Intelligent solutions for plastic sector
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Masterbatch Anti Fog

The agricultural film must have special properties to ensure the cultivar ideal microclimate for growth. The additives must be designed for the migration on the surface very slowly and be compatible with the polymeric matrix in order to slow the rate of extraction during the duration of the film. The use of additives antifog in agricultural film must have the property of create HYDROPHILY.

Benefits with the use of our masterbatch:
- High transparency of the substrate;
- Better light transmission resulting in increased growth of the cultivars;
- Higher crop yields per plant;
- Increase in fruit ripening;
- Reduction of burning of plants and fruits;
- Low maintenance;
- High durability in the time;
- Product non-toxic, non-harmful
- High concentration of active principle;
- Eliminate the drops of water inside;
- Perfect for hydroponics.

Masterbatch IDRO 003-001

Masterbatch for LDPE Monolayer
The masterbatch IDRO 003-001 is recommended for the production of plastic materials in mono layer low density polyethylene (LDPE), the result are a strong anti fog effect, and an increase of the light transmission on the fruit and on the vegetable inside the greenhouse. The Anti Fog masterbatch increase the shelf life of the polymer.

Dosage: Add it in mass, use the 5% of IDRO 003-001 in your formula.
Benefit: Anti Fog effect
Used for: LDPE-LLDPE Mono layer film
Packaging: Minimum order 25 Kg. - Standard: 1 pallets of 600 Kg.
Delivery: Ex work

Masterbatch IDRO 003-002

Masterbatch for Multilayer Film
The masterbatch IDRO 003-002 is recommended for the production of plastic materials in a multilayer film, for example a co-extruded structure. Typically these structures are employed to allow the use of the core layer of the structure to achieve a controlled release effect of the anti-fogging additive to the surface of the film gradually over time. The results are a strong anti fog effect, and an increase of the light transmission on the fruit and on the vegetable inside the greenhouse. The Anti Fog masterbatch increase the shelf life of the polymer.

Dosage: Add it in mass, use the 9% of IDRO 003-002 in the core layer and the 5% in the inner layer.
Benefit: Anti Fog effect, high transparency of layers in time.
Used for: Triple layer films - External layer LDPE, Core layer EVA 17%VA ±1%, Inner layer EVA 4%VA ±1%.
Packaging: Minimum order 25 Kg. - Standard: 1 pallets of 600 Kg.
Delivery: Ex work
Masterbatch for Cloth in Polyamide
Polyamide - Add it in mass 5%.
Contains antibacterial solution
Contains odour adsorb
Contains a molecule for auto clean the cloth

ADVANTAGES:
- ANTIBACTERIAL EFFECT
- AUTO CLEANING CLOTH
- DECOMPOSES THE AMMONIA
- DECOMPOSES THE ODOURS AND V.O.C.
- BLOTS WILL DISCOLOUR IF EXPOSED TO SUNLIGHT

BENEFIT: HIGH DURABILITY

Food
Contact
Approved

The results are very satisfactory:
Delta reduction of bacterial load on Staphylococcus with ADM-PO-AO-01 Masterbatch is >60%.

Procedure:
UNI-EN-ISO 20743/2013

Polyamide Anti Odour

Masterbatches for POLYAMIDE
The masterbatches ADM-PO-AO-01 is recommended for the production of masterbatches in order to make a plastic material polyamide antibacterial, and can remove many volatile organic compounds. Has a very strong action to ammonia. It is insoluble to 99% approximately. The special additive in the master is activated by light, giving the final product the following properties:
- Removing odors and gases
- Reduction of bacteria present on the cloth
- Increase the durations of the polyamide

Dosage:
Add it in mass, use the 4% of MB in your formula. (Reduce the dosage if you see color variations)

Benefit:
Increase the durations of the fibers, antibacterial protection, V.O.C. and ammonia decomposes, self-cleaning.

Used for:
POLYAMIDE

Packaging:
Minimum order 25 Kg. - Standard: 1 pallets of 1.125 Kg.

Delivery:
Ex work

CODE: ADM-PO-AO-01
Masterbatch Antibacteria

Due to the small diameter of the particles the additive is especially suitable for the use in coatings, films, synthetic fibers and monofilaments. The additive can also be used in sheets, extruded and molded parts. The high temperature resistance allow to the additive the full compatible in polymers processed at temperatures far beyond what organic active ingredients can resist.

You can use for:
- Film in PE, PP, PET, Polyamide for the the food processing industry
- Packaging material such as non-woven and films.
- Refrigerators consisting of extruded parts.
- Personal care items such as tooth brushes.
- Coatings for medical furnishings such as trolleys, cupboards and trays.
- Good for carpets, laminate floors top coatings of vinyl floors.
- Bedding articles such as pillow fiber fill, cushion pads, mattress covers and upholstery.
- Sanitary articles such as toilet seats, sinks, bathtubs and shower cubicles.
- Cleaning articles such as brooms, wiping cloths and mops.
- Industrial applications such as filters, ropes, coatings, automotive textiles, etc.

Dosage:
Add it in mass for food contact, use the 2% of ADM-BACT-01 in PE-PP-BOPP-PET
Stable at temperatures up to 300°C

Food Contact Approved
Masterbatch for PE is recommended for all transformations of polyethylene and in particular for the production of coextruded films for the packaging of fruit and vegetables.

The blend of additives contained in the master is able to:
- Adsorb all volatile organic compounds (VOC) of the packaging, and particularly the ethylene gas, the main cause of the increase of the speed of maturation of the plant;
- Controlling the growth of bacteria due to a phenomenon of a catalyst activated by light, then sanitizing content without affecting optical properties of the film (haze and gloss).

Non-toxic formulation.

You can use for:
- Film in PE, PP and BOPP for the food processing industry;
- Packaging material such films.

Dosage:
Add it in mass, use the 5% of ADM-PE-FK-01 or ADM-PP-KF-02 in your formula.

Stable at temperatures up to 250°C

Layer:
Film coex PE (25-50-25) - thickness 35 μm.
Film coex BOPP (5-90-5) - thickness 30 μm.

Masterbatches for PP

The masterbatches ADM-PP-FK-02 is recommended for the production of masterbatches in order to make a plastic material polypropylene antibacterial, and can remove many volatile organic compounds. The form of the crystal structure of the additive is micrometric. It is insoluble to 99% approximately. The special additive in the master is activated by light, giving the final product the following properties: - Removing odors and gases - Reduction of bacteria present on the plastic, - Increase the shelf life.

Dosage:
Add it in mass, use the 5% of MB in your formula.

Benefit:
Increase the shelf life, antibacterial film, V.O.C. and ethylene decomposes, anti-fog.

Used for:
PP-BOPP

Packaging:
Minimum order 25 Kg. - Standard: 1 pallets of 1.125 Kg.

Delivery:
Ex work

PE Fresh Keeping

Contact Approved

L&G HOLDING SRL - Via SS 85 Km 36 - 86070 - Macchia d’Isernia (IS) Italy - Tel. +39 0865 55278
Masterbatch for PET - Fresh Keeping

Masterbatch for PET is recommended for all transformations of PET and in particular for the production of coextruded trays for the packaging of fruit and vegetables. The blend of additives contained in the master is able to:
- Adsorb all volatile organic compounds (VOC) of the packaging, and particularly the ethylene gas, the main cause of the increase of the speed of maturation of the plant;
- Controlling the growth of bacteria due to a phenomenon of a catalyst activated by light, then sanitizing content without affecting optical properties of the film (haze and gloss).
Non-toxic formulation.

You can use for:
- Thermoformed trays in PET for the food processing industry;
- Packaging material such PET trays.

Dosage:
Add it in mass, use the 5% of ADM-PET-FK-01 in your formula.
Stable at temperatures up to 250°C

Layer:
Trays in PET (5-90-5) - Add the MB in the inner layer

These data were processed by a primary Italian university, center of excellence for the study of packaging systems destined for food contact.
Tests were performed for 23 days on the cherry tomato, constant temperature of 4°C.
Here we show the results. More data available.

1. Reduction of the bacterias number in the first 7 days: -92.7%
2. Weight loss after 23 days: -3%
3. Consistency of the fruits increase of: +5 gg.
5. pH values unaltered for: 23 gg.
6. Global quality increase of: +25%
Masterbatch Anti Rodents

The MB can be applied to many plastic substrates. It was created for industrial applications on electrical cables, telephonic and optical fiber. The operating equipment, are protected for a long number of years from the dangers of rodents. Can be used on plastic bins for rubbish, bags of waste, on PVC pipes, appliances, rubber for the automotive, industry switches, micro switches, electrical panels, or on any plastic material at low or high density. The ROD-01 is a masterbatch for the permanent protection of plastic products. In addition to protecting mechanically polyolefin substrates, it provides protection from the attack of rodents in accordance with EU regulation no. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products. The new formula is based on chemical compounds micrometrics not covered in the list of biocidal products, so our additive does not require a license (BPR). A material, an additive, a masterbatch or a coating conservative, for example, the masterbatch ROD-01, applied to an electric cable, it falls within the definition of a treated article. Treated articles are not subject to registration under (BPR) on condition that their primary function is not a biocide. In the present case the primary function for example of an electric cable is to be a conductor of electricity and not be a biocidal anti rodents. In addition, the master ROD-01 has as primary characteristic that of being a permanent protective for plastic materials. These products can be marketed without restriction. The ROD-01 is recommended for the processing of all the polyolefin polymers, rubbers and PVC. Consider a primary use in the field of electrical cables, telephone and fiber optic needing permanent protection from rodents. The World Health Organization estimates that 26% of electrical and telephone cables and 25% of the fires of unknown origin is attributed to the activity of rodents.

**Dosage:**
Add it in mass, use the 4% of ROD-01 in your formula.

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**Is not a biocide**

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**ROD-01 MB**

The masterbatches ADM-ROD-01 is recommended for the production of LLDPE - LDPE - HDPE in order to make a protection to the plastic material. Recommended for: Electrical and telephonic cables, optical fiber, plastic bins for rubbish, bags of waste, on PVC pipes, appliances, rubber for the automotive, industry switches, micro switches, electrical panels, and more.

<table>
<thead>
<tr>
<th>MB Dosage:</th>
<th>Add it in mass, use the 4% of ADM-ROD-01 in your formula.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit:</td>
<td>Permanent protection</td>
</tr>
<tr>
<td>Used for:</td>
<td>LLDPE - LDPE - HDPE</td>
</tr>
<tr>
<td>MB Packaging:</td>
<td>Minimum order 25 Kg. - Standard: 1 pallets of 1.125 Kg.</td>
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<tr>
<td>Extrusion:</td>
<td>The max temperature of extrusion is 250°C.</td>
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<tr>
<td>Delivery:</td>
<td>Ex work</td>
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</tbody>
</table>

**CODE:** ADM-ROD-01
TiO2 Lab

Chemical Analyses
- micro-bacteriological analysis
- analysis storability of packaged food products
- artificial aging tests
- study and analysis of the performance photocatalytic
- analysis NO, NO₂, NOx according to EN ISO 11238-2 and 11247
- analysis SO, SO₂, SOx, Pm1, 2.5, 10, V.O.C.
- creation ad hoc of smoke chambre
- SEM and TEM electron microscopy
- spectrophotometry and spectroscopy UV-Vis
- light analysis, patents, validations university
- competition analysis, study of smart materials
- antibacterial agents for the food industry
- masterbatches, additives smart, fresh keeping, and more ..

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An analysis laboratory available for our customers

The Lab

is an engineering firm that provides integrated solutions to companies qualified and comprehensive. Is the group company which is interested in the research and development of nanotechnology for environment, materials, products. Our activities: chemical engineering, analysis of indoor environments, monitoring of urban pollutants, but mostly we study new molecules smart, for the food industry, and agriculture. In collaboration with leading Italian universities of chemistry and microbiology, we integrate the work carried out in our laboratories, validating the work performed when required. The staff of TiO2 Lab is available for customers to test and analyze any type of substrate the extraordinary properties of the products we sell.

We are the link between the industry and the technology of a nano or micro structure applied to a material.