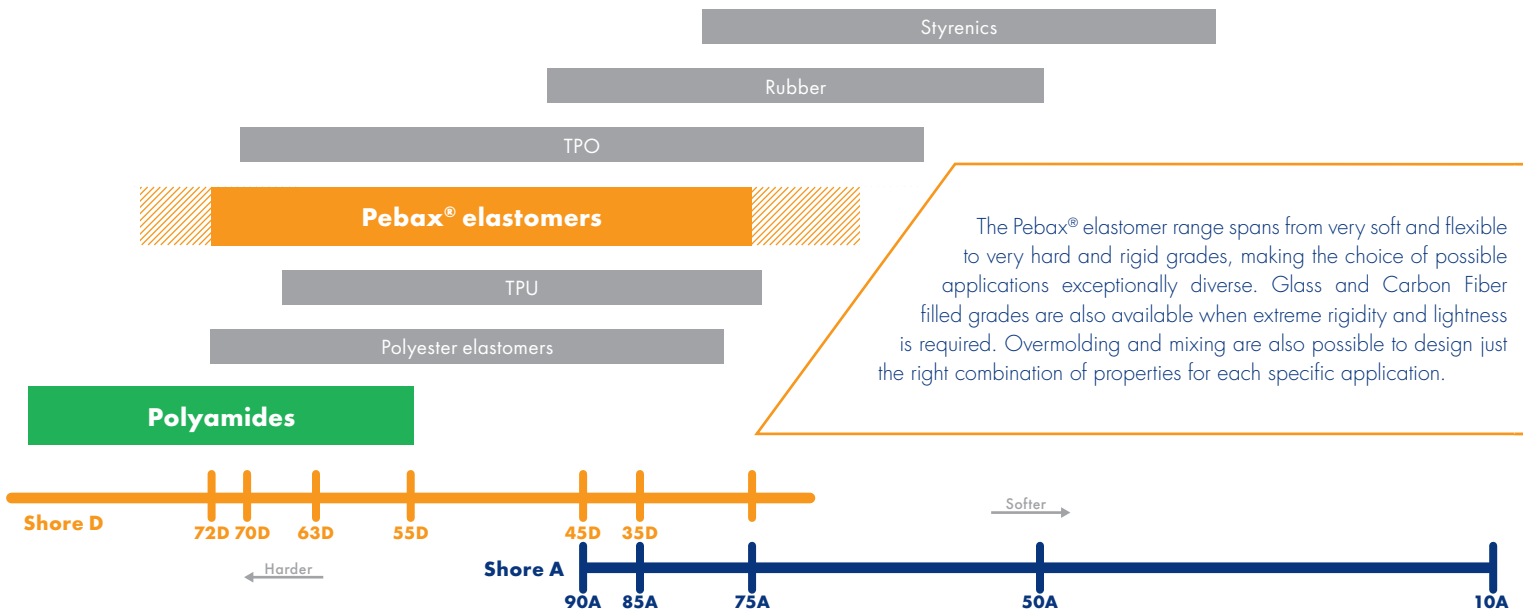


## Thermoplastic elastomers for sports

Pebax<sup>®</sup> elastomers enhance the performance of professional and amateur athletes across the globe with incredible energy return and lightness. The added toughness and flexibility makes this family of polymers powerful when used in applications such as running and cleated shoes, ski boots, and many others. Countless world records have been set by athletes who specify that their shoes/equipment are powered by Pebax<sup>®</sup> elastomers.



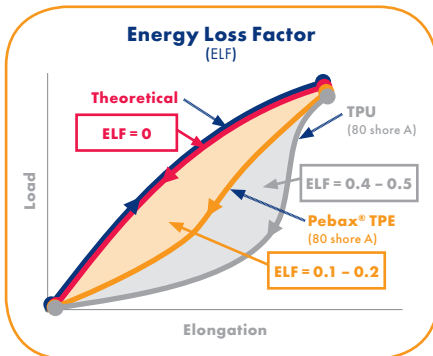
### WIDE RANGE OF FLEXIBILITY & HARDNESS



The Pebax<sup>®</sup> elastomer range spans from very soft and flexible to very hard and rigid grades, making the choice of possible applications exceptionally diverse. Glass and Carbon Fiber filled grades are also available when extreme rigidity and lightness is required. Overmolding and mixing are also possible to design just the right combination of properties for each specific application.

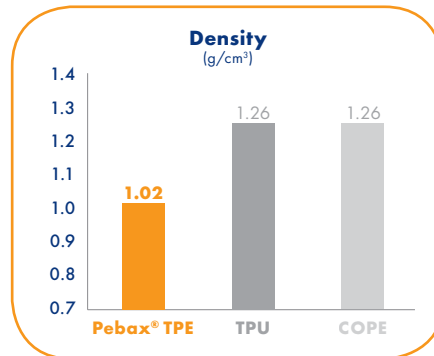
### ENERGY RETURN

Pebax<sup>®</sup> elastomers have the highest energy return of all thermoplastic elastomers. This low hysteresis means that a high percentage of the energy put into flexing the polymer (i.e. the step of an athlete) is returned during rebound. Compared to TPU polymers, Pebax<sup>®</sup> elastomers exhibit **much lower energy loss**, even at very low temperatures.



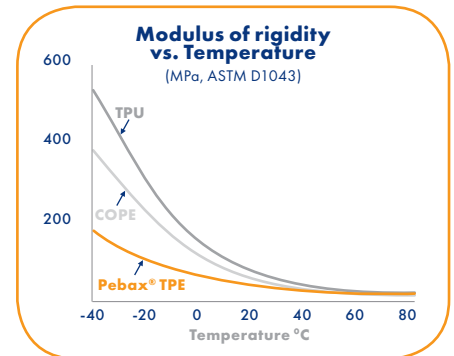
### 20% LIGHTER

Pebax<sup>®</sup> resins are extremely light - usually 20% lighter than competitive polymers like TPU. This added lightness combined with the strength and durability of Pebax<sup>®</sup> polymers enable thinner designs and even further **weight savings** for athletes.



### ICE COLD DURABILITY

Thanks to the low glass transition temperature of their polyether phase, Pebax<sup>®</sup> elastomers energy return remains very high, even in sub-zero environments. This also allows the polymer to maintain flexibility and display almost no cold stiffening or embrittlement, resulting in incredibly high **cold impact resistance**.



## BENEFICIAL PROPERTIES

- Lightness
- Energy return
- Toughness & flexibility
- Flex fatigue resistance
- Cold temperature performance
- Impact resistance
- Quick shape recovery
- Easy processing
- Excellent overmolding

## APPLICATIONS

- Running shoes
- Cleated shoes (e.g. soccer, football)
- Ski boots, skis & other winter sports gear
- Protective gear (e.g. helmets, guards)
- Golf balls & putter faces
- Bicycle parts



## ENERGIZED CONSUMER BRAND

For many years, Pebax® elastomers have been widely used in many of the world's highest performing sports shoes, boots, and equipment. The brand has become synonymous with premium performance and record-breaking achievements.

Many leading sports companies have wisely chosen to highlight the Pebax® brand in their product promotion to differentiate versus lesser performing commodity materials. There is instant brand association with 3 key properties: Lightness, Energy Return, and Toughness & Flexibility.



Arkema is now promoting to consumers, retailers, and athletes as part of the new Pebax Powered® program. This is essentially a more consumer-friendly way to communicate the premium performance of Pebax® elastomers used in the finished equipment (i.e. shoe, boot).



This new logo is the consumer's assurance of authenticity, and an instant association with the same 3 key properties mentioned earlier. It represents an implied promise that you can achieve more, and that you can Stretch Your Limits™.

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NA-Marcmmrz-01-2018 ADV# 2018-001

## OPTIONALLY BIO-BASED

The Pebax® Rnew® series is a partially bio-based range of elastomers. The amide block of the polymer chain is synthesized from oil derived from castor plant seeds. The castor plant is an inedible crop that can grow with limited amounts of water, making it a **sustainable feedstock** for manufacturing polymers. Castor oil is also used as the basic building block of Rilsan® PA11, a high performance, long-chain polyamide used in a variety of extreme sports applications, where higher rigidity is required.



Please consult Arkema's disclaimer regarding the use of Arkema's products at: <https://www.arkema.com/en/products/product-safety/disclaimer>

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