

## K R I T I L E N® masterbatches

### ECONOMIC RANGE OF BLACK AND WHITE MASTERBATCHES

#### TECHNICAL INFORMATION

The economic range of KRITILEN® BLACK and KRITILEN® WHITE masterbatches is composed of carbon-black / titanium dioxide (TiO<sub>2</sub>) concentrates in a polymer carrier. They offer a technically efficient and cost effective solution for incorporating carbon-black / TiO<sub>2</sub> in thermoplastic products, providing black or white coloration respectively.

There are two main classes of economic KRITILEN® BLACK and economic KRITILEN® WHITE masterbatches :

- a) General purpose economic black masterbatches, based on SRF or HAF carbon-black in PE carrier. They are mainly used for coloring, while at the same time they offer moderate UV-resistance to plastic products.
- b) General purpose low cost white masterbatches, based on economic and/or anatase titanium dioxide in PE carrier.

Economic and anatase TiO<sub>2</sub> types offer lower covering power and tinting strength when compared to rutile TiO<sub>2</sub> - which could be critical to certain demanding applications but well compatible with non-demanding ones – while they are not recommended for outdoor applications.

#### TYPICAL CARBON-BLACK SPECIFICATIONS :

Property	HAF	SRF
Average particle size, nm	27-30	60-70
DBP Surface Area, ml/100 gr	120	65
Iodine Absorption, mg/gr	90	30
CTAB, m <sup>2</sup> /gr	94	33
Ash, %	< 0,75	< 0,75

#### TYPICAL TiO<sub>2</sub> SPECIFICATIONS :

Property	Economic TiO <sub>2</sub>	Anatase TiO <sub>2</sub>
Specific gravity	4.1	4.2
TiO <sub>2</sub> content (%)	97	99
Loss @ 105C	<0.3	<0.4
Food Contact	Yes	Yes

**KRITILEN® ECONOMIC BLACK MASTERBATCHES  
PRODUCT RANGE**

KRITILEN BLACK	Carrier Resin	Carbon-black %	Carbon-black type	Filler	Antioxidants	Processing Aid	Inj. / Blow-moulding	Films / Sheets	Thin films	Pipes	Geomembranes	Tapes / geotextiles
340B	PE	40	SRF	◆			•	•				○
349B	PE	50	SRF	◆			•	•		•		○
3491E	PE	50	SRF	◆			•	•		•		○
350B	PE	50	SRF				○	•		•		○
360B	PE	60	SRF				○	•	•	•		○
415	PE	15	HAF	◆			•	○				
420	PE	20	HAF	◆			•	○				
425	PE	25	HAF	◆			•	•				
430	PE	30	HAF	◆			○	•		•		
436	PE	40	HAF				○	•	•	•	○	

◆ : yes

• : recommended

○ : can be used

Modified versions of the above products can be produced upon request, e.g. with another base resin, carbon-black type/content or containing different types/levels of additives.

**KRITILEN® ECONOMIC WHITE MASTERBATCHES  
PRODUCT RANGE**

KRITILEN WHITE	Carrier Resin	White Pigments %	TiO2 type	Undertone	Filler	Injection moulding	Blow-moulding	Films / Sheets	Thin films
121A	PE	20	A	M	◆	•	•	○	
121E	PE	20	E	M	◆	•	•	○	
135E	PE	35	E	B	◆	•	•	○	
136E	PE	35	E	M	◆	•	•	○	
140A	PE	40	A	B	◆	•	•	•	
140E	PE	40	E	B	◆	•	•	•	
1410A	PE	40	A	M	◆	•	•	•	
1410E	PE	40	E	M	◆	•	•	•	

**KRITILEN® ECONOMIC WHITE MASTERBATCHES  
PRODUCT RANGE**

KRITILEN WHITE	Carrier Resin	White Pigments %	TiO2 type	Undertone	Filler	Injection moulding	Blow-moulding	Films / Sheets	Thin films
150A	PE	50	A	B	◆	•	•	•	○
150E	PE	50	E	B	◆	•	•	•	○
1530A	PE	50	A	M	◆	•	•	•	○
1530E	PE	50	E	M	◆	•	•	•	○
160A	PE	60	A	B	◆	○	○	•	•
160E	PE	60	E	B	◆	○	○	•	•
162A	PE	60	A	M	◆	○	○	•	•
162E	PE	60	E	M	◆	○	○	•	•
170A	PE	70	A	B		○	○	•	•
170E	PE	70	E	B		○	○	•	•
172A	PE	70	A	M		○	○	•	•
172E	PE	70	E	M		○	○	•	•

A : Anatase TiO2    E :Economic TiO2                      • : recommended                      ○ : can be used  
 B : bluish                      M : milky                      ◆ : yes

Modified versions of the above listed products can be produced upon request, e.g. with another base resin, white pigments type/content or containing different types/levels of additives.

## SELECTION GUIDE

### a) Injection & blow-moulding

BLACK 415, 420 as well as BLACK 340B are general purpose economic black products. They contain a relatively high amount of filler, which increases the rigidity of the final products and ensures faster mould cooling, i.e. increased output. BLACK 415 and 420, due to the small particle size of the carbon-black they contain, offer good coloring strength at lower addition levels.

WHITE 121A, 121E, 135E and 136E are mainly used for injection and blow-moulding. They contain increased percentage of Calcium Carbonate, which offers dimensional stability, rigidity and stiffness to the final products, as well as faster mould cooling, i.e. increased output. As already mentioned they are not recommended for outdoor exposure as well as for applications that require increased weather resistance. For these applications the regular KRITILEN® WHITE MASTERBATCHES range containing RUTILE titanium dioxide should be considered.

### b) Films

For relatively thick films (> 40 mic.), BLACK 340B, 349B, 3491E, 350B, 425 or 430 are the most popular and economic options.

For thin films (20-25 mic) with relatively short-lifetime BLACK 350B & BLACK 360B is the recommended choice, while for longer lifetime BLACK 425, 430 and 436 are more suitable as they ensure better UV-resistance due to the small particle size of the carbon-black.

For relatively thick LDPE films (shopping bags, heavy duty bags etc. with a thickness of 40-200 mic) the most suitable products are those containing 40-60 % TiO<sub>2</sub>, i.e. WHITE 140A, 140E, 1410A, 1410E, 150A, 150E, 1530A, 1530E, 160A, 160E, 162A & 162E.

For thin LDPE, LLDPE & HDPE film (e.g. T-shirt bags), masterbatches with high content of TiO<sub>2</sub>, and the best possible dispersion, such as WHITE 170A, 170E, 172A and 172E are preferable.

Additionally, economic KRITILEN® WHITE masterbatches are strongly recommended for photo/thermo degradable bags, since due to their lower weather resistance, facilitate the polymer degradation.

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The information and suggestions contained herein are the result of our experience, knowledge and research. They are believed to be reliable and are given in good faith. However, no warranty is provided, as the conditions under which our products are used are beyond our control.