Product Sheet

Reduce the Weight of Consumer Wearables By 30% with Two New Grades of DuPont™ Zytel® 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® Renewably Sourced 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 achieve significant reduction in product weight due to their:

- 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
- Ability to enable solutions for printed antenna, LEP (Laser Enhancing Plating) antenna, and ultrasonic welding

Renewably-sourced Materials Reduce Environmental Footprint

DuPont's two new lightweight Zytel® grades help manufacturers meet sustainability goals because more than 30% of the contents of these two grades 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® Nylon Grades That Are Right for You

With the addition of two new grades of Zytel® Renewably Sourced Nylon resins, our product portfolio gives you more options than ever. Zytel® FE150065 BK010 is a versatile performance material that can be used for most consumer wearables. Zytel® RS32G10DO BK236 is an excellent choice for components that require higher mechanical strength and optimized dielectric properties. Both solutions were developed for lightweight structural applications.

Zytel® FE150065 BK010

23% glass filler reinforced, low density polyamide 610 resin

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/m2	ISO 179/1eU
Poisson's ratio	0.36	
Density	960 kg/m3	ISO 1183

Source: DuPont

Zytel® RS32G10DO BK236

Glass reinforced, low density polyamide 610 resin with improved radio frequency performance

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/m2	ISO 179/1eU
Poisson's ratio	0.35	
Density	980kg/m3	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® solutions for wearables, contact your DuPont representative.

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