

Reduce the Weight of Consumer Wearables By 30% with Two New Grades of DuPont™ Zytel® High-Performance Nylon Resins



Consumer demand for wearable technology is growing as devices become more sophisticated with AI, IoT, and 5G network connections. One technology alone, Augmented Reality and Virtual Reality (AR/VR), has the potential to reach a value of nearly \$1.9 trillion by 2030 according to PwC. However, as technology advances, consumers are demanding ever-lighter devices that provide comfortable wear with sturdy structural parts. Two new DuPont™ Zytel® high-performance nylon products provide the very solutions that allow product designers to deliver the latest technology in fashionable, high-performance wearables that are lightweight, durable, and feel great.

New Solutions for Lightweight Wearables

DuPont's expanded portfolio with two new lightweight solutions—Zytel® FE150065 BK010 and Zytel® RS32G10DO BK236—are formulated to meet the demands of varied forms and functionalities for consumer wearables. In fact, both are at least 30% lighter than incumbent structural materials, making them more comfortable to wear and carry daily.

Zytel® FE150065 BK010 and Zytel® RS32G10DO BK236 have the following key properties and provide design freedom on diversified electronic devices:

- Low density (compared to incumbent materials)
- High flowability
- Well balanced mechanical properties of stiffness and toughness
- Durability
- Dielectric property for optimized antenna design
- Dimensional stability and chemical resistance
- Ultrasonic welding capable

Renewably-sourced Materials Reduce Environmental Footprint

DuPont's two new lightweight Zytel® high-performance nylon grades help manufacturers meet sustainability goals because more than 30% of the contents of these two products come from non-food bio feedstock. Plus, they reduce the use of fossil fuels without sacrificing performance.

Applications for Two New Lightweight Zytel® Nylon Resins

Making wearables smaller, thinner, and lighter will only grow in importance as people wear and carry multiple devices throughout the day. Zytel® FE150065 BK010 and Zytel® RS32G10DO BK236 are ideal for structural parts in wearables like:

- AR/VR headsets, devices, and glasses
- Ear wear
- Smart watch bands
- Gaming devices
- Wearable payment devices

In addition, Zytel® FE150065 BK010 and Zytel® RS32G10DO BK236 can help lightweight non-wearables such as:

- Drones
- Portable smart speakers
- Mobile phones/smartphones

Choose The Lightweight Zytel® High-Performance Nylon Grades That Are Right for You

Zytel® FE150065 BK010 is a versatile performance material with optimized dielectric properties that can be used for most consumer wearables. Zytel® RS32G10DO BK236 is an excellent choice for components that require higher mechanical strength. Both solutions were developed for lightweight structural applications.

Zytel® FE150065 BK010

23% filler reinforced, low density polyamide 610 resin with optimized dielectric performance

Typical mechanical properties		
Tensile Modulus	4200 MPa	ISO 527-1/-2
Stress at break	95 MPa	ISO 527-1/-2
Strain at break	4.5%	ISO 527-1/-2
Charpy impact strength, 23°C	38 kJ/m ²	ISO 179/1eU
Poisson's ratio	0.36	
Density	960 kg/m ³	ISO 1183
Electrical properties		
Relative permittivity, printed circuits and boards, 2.5 GHz	2.6	IEC 61189-2-721
Dissipation factor, printed circuits and boards, 2.5 GHz	93 E-4	IEC 61189-2-721

Source: DuPont

Zytel® RS32G10DO BK236

26% filler reinforced, low density polyamide 610 resin with higher mechanical properties

Typical mechanical properties		
Tensile Modulus	5000 MPa	ISO 527-1/-2
Stress at break	110 MPa	ISO 527-1/-2
Strain at break	4.2 %	ISO 527-1/-2
Charpy impact strength, 23°C	63 kJ/m ²	ISO 179/1eU
Poisson's ratio	0.35	
Density	980kg/m ³	ISO 1183
Electrical properties		
Volume resistivity	>1E13 Ohm.m	IEC 62631-3-1
Electric strength	30 kV/mm	IEC 60243-1
Relative permittivity, printed circuits and boards, 2.5 GHz	2.7	IEC 61189-2-721
Dissipation factor, printed circuits and boards, 2.5 GHz	107 E-4	IEC 61189-2-721

Source: DuPont

For more information about two new lightweight Zytel® high-performance nylon solutions for wearables, contact your DuPont representative.

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Electrical and Electronics

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