

PRINTEX® kappa 70

Specialty carbon black for conductive polymer compounds

Technical Information 1484



Who we are – Orion Engineered Carbons

Orion Engineered Carbons (OEC) is one of the world's leading suppliers of carbon black. We produce a broad range of carbon black that includes high-performance specialty gas black, lamp black, thermal black and other carbon black that offer an excellent balance of colorimetric properties, dispersibility, UV-protection, infrared absorption, electrical conductivity and adjustment of mechanical and rheological properties. They are used in pressure pipe, wire and cable, and conductive products applications. With 1,427 employees worldwide, Orion Engineered Carbons runs 14 global production sites and 4 applied technology centers, focusing on quality supply and collaborative partnerships with customers. Common shares of Orion Engineered Carbons are traded on the New York Stock Exchange under the symbol OEC.



PRINTEX® kappa 70 for conductive plastics applications

PRINTEX® kappa 70 provides superior conductivity already at lower concentration than most of previously listed carbon black in the field of conductive blacks. This improved percolation threshold is now closing the gap between Orion's highly conductive black XPB 538 and other regular conductive black such as HIBLACK® 40B2. At the same time the influence on rheology and mechanical properties of final parts was maintained on an excellently well-balanced level. During the phase of PRINTEX® kappa 70 product development specific attention was turned on good processability since necessary pigment loading at desired high output rates often delimits efficient yield production. All in all we release a high conductive carbon black with outstanding conductive overall performance.

Applications aimed for PRINTEX® kappa 70

PRINTEX® kappa 70 is qualified as an universal conductive pigment performing excellent in almost all regular electrically conductive plastic compounds and conductive applications. PRINTEX® kappa 70 can be used in most significant polymer types such as polyolefin, co-polymers, polyvinyl chloride, high-impact polystyrene, polyamide and others. It is targeted for injection molded parts such as fuel canisters, boxes, housings for electrical goods, carrier trays of electronic devices, and is working just as well in extruded electrically conductive pipes, profiles, blown- and cast-films. Further target industries are areas with explosive risks, e.g. conductive hoses for the mining industry or ATEX environment (explosion protection), carpet backs and antistatic flooring and many articles for the automotive industry.

Typical field examples for end use:



Transport boards for electronically sensitive devices



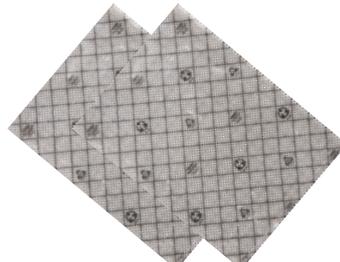
Spark discharge flammability, e.g. gas pump nozzle



Explosion-proof areas, e.g. ATEX



LEDs in conductive carrier tray



Antistatic packaging films



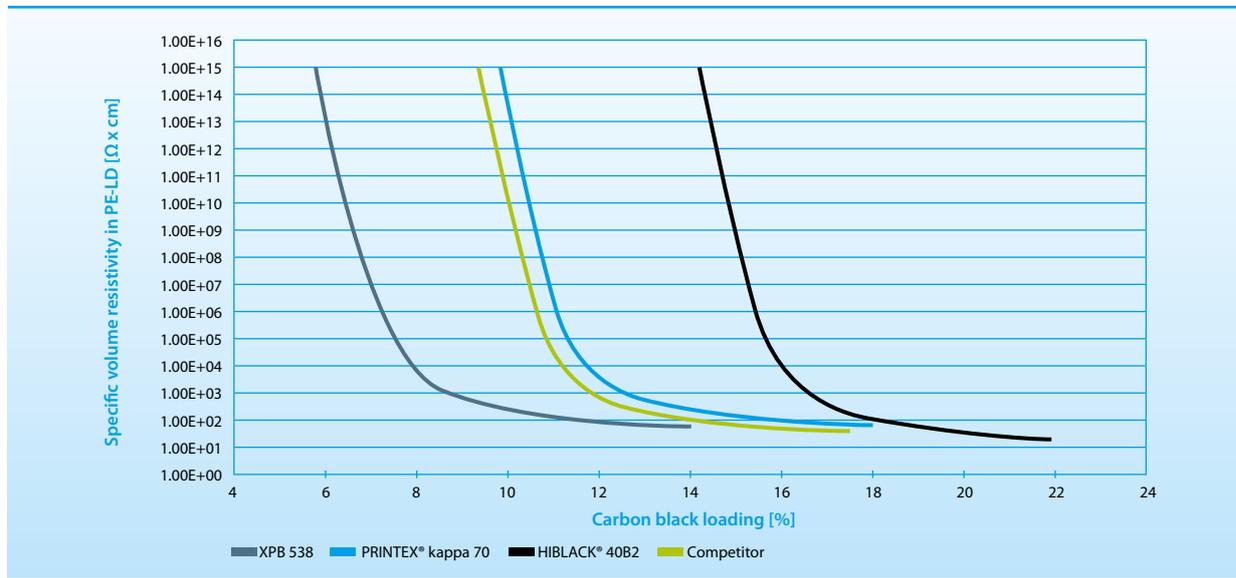
Electrical grounding and antistatic flooring

Technical data of PRINTEX® kappa 70 and some other Orion conductive black

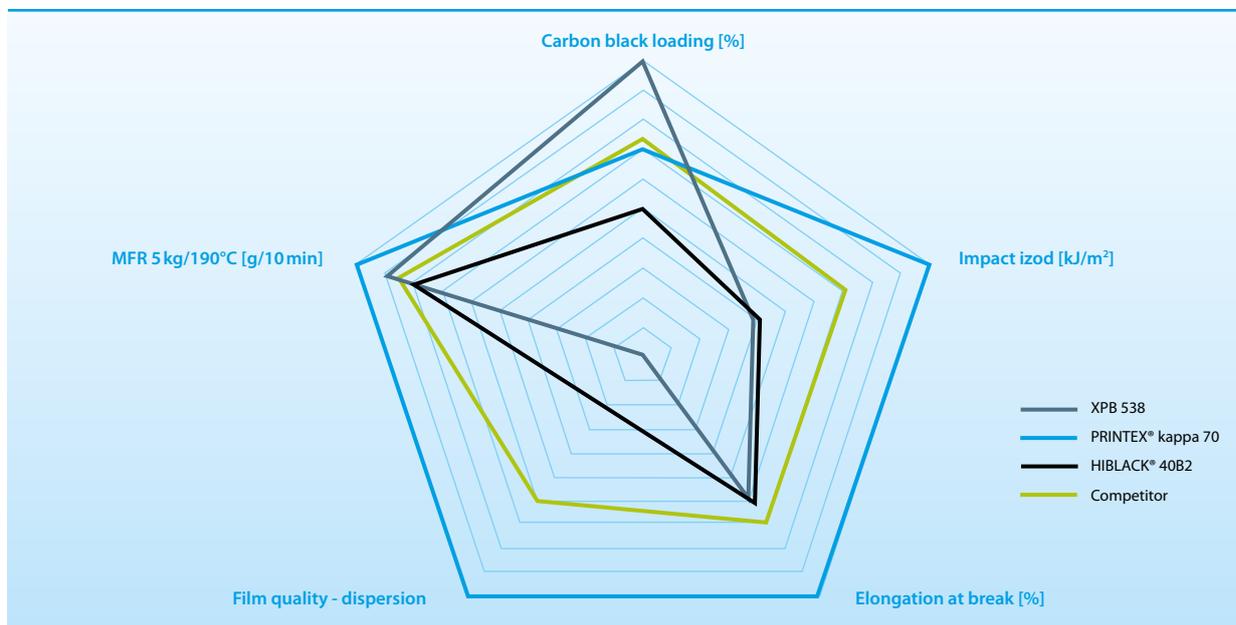
| Parameter | Method | Unit | PRINTEX® kappa 70 | XPB 538 BDS | HIBLACK® 40B2 |
|------------------------------|-------------|-------------------|-------------------|-------------|---------------|
| OAN Oil absorption number | ASTM D 2414 | ml/100g | 170 | 280 | 150 |
| BET | ASTM D 6556 | m ² /g | 230 | 1150 | 112 |
| STSA | ASTM D 6556 | m ² /g | 130 | 540 | 95 |
| pH | ASTM D 1512 | | 7.5 | 8.5 | 8.0 |
| Sieve residue 325mesh | ASTM D 1514 | ppm | < 25 | < 50 | < 50 |
| Sulfur content | ASTM D 1506 | % | < 1.0 | < 0.25 | < 0.50 |

Handling and processing properties of PRINTEX® kappa 70 have been significantly improved. Hence PRINTEX® kappa 70 leads to excellent pigment dispersion while electrical conductivity shows very good performance at lower loading levels.

PRINTEX® kappa 70 percolation threshold compared to further ORION conductive black



Product performance at an electrical volume resistivity of 10⁴ Ω*cm





The Americas

Orion Engineered Carbons LLC
1700 City Plaza Drive, Suite 300
Spring, TX 77389
USA
Phone +1 832 445 3300

AMERICAS@orioncarbons.com

Europe/ Middle East/ Africa

Orion Engineered Carbons GmbH
Frankfurter Straße 60 - 68
65760 Eschborn
Germany
Phone +49 6196 771 929 100

EMEA@orioncarbons.com

Asia Pacific

Orion Engineered Carbons (China) Investment Co., Ltd.
Room 2301, 2302, 2307, BM InterContinental Business Center
100 Yutong Road, Jing'an District, Shanghai 20007
P. R. China
Phone +86 21 6107 0966

APAC@orioncarbons.com

Incorporated in Luxemburg

Orion Engineered Carbons S.A., 6, Route de Trèves, 2633 Senningerberg, Luxembourg, Phone +352 270 48 06 0

www.orioncarbons.com

All statements given by Orion Engineered Carbons GmbH as well as its affiliates, including for example Orion Engineered Carbons S.A. ("Orion") herein are provided for information purposes only and are given as of the date of this document and are based on the knowledge on the date of the document. ORION DOES NOT GIVE ANY REPRESENTATION OR WARRANTY THAT THE CONTENTS OF THE GIVEN STATEMENTS AND INFORMATION ARE CORRECT OR ACCURATE. ANY LIABILITY OF ORION WITH REGARD TO THE CONTENTS PROVIDED ARE HEREBY EXPRESSLY EXCLUDED. Orion does not give a warranty with respect to any results to be obtained from such information, any uses of such information or with regard to the non-infringement of any proprietary right. Nothing stated herein shall be construed as a license of or recommendation for use, especially with concern to the potential infringement of any proprietary right. Use or application of such information or statements or the material or systems described herein are at user's sole discretion and risk. The user acknowledges that Orion shall bear no responsibility or liability for any use or application of such information or statements or the material or systems described herein. All sales are subject to the respective standard terms and conditions of Sale issued by Orion including but not limited to the limitation of liability contained therein. The Orion standard terms and conditions of Sale can be reviewed, downloaded and printed under https://orioncarbons.com/en/general_conditions_of_sale_and_delivery_orion_engineered_carbons_europe_africa.pdf. Any and all information disclosed by Orion herein shall remain the property of Orion.

© 2022 Orion Engineered Carbons GmbH

OEC-TI 1484-10/2022