and offers a complete product line of masterbathes used in the production of BOPP films. These masterbatches contain functional additives, combinations of additives or pigments of proven value, at concentration levels that suite each formulation, properties and final product or process requirements, perfectly dispersed in an appropriate carrier resin. This product line is consisting of the following basic products:

SL/AT PP1003: It is a combined slip and antistatic masterbatch, with 15% active ingredients based on a PP homopolymer BOPP grade, designed to be used in the core layer of BOPP films, in order to achieve excellent slip and antistatic properties in moderate climate conditions. It is proposed for use at 2% - 3% in the middle film layer. This product contains a selected grade of refined erucamide slip agent, glycerol ester and amine antistatics.

SL PP968: It is a slip masterbatch, proposed for use at 2%-3% in BOPP film middle layer. It contains 5% of a selected grade of refined erucamide slip agent and is based on a BOPP compatible PP homopolymer carrier.

PP AT912: It is an antistatic masterbatch proposed for use at 2%-3% in BOPP film middle layer. It contains 3.5% of a selected grade of amine antistatic agent and is based in a BOPP compatible PP homopolymer carrier.

Note: For optimum efficiency, the addition rates of KRITILEN SL/AT PP 1003, SL PP968 and AT PP912 should be adapted to the climatic conditions and desired final properties.

AB PP9575: It is an antiblocking masterbatch, proposed for use at 2%-3% in BOPP film skin layers. It is based in PP homopolymer carrier (suitable for use in BOPP applications) and contains 5% of a selected grade of low particle size synthetic silica (D_{50} = 3.5μm). The addition of AB PP9575 prevents blocking during wind-up, regulates the slip and anti-static properties of films and allows a smooth unwinding and slitting of the reels.

White PP953, PP961 and PPFA979: All of them are milky white masterbatches based in a PP homopolymer carrier. The TiO_2 excellent dispersion into the polypropylene carrier makes them an optimum choice for BOPP films. They contain 50%, 60% and 70% of TiO_2, respectively. They are proposed for use at 10% - 15% in middle film layer.

Pearl PP972 and PP9721: They contain 70% of specially selected minerals in PP homopolymer carrier, which impart a pearlescent effect in the BOPP film. They ensure excellent dispersion without affecting the mechanical properties of the end product. They are proposed for use at 10%-15% in middle layer.

Plastika Kritis also offers special BOPP masterbatches based in PP-copo carriers, proposed for use in heat sealed or metalized films. Upon customer demand, Plastika Kritis can develop tailor-made solutions for BOPP film manufacturers. Such solutions involve the use of certain additives or combination of additives, which can be dispersed in adequate polymeric carriers.

Picture 11:
BOPP films processing requires the use of special masterbatches

ADVANCED FILLER 577 IMPROVES PROPERTIES OF HDPE FILMS

Kritilen Filler 577 was designed for use in thin HDPE or MDPE bags, at addition rates that exceed 20%, in some cases.

This product is characterized by its optimum rheology level, which enables processors to properly homogenize it with HDPE or MDPE and includes a small particle size calcium carbonate (median particle size of 1.9mic and a top cut of 7mic) at a loading of 70%.

Its advantage, in comparison to fillers with higher particle sizes of calcium carbonate, is that due to its smaller particle size, it imparts better mechanical properties to films. At Plastika Kritis' lab, HDPE films (of ~45mic thickness) were tested. The comparison was made between films containing Filler 5701 (70% of calcium carbonate with median particle size of 3.8mic and a top cut of 12mic) and Filler 577. As an indication, the elongation results are shown below:

- Film with 20% Filler 5701: elongation at break= 487% (machine direction)
- Film with 20% Filler 577: elongation at break= 555% (machine direction)

As expected, film with Filler 577 exhibits better mechanical properties.

Picture 12:
Filler 577 is ideal for shopping bags production

BLACK AND WHITE MASTERBATCHES BASED ON PLA

Polylactic acid (PLA) is a biodegradable, thermoplastic aliphatic polyester derived from renewable resources, such as corn starch or sugarcanes. Although PLA has been known for more than a century, it has only been of commercial interest in recent years, in light of its biodegradability. PLA has become a significant commercial bioplastic. Its clarity makes it useful for recyclable and biodegradable packaging, such as bottles, yogurt cups, and candy wrappers. It has also been used for food service ware, lawn and food waste bags, coatings for paper and cardboard, fibers for clothing, carpets, sheets and towels, and wall coverings. In biomedical applications, it is used for sutures, prosthetic materials and materials for drug delivery. Polylactic acid polymers are fully compostable in commercial composting facilities. With proper equipment, PLA can be converted back to monomer, which then can be converted back into polymers. Alternatively, PLA can be biodegraded into water, carbon dioxide and organic material. At the end of a PLA-based product life cycle, a product made from PLA can be broken down into its simplest parts, so that no sign of the original product remains.

For the coloration of PLA products, masterbatches based on a PLA carrier have been developed. Plastika Kritis offers the following PLA masterbatches:

Black PL8430: It is a 30% P type carbon black product, which is based on an injection grade PLA carrier. The production was made in Heraklion Plastika Kritis production site and the product was packed in moisture proof bags. The product moisture content after extrusion was <0.04%. Black PL8430 is tested in blown film processing in Plastika Kritis lab and has shown a satisfactory behavior during the production of a 45mic thickness film.

White PL8150: It contains 50% of a premium titanium dioxide grade and is based on an injection grade PLA carrier. It has a very low moisture level and an excellent dispersion, which makes it suitable for low thickness films.

Both products are food approved and can be offered for use in film, thermoforming or injection molding.

> ***"Both products are food approved and can be offered for use in film, thermoforming or injection molding."***

PLASTIKA KRITIS INTRODUCES SPECIAL ADDITIVES FOR PET

The use of PET is increased on a continuous basis in plastics processing and this results in increased needs for the use of additives, which modify the PET properties and give added value to end products.

Plastika Kritis offers a full product line of additives, which contribute to the improvement of critical quality characteristics of PET articles. Apart from UV PT2320 (presented in another article of this newsletter), this product line includes the following masterbatches:

SL PT6100: It is a slip and anti-scratch masterbatch in PET carrier. It contains a unique additive for PET, which reduces friction on the end product surface. This leads to a range of end product improvements, such as improved packing and de-nesting, reduced scuff and scratch, easier processing and 60% of mould release force. It is particularly recommended for preforms, in order to prevent scratching during their packing and storage.

CE9126: It is chain extender masterbatch in PET carrier. It contains a multi-functional reactive polymer designed to reverse the degradation of PET. The active agent, included in this masterbatch recipe, is a polymeric coupling agent that reacts with degraded polymers to restore the original molecular weight, as well intrinsic viscosity and melt viscosity. This means that low quality recycle can be upgraded or that good quality recycle can be treated more robustly. It is recommended for use in preforms, requiring a FDA approval.

CE9125: It is a chain extender additive in a PP-h carrier, acting in a similar way as CE9126. It is not food approved and is suitable for PET straps, which contain a high proportion of recycled PET. Due to its chain extender action, it improves the mechanical properties of straps, minimizing the impact of recycled PET.

PT AB6105: It is an anti-block masterbatch in PET carrier and contains an organic silicone based anti-block agent, also acting as a mould release agent. It is food approved.

Picture 13:
PET thermoforming products require the use of SL PT6100 for de-nesting.

SPECIAL UV MASTERBATCHES FOR STYRENIC AND PET PRODUCTS

The UV stabilization of PS or ABS products is a difficult issue, as yellowing of end product can occur, in case no proper UV stabilizers are selected.

In addition, nowadays, as the use of PET packaging expands, customers ask for additives which protect the PET bottle contents.

Plastika Kritis, having a long experience in UV stabilization of plastics, offers the following UV stabilizers, which provide solutions to the above mentioned problems:

- **Kritilen UV PS724:** It is used for the UV stabilization of PS or ABS articles. The indicative proposed addition rate is 3.5% (for PS) and 5% (for ABS). This addition imparts a proper stabilization for five years in Mediterranean climates for a pigmented end product with thickness of 2mm.
- **Kritilen UV PS7202:** It is proposed for the UV stabilization of PS, SAN or ABS articles. It protects end products from yellowing. The indicative proposed addition rate is 2.5%, in order to have a proper stabilization of end product for two years in Greece.
- **Kritilen UV PT2320:** It is added to PET bottles or other packaging media, in order to protect their content from UV radiation. Its indicative addition rate is 2%-4%.

Picture 14:
PET bottles must provide protection of liquid content

NANOSILVER ANTIMICROBIAL TECHNOLOGY FOR FIBERS

The antimicrobial effect of silver has been proven a long time ago, when the sailors used to put silver items into the barrels containing fresh potable water.

Nowadays, bacteria become more and more resistant to antibiotics. The pharmaceutical industry has started to develop stronger and stronger antibiotics. The stronger the antibiotics are, the more resistant the bacteria become. Microbiological studies have shown that silver is still an effective "weapon" against today's "trained" bacteria, destroying the cell's wall more efficiently and faster than any antibiotics. This trend had guided Romcolor 2000 to run for the "Silver"!

Romcolor 2000 has taken advantage of the latest trend related to nanosilver grades, that are pure silver of less than 20nm spherical shape, stabilized into water at 25% loading. The difficult job is to remove the water from the system without creating silver particles agglomeration. The things are more complicated when moisture sensitive resins (i.e. PET, PA etc) are involved.

However, Romcolor 2000 has made it. It offers Rombest AM PP6500NANO, which is a masterbatch containing a nanosilver antimicrobial agent and based in a gas fading resistant homo polypropylene carrier. This product is particularly recommended for use in the PP fibers sector, as it demonstrates excellent dispersion in a fine sieve test.

Rombest AM PET6500NANO is based in a PET carrier and is contains the same nanosilver antimicrobial as AM PP6500NANO. Its unique properties, in terms of dispersibility and low moisture content make this masterbatch an excellent choice for PET fibers production.

Plastic processors can now benefit from the above products, in the sense that they can use a cost efficient antimicrobial agent with permanent action. Romcolor's customer service team is able to provide specific guidance for the optimum utilization of the new nano antimicrobial masterbatches.

> ***"Plastic processors can now benefit from the above products, in the sense that they can use a cost efficient antimicrobial agent with permanent action".***

SLIP AND MOULD RELEASE AGENT FOR STYRENICS

Kritilen SL PS7720 is a new slip masterbatch for PS-GP and HIPS applications, developed by Plastika Kritis.

Potential end applications are cosmetic bottles and jars, food containers and trays, CD cases, plastic furniture and plastic houseware.

This masterbatch contains 20% of a special slip agent in a PS-GP carrier. It rapidly reduces the static and kinetic friction on the surface of the styrenic polymer. Tests have shown friction is reduced on average by 36% in HIPS and 40% in GP-PS. This performance is long-lasting and achieved by adding 2%-2.5 % of Kritilen SL PS7720.

This product also offers a reduction in mould release force of typical 20% in HIPS and 32% in PS-GP. By allowing mould release at higher ejection temperature, the cycle time of production is reduced and productivity is increased. Furthermore, production scrap is reduced. Kritilen SL PS7720 does not affect the color and clarity of the polymer over its life time. It is manufactured using an additive, which, according to its manufacturer, is produced from naturally derived vegetable based materials and is GMO free. It is permitted for use in food contact plastics in the EU and has specific indirect food contact approval in the USA.

Picture 15:
SL PS7720 is ideal for food trays made of polystyrene

MASTERBATCH SOLUTIONS FOR PP STRAWS

The production of polypropylene straws for refreshments is a process that involves various production and quality requirements.

Production must run at highest output rates. The actual productivity is influenced by the pre-set kg per machine hr, but also by the extruder idle time that occurs due to die deposits that should be removed. In terms of quality, the consistency in color and the best organoleptic properties (mainly odor) are highly required.

Plastika Kritis can offer a solution package to straw manufacturers for solving above potential problems.

The productivity increase can be achieved by eliminating idle time due to the cleaning of die deposits. Kritilen masterbatches such as Yellow 11417, Orange 21715 and Magenta 31459 contain low plate-out fluorescent pigments that easily melt into the polymer matrix, exhibit excellent homogenization with it and do not migrate on the straw extruder die. Besides, the side effects of such masterbatches in end products are good printability (as pigment does not migrate) and improved heat and color stability.

Alternatively, Kritilen Yellow 11640, Orange 21746, Magenta 31491 and Green 51830 contain conventional fluorescent pigments and a polymer processing aid, which allows the straw manufacturer to operate at a lower melt pressure and temperature, achieving, at the same time, productivity increases, lower friction (and consequently low odor levels at straw), lower die deposits and a more shiny end product.

Odor development can be a nightmare for straw producers. It can be caused by high melt temperature and friction, inefficient straw cooling after extrusion or other equipment related reasons. In order to assist the end producer to reduce the odor levels, besides the use of above mentioned color masterbatches, the addition of 3%-5% Filler 565 is proposed. Filler 565, due to its rheology, can be properly homogenized with polypropylene and also has a high thermal conductivity that facilitates a faster straw cooling.

Picture 16:
Various shades of fluorescent straws become more and more popular

A NEW SERIES OF FRAGRANCE MASTERBATCHES

POLI-CH AR, a new series of Global Colors Polska masterbatches, is developed in order to serve the marker segment, which requires not only color, but also the existence of a pleasant perfume in plastic products.

Fragrance masterbatches become more and more popular in our days, as they add value to plastic products. Many industries, e.g. the packaging sector, use fragrances in order to create product differentiation and enrich the product quality features. Additionally, as the use of recycled plastics increases at a constant rate, the use of fragrance masterbatches can cover, to a certain extend, unpleasant odors, developed during the polymer recycling process.

In any case, fragrances in plastics can play a key role in attracting the consumer interest and, consequently, contribute to increased sales of consumers goods.

Global Colors Polska offers masterbatches with the following perfume characteristics:

- Citrus fragrance: POLI-CH AR-Lemon,
- Rose fragrance: POLI-CH AR-Rose
- Baby powder fragrance: POLI-CH AR Baby

The highest popularity product is POLI-CH AR-Baby. It was designed in order to enhance the pleasant smell of finished articles, made of LDPE/HDPE or PP. It is recommended for use in packaging products, e.g. for cosmetics and recycled materials, being characterized by an unpleasant odor.

The suggested level of dosing POLI-CH AR-Baby is:

- 1%-2% for masking the odor
- 2%-10% for imparting a faded perfume
- >10% for imparting an intense perfume

Global Colors Polska is currently joining a project with a major Polish packaging producer, in order to design optimum fragrance masterbatches for garbage bags, breakfast and frozen food bags, kitchen foil, microfibre products, etc.

Upon customer demand, Global Colors Polska can also create multifunctional masterbatches by incorporating fragrances in color recipes.

> ***"In any case, fragrances in plastics can play a key role in attracting the consumer interest and, consequently, contribute to increased sales of consumers goods."***

MULTIFUNCTIONAL ADDITIVE FOR PVC

Global Colors z.a.o. has developed and launched a number of polyethylene based color masterbatches (e.g. PY7101, PY7102, PY7106, PY7107 etc), which also include a special multifunctional additive in their formulations.

These masterbatches are proposed for use in PVC siding applications and their success is proven at the production of a major Russian PVC siding producer. The special additive, used in these color recipes, offers not only high impact strength and improved mechanical properties, but also excellent melt stability at increased output rates during processing.

These masterbatches, with their remarkably excellent properties, enable manufacturers to produce high quality, complex PVC products at very high output rates. They exhibit significant color stability and durability, can retain original appearance during long-term outdoor exposures and under adverse weathering conditions.

Global Colors zao can develop customized solutions, by incorporating this special additive in any color masterbatch.

Picture 17:
Effective additive improves the processing of PVC siding products

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global colors
masterbatches

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.

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
- GLOBAL COLORS z.a.o., Russia

The Group's annual production capacity exceeds 40000 MT.

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