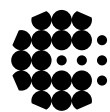


Black
Masterbatches



Global Colors

Your Success in Black

Delivering Excellence with Global Colors' Black Masterbatches.

TECHNICAL INFORMATION

2 main classes
of Kritilen®
Black Masterbatches

Specifications
of typical
Carbon-Black

Kritilen® Black masterbatches are concentrates of finely dispersed carbon-black in a polymer carrier. They offer a convenient way of incorporating carbon-black in thermoplastic products, providing black coloration and improved UV-resistance.

1) General purpose black masterbatches.

Based on SRF or HAF carbon-black in LDPE, LLDPE, PP or PS carrier. They are mainly used for coloring, while at the same time they increase the UV-resistance of the end products.

2) Black masterbatches for demanding applications.

Based on P and RCF carbon-black, often in combination with various additives such as antioxidants and processing aids in LDPE, LLDPE, PP, PS or PVC carrier. Due to the small particle-size of the carbon-black (20-30 nm) and to its perfect dispersion, these types offer to plastic products higher opacity and maximum UV-resistance.

PROPERTY	P	RCF	HAF	SRF
Average particle size, nm	20-25	< 25	27-30	60-70
DBP Surface Area, ml/100 gr	98	114	120	65
Iodine Absorption, mg/gr	118	121	90	30
Tinting Strength, IRB#3	107	115	105	57
CTAB, m ² /gr	99	110	94	33
Ash %	< 0,2	< 0,75	<0,75	< 0,75
Sulfur content %	0,1			
Toluene extract %	0,03			

P Is the purest type of carbon-black, with broad approval for food contact and potable water applications. It imparts maximum UV-resistance and excellent covering power.

RCF Also impart excellent UV-resistance and covering power.

HAF Is an economic carbon black for medium UV resistance and covering power

SRF Is an economic carbon-black, suitable for coloring plastic products and imparting moderate UV-resistance.

KRITILEN® BLACK	Carrier Resin	Carbon-black %	Carbon-black type	Filler	Antioxidants	Processing Aid	Inj. / Blow-moulding	Films / Sheets	Thin films	Pipes	Pipes (pot. water)	Geomembranes	Tapes / Geotextiles	Fibers
325	PE	25	SRF	◆			●	○						
331	PE	30	SRF	◆			●	○						
335	PE	35	SRF	◆			●	●					○	
340	PE	40	SRF	◆			●	●					○	
3491E	PE	50	SRF	◆			●	●	●	●			○	
350	PE	50	SRF				○	●	●	●			○	
351	PE	50	SRF			◆	○	●	●	●			○	
A354	PE	50	SRF		◆	◆	○	●	●	●			○	
360	PE	60	SRF				○	●	●	●			○	
3502	EVA	50	SRF				○	●	●				○	
415	PE	15	RCF	◆			●	○						
420	PE	20	RCF	◆			●	○						
425	PE	25	RCF	◆			●	●						
430	PE	30	RCF	◆			○	●		●				
438	PE	40	RCF				○	●	●	●		○		
436	PE	40	HAF				○	●	●	●		○		
4010	PE	40	HAF	◆			○	●	●	●		○		
450	PE	50	HAF				○	●	●	●		○		
A441	PE	40	RCF		◆		○	●	●	●		○		
A445	PE	40	RCF		◆	◆	○	●	●	●		○		
4200P	PE	20	P	◆			●	●						
426P	PE	25	P	◆			●	●						
440P	PE	40	P				○	●	●	●	●	○	○	
4403P	PE	40	P	◆			○	●	●	●	●	○		
4402P	PE	40	P				○	●	●	●	●	○	○	
451P	PE	50	P				○	●	●	●	●	○	○	
4401P	PE	40	P				○	●	●	●	●	○	●	●
4410E	PE	40	P				○	●	●	●	●	○	●	●
A442P	PE	40	P		◆		○	●	●	●	●	○		
A446P	PE	40	P		◆	◆	○	●	●	●	●	○		
PP942P	PPH	40	P				○	●			●		●	
PPA932P	PPH	30	P		◆		○	●			●		●	
PPFA934P	PPH	30	P		◆		○	●					●	●
PPFA9440P	PPH	40	P		◆		○	●					●	●
PPA9453P	PPH	40	P		◆		○	●					●	
PS740	PSGP	40	SRF				○	●						
PS758	PSGP	50	SRF				○	●						
PS725P	PSGP	25	P				○	●						
PS7405P	PSGP	40	P				○	●						
PV89005	p-PVC	20	P	◆										
PV89006	p-PVC	30	HAF	◆										

Product Range

- ◆ 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.

SELECTION GUIDE

Injection & blow-molding

Kritilen® Black 325 & 331 as well as BLACK 415,420,425 & 430 are general purpose economic products. They contain a relatively high amount of filler, which increases the rigidity of the final products, ensuring faster mold cooling and increased output. BLACK 415,420,425 & 430, due to the small particle size of the carbon-black they contain, offer adequate color strength at lower addition levels. For PP products it is advisable to use PPA932P, while for PS products PS740 or PS758.

When food approval is required, 4200P, 426P, 440P or 451P must be selected for PE, PP942P for PP and PS725P or PS7405P for PS products.

Films

For relatively thick films (> 40 mic.), BLACK 331, 335, 340, 3491E, 350, 360, 425 or 430 are the most popular and economic options.

For thin films (20-25 mic.) with relatively short-lifetime BLACK 350 or BLACK 360 is the recommended choice, while for longer lifetime BLACK 425, 430, 436, 4010, 438, and 450 are more suitable as they ensure better UV-resistance due to the small particle size of the contained carbon-black.

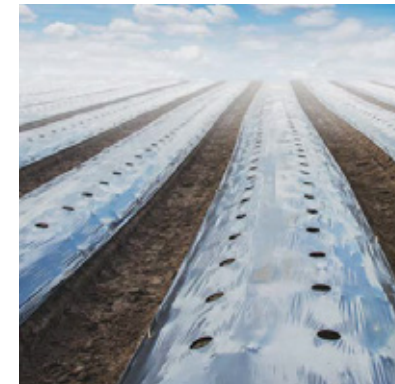
For very thin films (15-20 mic.) BLACK 440P, BLACK 4403P, BLACK 4410E, Black 4401P and BLACK 451P are the best choice, due to their perfect dispersion and the high UV-resistance they impart. For long outdoor exposure in areas with strong sun radiation and high temperature (long-life mulch films, stretch silage) BLACK A442P which contains a special package of antioxidants, offers additional protection from surface oxidation. For better processing of LLDPE & HDPE at high output rates, BLACK A446P, which contains PPA, is an even better alternative. Black 4402P is used when FDA approval is required.

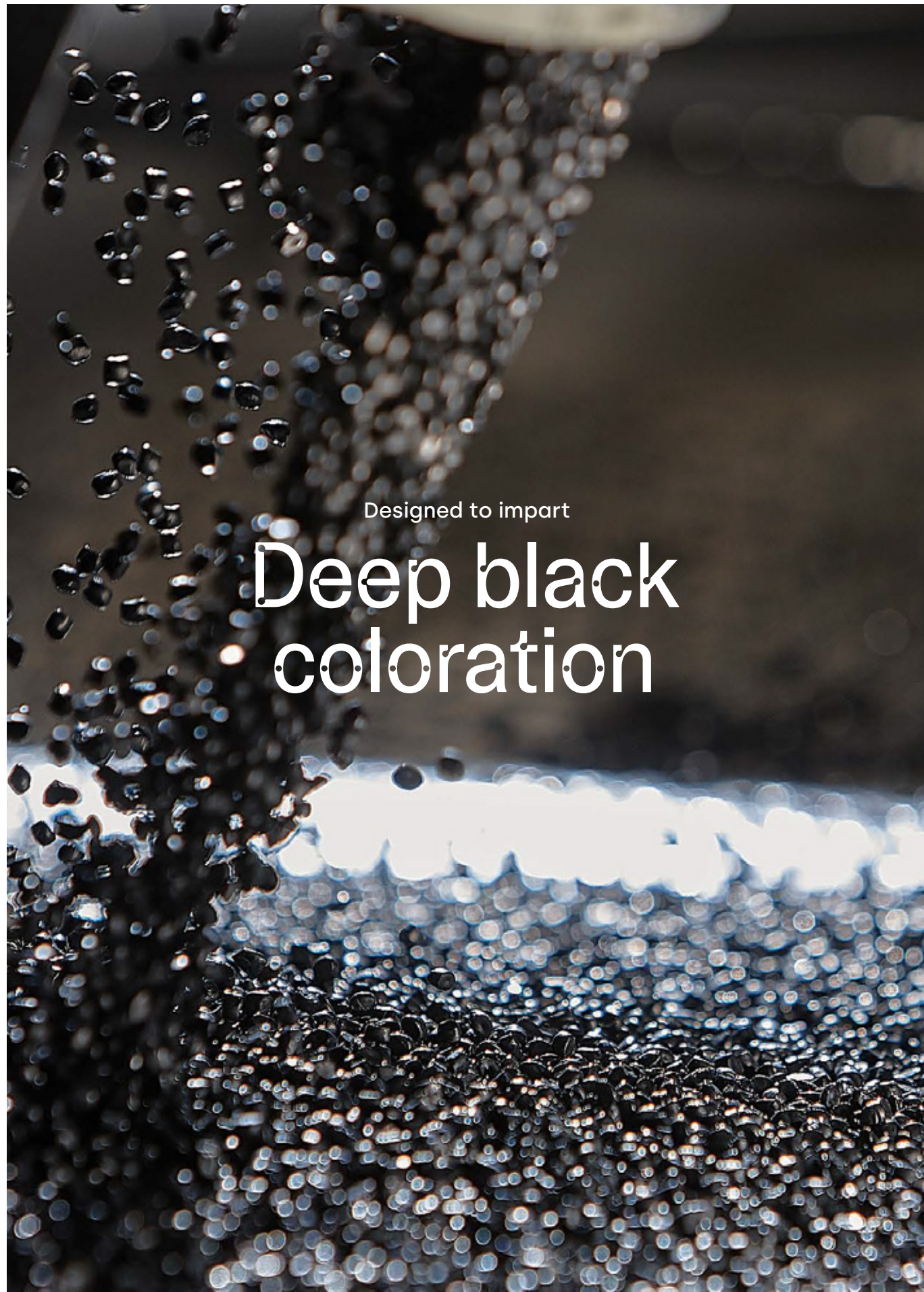
Geomembranes, pond liners

BLACK A442P at an addition of 6-7 % offers outmost UV-resistance. Its antioxidant package protects the surface from thermal oxidation. For a smoother surface, BLACK A446P which contains PPA should be evaluated. Both products have wide approval for potable water. For less critical applications, BLACK 360, BLACK A441 or A445 could be used.

Stretched tapes, geotextiles

BLACK 4401P, BLACK PPFA934P and BLACK PP942P (for PP tapes) are recommended. All ensure excellent UV-resistance, trouble-free processing, and deep coloration. For applications not requiring high UV-resistance, BLACK 420, 425, 430, 350 and 360 are economic and reliable solutions.

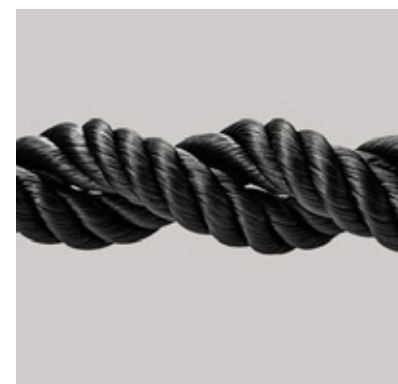
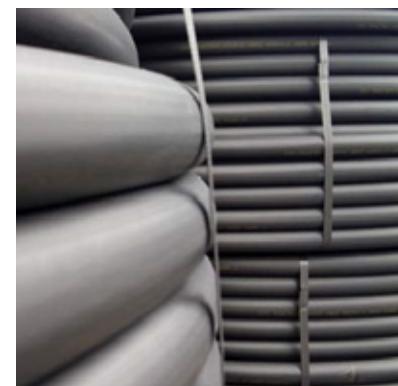




Designed to impart

Deep black coloration

Formulated to ensure excellent dispersion, high jetness, and enhanced durability across a broad range of applications.



PE & PP extruded nettings

The most recommended products for these applications are BLACK 440P and PPA932P, which ensure very high UV-resistance for long outdoor exposure.

Polyethylene Pipes

For low-pressure LDPE pipes BLACK 340 (at 6 %), 3491E & 350 (at 5 %) & 360 (at 4 %) are cost-effective solutions, offering adequate UV-protection for 5-8 years. BLACK 351 which contains PPA and BLACK A354 which contains both antioxidants and PPA are advanced solutions for even better performance. For longer lifetime requirements, A441 at an addition of 6% ensures very high UV and heat resistance. An even better choice is BLACK A445, containing a polymer processing aid (PPA), helping in enhanced productivity and improved pipe appearance, by eliminating surface defects, melt-fracture and die build-up.

For HDPE pipes aiming at cables protection, BLACK 340, 349, 3491E, 350 & 360 are effective and economic products.

For high pressure HDPE pipes, BLACK A442P at 6 % addition ensures utmost UV and heat resistance, as well as wide approval for potable water. BLACK A446P being an A442P variant with the addition of PPA, ensures easier processing and better appearance of the pipe. More economic solutions for pressure pipes are the A441 & A445. These grades offer excellent protection from UV light and heat.

PP pipe fittings

For potable-water applications involving long outdoor exposure, the most widely used products are BLACK PPA932P at 7-8 % addition and PPA9453P at 5,5-6 %. They contain an efficient combination of heat and processing stabilizers to protect the polymer during processing and end use.

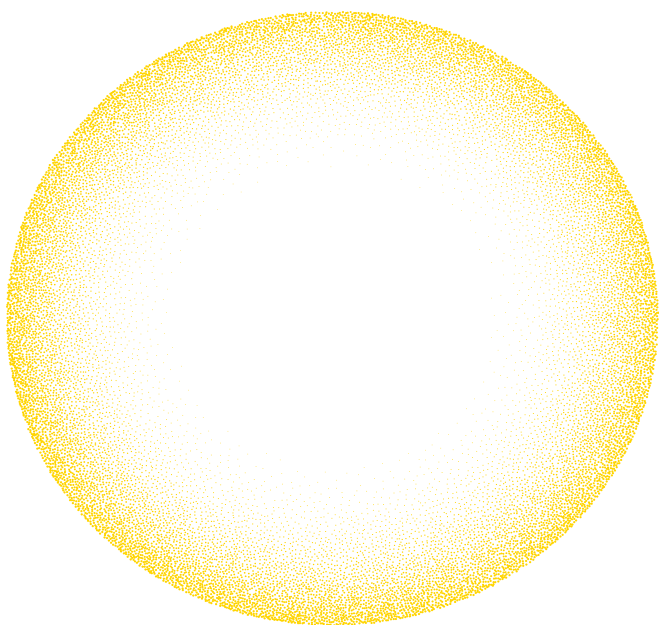
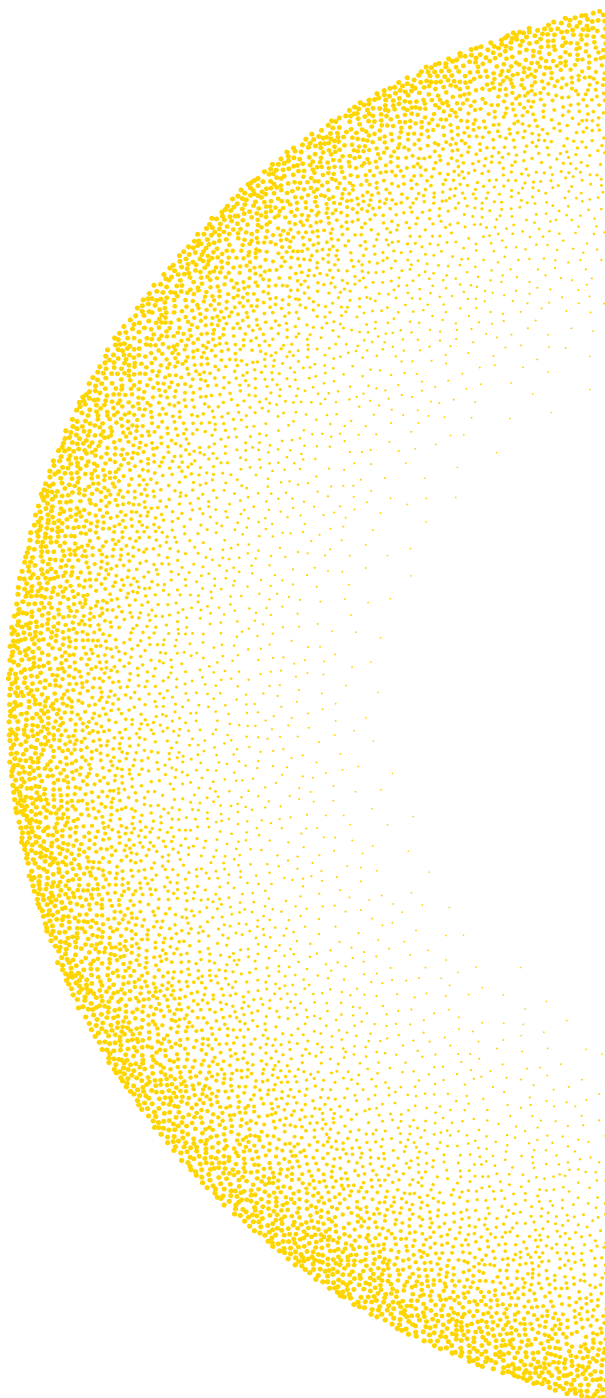
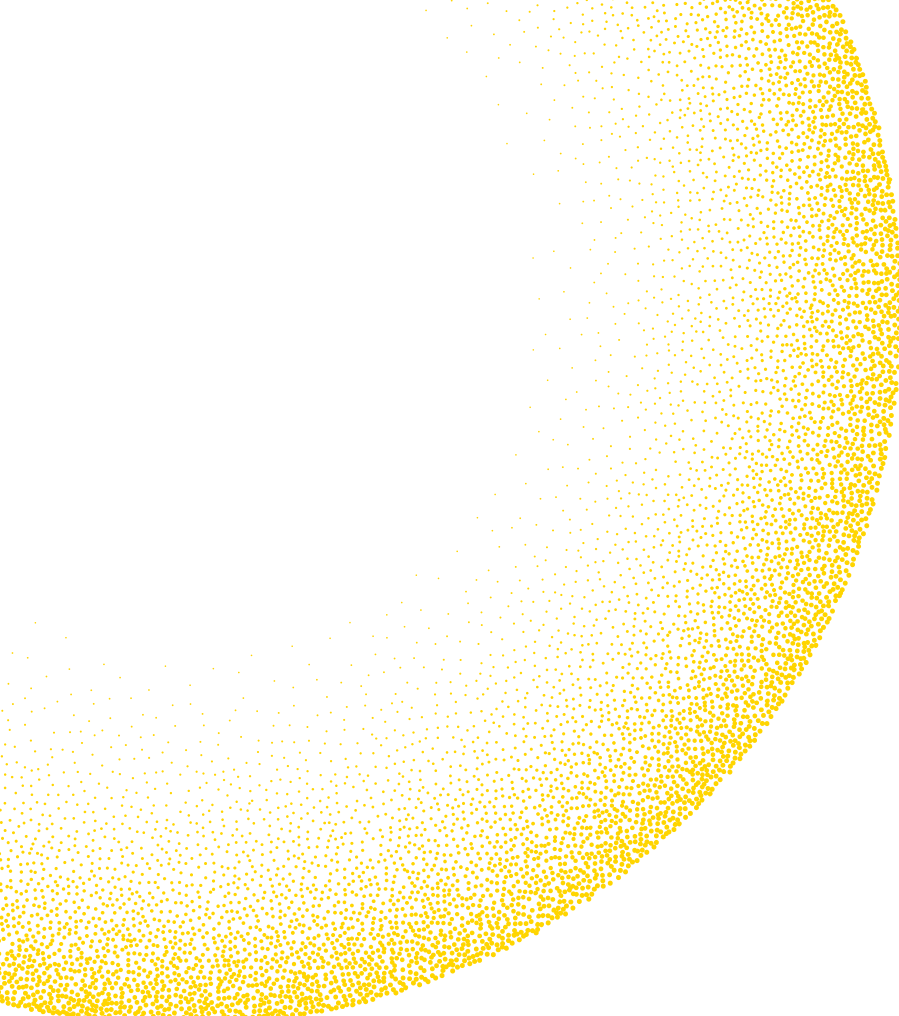
PP fibers

BLACK 4401P, BLACK 4410E and BLACK PPF9440P are grades, specially developed for PP fibers. They have perfect dispersion and flow properties, ensuring long, trouble-free production runs. PPA934P is a more economic grade.

PVC cables

BLACK PV89005 and PVC 89006 are products specifically designed for colouring PVC cables and other plasticised PVC products.

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.



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