**CAPROWAX P™**

**Masterbatches** for Bioplastics/Biocomposites/Blends: PLA, PBS, PHA, PCL, **CAPROWAX P™/Blends/BioMineralComposite**, Bio-NFC/WPC, Casein, PVOH, Polysaccharides/Derivates, PVAc/Blends, Bio-TPE/UPR, NIPU. As colourants are used biobased, bio-mineral and/or harmless, inorganic pigments with sustainable, lightfast brightening prefers without Titanium Dioxide. The carrier material is compostable and waterproof. Colourations of bioplastics comply the specifications of DIN EN 13432.

Albrecht Dinkelaker
Polymer- and Product Development

info@polyfea2.de
www.caprowax-p.eu

**CAPROWAX P™** compostable of course
After successful tests of Masterbatches with your bioplastics or composites your request will be coordinated with toll manufacturer.

Translucent to transparent, pearlescent or full covering colouration: Injection-/Vacuum-/Blow-/Compression-/Melt-Moulding, Mono-/Multifilaments, Foils/Sheets, Hotmelts, NF-BioComposites, Thermoplastic Plasticine, Foams and Coating.

Pigments are biobased, biomineral or calcined, pigmentlike Kaolin and/or of inorganic, synthetic production. They are harmless, lightfast, non-migratory, temperature stable, insoluble in water, comparable with natural, mineral pigments and already mineralised. They are low-dusty incorporated in compostable carrier material and masterbatch pellets are added to different bioplastics in a range of 0,5-6%. Processing at 90-200°C, short time up to 220°C. In coloured final products content of each separate pigment is ≤1%. Colouration of bioplastics comply the specifications of DIN EN 13432.

CAPROWAX P® compostable of course
### Masterbatches for Translucent Colouration

<table>
<thead>
<tr>
<th>CAPROWAX P™</th>
<th>Shade Chromatic</th>
<th>CAPROWAX P™</th>
<th>Shade Chromatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red 114 T</td>
<td></td>
<td>Red Y 121 T tex</td>
<td></td>
</tr>
<tr>
<td>Yellow 310 T tex</td>
<td></td>
<td>Green 427 T tex</td>
<td></td>
</tr>
<tr>
<td>Green 413 T tex</td>
<td>MB500</td>
<td>Green 426 T tex</td>
<td></td>
</tr>
<tr>
<td>Green AR 430 T tex</td>
<td>LP</td>
<td>Blue AR 530 T tex</td>
<td>LP</td>
</tr>
<tr>
<td>Blue G 511 T tex</td>
<td></td>
<td>Blue R 516 T tex</td>
<td></td>
</tr>
<tr>
<td>Violet B 616 T</td>
<td></td>
<td>Violet R 617 T</td>
<td></td>
</tr>
<tr>
<td>Violet B 630 T tex</td>
<td>LP</td>
<td>Violet R 635 T tex</td>
<td>LP</td>
</tr>
</tbody>
</table>

**R:** reddish  **V:** yellowish  **G:** greenish  **B:** bluish  **T:** translucently
**tex:** suited for colouration of filaments  **LP:** laboratory prototype  **AR:** acid resistant

**MB500 = 500g sample for process engineering experiments**

---

**Addition of CAPROWAX P - Masterbatches to different bioplastics: 0,5-4%**

Injection-/Vacuum-/Blow-/Compression-/Melt-Moulding, Filaments, Foils/Sheets, Hotmelts, Thermoplastic Plasticine, Foams and Coating. All shades of colour are comparable or similar to the product colours.

**Application projects with pearlescent pigments**

For your shortlist: Coloured buttons of MB-Laboratory prototypes (LP) with CAPROWAX P™-Blends on request

<table>
<thead>
<tr>
<th>CAPROWAX P™</th>
<th>Shade</th>
<th>CAPROWAX P™</th>
<th>Shade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold 9301</td>
<td></td>
<td>Gold 9302</td>
<td></td>
</tr>
<tr>
<td>Silver 9001</td>
<td></td>
<td>Bronze 9701</td>
<td></td>
</tr>
<tr>
<td>Rot 9101</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Addition of Pearlescent-Masterbatches to different bioplastics: 0,5-6%**

Harmless, pearlescent pigments: Mica coated with TiO₂ and/or Fe₂O₃
Preferably pearlescent masterbatch Silver 9001 is additive combinable with translucent CAPROWAX P - Masterbatches to yield diverse pearlescent colouration preferably in a proportion of 2:1.

**CAPROWAX P™ compostable of course**
### CAPROWAX P™ Shade chromatic

| Red FK 111 | LP |
| Red FK 112 | LP |
| Red FK 117 | LP |
| Red FK 115 | LP |
| Orange FK 205 | LP |
| Orange FK 203 | LP |
| Yellow FK 312 | LP |
| Yellow FK 306 | LP |
| Green FK 441 | LP |
| Green 417  ww tex | LP |
| Green 417  ww tex | LP |
| Red 112 lw | LP |
| Red 115 BM ww | LP |
| Red FK 130 | LP |
| Red 116 lw tex | MB500 |
| Orange 203 BM ww | LP |
| Orange 204 lw tex | LP |
| Yellow 306 BM ww | LP |
| Yellow FK 320 | LP |
| Yellow 307 lw tex | LP |
| Green 418  ww tex | LP |
| Green 416  ww tex | LP |

**BM:** Biominal, natural Calcium Carbonate  
**lw:** ≤ 0.1% TiO2 in coloured polymer  
**ww:** TiO2 free  
**FK:** Kaolin, calcined  
**LP:** Laboratory prototype  
**tex:** suited for colouration of filaments  

**MB500:** 500g sample for process engineering experiments

---

**Addition of CAPROWAX P™- Master batches to different bioplastics: 0.5-4%.**

A brightening without Titanium Dioxide is possible. The palette of master-batches is changed to the eco-friendly, soil-related, calcined, pigmentlike Kaolin (FK) as white pigment. Titanium Dioxide will be used in exceptional cases only or strong reduced. The biomineral, natural Calcium Carbonate, is used as a white pigment with gentle covering brightening.

All shades of colour are comparable or similar to the product colours.

**Injection-/ Vacuum-/ Blow-/ Compression/ Melt-Moulding, Foils/Sheets, Filaments, Hotmelts, NF-BioComposites, Plasticine, Film, Foams, Coating**

---

**Your order of CAPROWAX P™- Master batches see page 7**
# Masterbatches for chromatic, covering colouration

<table>
<thead>
<tr>
<th>CAPROWAX P™</th>
<th>Shade chromatic</th>
<th>CAPROWAX P™</th>
<th>Shade chromatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green 444 BM ww</td>
<td>LP</td>
<td>Green AR 435 ww tex</td>
<td>LP</td>
</tr>
<tr>
<td>Green 412 lw</td>
<td></td>
<td>Green AR 433 ww tex</td>
<td>LP</td>
</tr>
<tr>
<td>Green FK 440</td>
<td>LP</td>
<td>Blue FK G 543</td>
<td>LP</td>
</tr>
<tr>
<td>Blue G 509 BM ww</td>
<td>LP</td>
<td>Blue FK G 509</td>
<td>LP</td>
</tr>
<tr>
<td>Blue G 510 lw tex</td>
<td>MB500</td>
<td>Blue FK G 512</td>
<td>LP</td>
</tr>
<tr>
<td>Blue R 541 BM ww</td>
<td>LP</td>
<td>Blue FK R 542</td>
<td>LP</td>
</tr>
<tr>
<td>Violet B 636 BM ww</td>
<td>LP</td>
<td>Violet R 637 BM ww</td>
<td>LP</td>
</tr>
<tr>
<td>Violet FK B 605</td>
<td>LP</td>
<td>Violet FK R 608</td>
<td>LP</td>
</tr>
<tr>
<td>Violet B 607 lw tex</td>
<td></td>
<td>Violet R 610 lw tex</td>
<td></td>
</tr>
<tr>
<td>Violet B 606 lw tex</td>
<td></td>
<td>Violet R 609 lw tex</td>
<td></td>
</tr>
<tr>
<td>Brown FKV 712 bb</td>
<td>LP</td>
<td>Brown FKV 711 bb</td>
<td>LP</td>
</tr>
<tr>
<td>Brown V 713 BM bb ww</td>
<td></td>
<td>Brown FKV 705 S</td>
<td></td>
</tr>
<tr>
<td>Brown FKV 709 bb tex</td>
<td></td>
<td>Brown FKV 702 lw tex</td>
<td></td>
</tr>
</tbody>
</table>

**Addition of CAPROWAX P™ - Masterbatches** to different bioplastics: 0.5-4%.

A brightening without Titanium Dioxide is possible. The palette of masterbatches is changed to the eco-friendly, soil-related, calcined, pigmentlike Kaolin (FK) as white pigment. Titanium Dioxide will be used in exceptional cases only or strongly reduced.

The biomineral, natural Calcium Carbonate, is used as a white pigment with gentle covering brightening.

All shades of colour are comparable or similar to the product colours.

Injection-/ Vacuum-/ Blow-/ Compression/ Melt-Moulding, Foils/Sheets, Filaments, Hotmelts, NF-BioComposites, Plasticine, Film, Foams, Coating

Your order of CAPROWAX P™ - Masterbatches see page 7

**CAPROWAX P™ compostable of course**
Masterbatches for achromatic, covering colouration

<table>
<thead>
<tr>
<th>CAPROWAX P™</th>
<th>Shade achromatic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>White FK005 tex</td>
<td></td>
<td>Kaolin, calcined</td>
</tr>
<tr>
<td>White C 004 BM ww</td>
<td>MB500</td>
<td>natural Calcium Carbonate</td>
</tr>
<tr>
<td>Grey 821 BM ww</td>
<td></td>
<td>natural Ca-Carbonate / Iron Oxide Black</td>
</tr>
<tr>
<td>Grey FK 822</td>
<td></td>
<td>Kaolin, calcined / Iron Oxide Black</td>
</tr>
<tr>
<td>Grey FK 824 S</td>
<td></td>
<td>Kaolin calcined / Iron Oxide Black (S)</td>
</tr>
<tr>
<td>Grey FK V 827 bb</td>
<td></td>
<td>Kaolin calcined / vegetable Carbon tec</td>
</tr>
<tr>
<td>Black 801</td>
<td></td>
<td>Iron Oxide Black</td>
</tr>
<tr>
<td>Black V 802 bb tex</td>
<td></td>
<td>vegetable Carbon (E153)</td>
</tr>
<tr>
<td>Black 803 S tex</td>
<td></td>
<td>Iron Oxide Black (S)</td>
</tr>
<tr>
<td>Black V 804 bb</td>
<td></td>
<td>vegetable Carbon (tec)</td>
</tr>
<tr>
<td>V: vegetable Carbon</td>
<td>bb: biobased</td>
<td>tec = technically</td>
</tr>
<tr>
<td>FK: Kaolin, calcined</td>
<td>ww: TiO2 free</td>
<td>LP: Laboratory prototype</td>
</tr>
<tr>
<td>BM: Biomineral, natural Calcium Carbonate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tex = suited for colouration of filaments</td>
<td>S: heat stable up to 220°C</td>
<td></td>
</tr>
</tbody>
</table>

Addition of CAPROWAX P™ Masterbatches to different bioplastics: 0.5-4%. A brightening without Titanium Dioxide is possible. The palette of masterbatches is changed to the eco-friendly, soil-related, calcined, pigmentlike Kaolin (FK) as white pigment. Titanium Dioxide will be used in exceptional cases only or strong reduced. The biomineral, natural Calcium Carbonate, is used as a white pigment with gentle covering brightening.

All shades of colour are comparable or similar to the product colours.
Injection-/ Vacuum-/ Blow-/ Compression/ Melt-Moulding, Foils/Sheets, Filaments, Hotmelts, NF-BioComposites, Plasticine, Film, Foams, Coating

Your order of CAPROWAX P™ Masterbatches see page 7

CAPROWAX P™ compostable of course

RAIN SOIL
Your order of CAPROWAX P™- Masterbatches

After a successful test with samples at customers your request will be manufactured batchwise by toll manufacturer.

**CAPROWAX P™ COLOUR PALETTE**

See colour palettes page 3-6: Shades of colours + code

Technical samples: You can get up to 4 samples a 50g pellets free of charge
For additional process engineering experiments you can get 500g MB500 samples see page 2-5

New MB-Recipes: For your shortlist coloured CAPROWAX P™- Buttons of MB-Laboratory prototype (LP) on request.

Supply quantities: 100 kg, 200 kg, 500 kg
+/- 25 kg: After your selection you will get an offer about location-based, direct delivery

25 kg PE-Bags in carton or on palett yearly forecast or 3 months in advance

Market area: European Union

Prices: According to offer

Payment conditions: According to offer

Delivery date: 6 - 7 weeks

Miscellaneous: Product infos and SDS

Informations, quote requests and orders at

Albrecht Dinkelaker
Polymer and Product Development
Blumenweg 2
D 79669 Zell im Wiesental
info@polyf2.de
Fon: ++49 7625 91 84 58

Banking details/Finance office: On request VAT-No.: DE165 604 009

CAPROWAX P™ compostable of course
Applications with CAPROWAX P™ materials

Injection moulding

Masterbatches with compostable carrier material

Vacuum forming Foils / Sheets

Buttons

Hotmelts Thermoplastic plasticine

Monofilamente

Nature Fibres BioComposites

Blow moulding

CAPROWAX P™ compostable of course
Masterbatch CAPROWAX P™ Blue G 510 lw tex

Compostable carrier material: Bio-Dry-Blend CAPROWAX P 6006-C65 (Intermediate)

Sample material

Customer information

Fon: +49 7625 91 84 58
info@polyfeo2.de
www.caprowax-p.eu

Product example

Albrecht Dinkelaker
Polymer- and Product Development
Blumenweg 2
D 79669 Zell im Wiesental

Properties / Data / Description

Form
a) 36.08.PV.006 mm Pellets, Diameter: 1,5-3,0/ Size: 2,0-3,5

Content of pigments
b) %
25,0

Colour Index
P8 29 Ultramarine Blue

Colour Index
PW 6 Titandioxide

Colours description
c) blue, greenish, covering

d) 7-8

Lightfastness
DIN EN ISO 60 g/l 754

Density
DIN EN ISO 1183 g/cm³ 1,21

Residual Humidity (LOD) 105°C/1h % < 0,3

Softening beginning
DSC °C 57-63

Remark: tex is suited for colouration of filaments / heatstable up to 200-220°C / acid sensitive

a) internal test norm / b) Formulation with weighing protocol / c) 2% Masterbatch in CAPROWAX P 6006 lw = low content TiO2
d) Data of pigment producer

Description
CAPROWAX P™ Blue G 510 lw, a masterbatch with harmless, lightfast, non-migratory, temperature stable, insoluble in water, inorganic pigments partially comparable with natural pigments.

Low-dusty incorporated in a compostable carrier material.

Coloured bioplastics comply the specifications of DIN EN 13432

Carrier material
CAPROWAX P 6006-C65: (*) calculated

83.7%* organic carbon from biobased resources

Total amount of organic carbon: 71.4%*

A compostable carrier material - as dry-blend-intermediate - is modified with additives in accordance to DIN EN 13432 and is comparable with the tested material at MFPA Weimar

CAPROWAX P® 6006-00-000 (DIN EN 13432)

MFPA Weimar Test certificate: P31/029-05

No food or feeding stuff

Ecologically friendly composition

Biopolymers and use


Introduction to recipe for reduced content of TiO2 (lw)

1-2% Masterbatch (MB) homogenous intermingling with pellets

In coloured products content of TiO2 is ≤0,1%

Processing temperatures
90-200°C (194-392°F) / short time up to 220°C (428°F)

Drying pellets on demand 50°C (122°F)/12h Avoid heating melt >90°C over long time

Examples of application

Products of injection moulding, vacuum-/blowforming, foils, hotmelts, NF-BioComposites, support material, substrate, coating

Storage/Instruction

Avoid heat and moisture, storage in original containers only

CAPROWAX P™ compostable of course

BOW
RAIN
SOIL
Carrier material based on CAPROWAX P™ 6006

Bio-Dry-Blend CAPROWAX P 6006-C65 is produced as an intermediate in powder form and as a compostable carrier material for masterbatches applications. Modified with additives in accordance with DIN EN 13432 and comparable with CAPROWAX P™ 6006, certified by MFPA, University Weimar

Test material: CAPROWAX P® 6006
Test certificate No.: P31029-05 / DIN EN 13432
83.7% content of organic carbon* from biobased resources
Total content* of organic carbon: 71.4% *) calculated

Portions of carrier material in masterbatches are 60-85%
Maximum range of thermal stability: 180-220°C (356-428°F)
Processing >150°C predrying at 48-50°C/12 h
Ecofriendly: “Free of aromatics and nitrogen, renewable raw materials without genetically modified growing”. No content of starch or PLA. No content of food and feeding stuff. (22/2019)

Product surfaces of CAPROWAX P™ - Material are self-cleaning with water or rain just like lotus flowers. Quick degradation in aerob compost or slow rotting in soil works into biomass, mixtures of soil-related, mineral, inorganic substances, carbon dioxide and water. As well under anoxic/denitrifying conditions degradation occurs fully. In the course of composting the brown to black colour of compost or humus change over to the coloured bioplastic and the colourful appearance disappears. Colourations with bio-mineral Calcium-carbonate-Masterbatches support biogenic weathering in soil and waters.

Product information, quote request, order at:

Albrecht Dinkelaker
Polymer- and Product Development
Blumenweg 2 info@polyfe2a.de
D 79669 Zell im Wiesental Fon: 0049 (0)7625 918458

info@polyfe2a.de Ideas increase to pellets www.caprowax-p.eu

CAPROWAX P™ compostable of course RAIN SOIL