PEBAX®
ELASTOMER FAMILY

AN EXTREME WORLD NEEDS EXTREME MATERIALS
TECHNICAL POLYMERS – 3 FLAGSHIP BRAND FAMILIES

World leader in biobased PA11 and other flexible long chain polyamides

Polyether block amide elastomers. Largest supplier in the world.

World leader in PVDF (polyvinylidene fluoride) and flexible fluoropolymers
High performance polyamide resins, coatings and additives that deliver toughness, flexibility and chemical resistance.

Polyvinylidene Fluoride (PVDF) resins and copolymers designed for extreme inertness in harsh environments, flame & smoke properties, durability and ease of processing.

Thermoplastic elastomers (TPE) designed for unmatched combination of light weight and energy return.

Biobased grades available

Biobased grades available
GLOBAL MANUFACTURING, R&D

- Birdsboro, Pennsylvania
- King of Prussia, Pennsylvania
- Calvert City, Kentucky
- Serquigny
- Mont
- Marseille
- Pierre-Bénite
- Colombe (Paris)
- Seoul
- Kyoto
- Changshu
- Zhangjiagang
LIGHTWEIGHT THERMOPLASTIC ELASTOMERS FOR AN EXTREME WORLD

PEBAX® ELASTOMER FAMILY

- Low density
- Extremely efficient energy return (low hysteresis)
- Consistent performance over a wide temperature range
- Polyether block amides for extreme performance
- PEBAX®
- Optionally bio-based
- Famous brand
- Pleasing “touch” “feeling”
- Optionally biobased (PEBAX® RNEW®)
- Optionally breathable, static dissipative
- Easy to process on standard equipment
FLAGSHIP SPORTS APPLICATIONS – STRETCH THE LIMITS™

**CLEATED**
Lighter, Faster
Easily overmolded

**EQUIPMENT**
Racquet bumpers, Bicycle components, Shuttlecocks etc.

**CONNECTED FITNESS**
Light weight
Durability
Comfort

**RUNNING SHOES**
Superior energy return for the serious athlete

**WINTER SPORTS**
Skis & Ski boots

Hang Tag Program for Consumer Branding & Strong Co-branding Campaigns
OTHER FLAGSHIP APPLICATIONS

**MEDICAL – CATHETER, TUBING (SPECIAL MED GRADES*)**
- Flexible, versatile, kink resistant, outstanding torque transference
- USP Class VI

**BREATHABLE FILMS & CONTROLLED MOLECULAR DIFFUSION**
- Medical gowns, drapes, dressings
- Housewrap, Packaging, Apparel

**BELTS, SILENT GEARS**
- Flex fatigue resistance
- Highly efficient power transmission

**NYLON FILM MODIFICATION**
- For improved puncture, tear resistance, stretching ratios

**PERMANENT ANTISTATIC ADDITIVES**
- Wide range of host polymer combinations; Non fugitive, long lasting
WIDE RANGE OF FLEXIBILITY – OUTSTANDING ENERGY RETURN

More flexible

Pebax® Classic
Pebax® Rnew
Pebax® C
Pebax® Clear

Energy Loss Factor (ELF)

ELF = 0
ELF = 0.1 – 0.2
ELF = 0.4 – 0.5

TPU
(80 shore A)
Pebax® TPE
(80 shore A)

Theoretical

L o a d

Elongation

Pebax® Classic
Pebax® Rnew
Pebax® C
Pebax® Clear
BETTER CONSISTENCY – HOT vs COLD

Modulus of rigidity (MPa) vs. Temperature (ASTM D 1043)

Temperature °C

-40 -20 0 20 40 60 80

600
400
200

TPU
COPE
Pebax® TPE

Density (g/cm³)

1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7

1.01
1.21
1.18

Pebax® TPE
TPU
COPE

Soft grades
Rigid grades

LIGHTER = FASTER!

Antoine Griezmann, PUMA®, and Pebax® set the scoring record at EURO 2016

Antoine Griezmann, PUMA®, and Pebax® Powered® set the scoring record at EURO 2016
Arkema’s world leading position in biobased polyamide resins …

…plus our leading position in thermoplastic elastomer chemistry
CONTROLED FUNCTIONALITY FOR ANTISTATIC & BREATHABLE GRADES

**Key Properties**
- Immediate & permanent antistatic effect
- Humidity independent
- Maintains colorability of the matrix
- Maintains the physical properties of the matrix
- No sloughing, offgassing, or blooming

**Surface Resistivity (Ohms/sq)**
- **Conductive**: $10^6$
- **Static Dissipative**: $10^9$
- **Antistatic**: $10^{12}$
- **Isolative**: ---

Very fast charge decay (can damage sensitive parts)

Very slow charge decay (risk of ESD event, dust attraction)

**Moisture Vapor Transmission Rate**

<table>
<thead>
<tr>
<th>Grade</th>
<th>B-Method 50% RH – 38°C</th>
<th>E Method 90% RH – 38°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15µm</td>
<td>25µm</td>
</tr>
<tr>
<td>MV 3000</td>
<td>25000</td>
<td>20000</td>
</tr>
</tbody>
</table>

MVTR ASTM E96 (g/m²/day)
Typical grade listed for demonstration purposes. Many other grades available.
WHAT PROBLEMS CAN WE SOLVE FOR YOU?
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