



The Arnitel non-pneumatic thermoplastic tire is changing the game.

What is Arnitel?

Arnitel is a family of high-performance thermoplastic elastomers (TPE) that offers a unique combination of flexibility, high temperature resistance, strength and processing characteristics. Arnitel is increasingly being used as a lighter, smarter, greener alternative to conventional rubbers – reducing environmental impact and, ultimately, system costs.

**Why go against the norm and build a non-pneumatic TPE tire as opposed to the traditional tire?
Because it saves time, money and stress.**

Arnitel Non-Pneumatic Tire Benefits:

- Airless design – eliminating down time and labor for flat tire service calls
- Extended service life: 2-3x longer than traditional pneumatic tires
- Dynamic absorption of energy during impact makes for a smoother ride
- Tunable contact patch design minimizes turf damage
- Hard tread surface with soft response of the overall tire – resulting in improved wear performance without jeopardizing ride quality

Benefits of Arnitel:

- Excellent flexural fatigue endurance
- High load bearing capability
- Creep resistance
- High peak temperature resistance
- Excellent overmolding adhesion (ABS/PBT/PC)
- High tear and abrasion resistance
- Good resistance to chemicals and weathering
- High impact strength
- Very low temperature ductility (<-40°C)
- Wide operating temperature
- Stable modulus vs. temperature
- Nice soft, tactile feel

Structure of Arnitel: Molecular level

Arnitel is a multiblock copolyetherester (COPE)

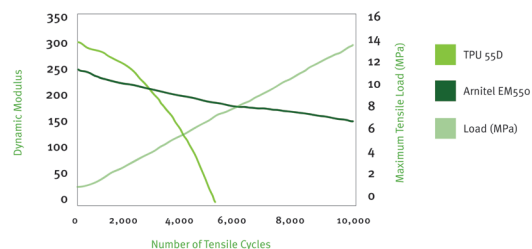


Hard Segments - Polyester (PBT)

Soft Segments - Polyether, Polyester, Olefinic

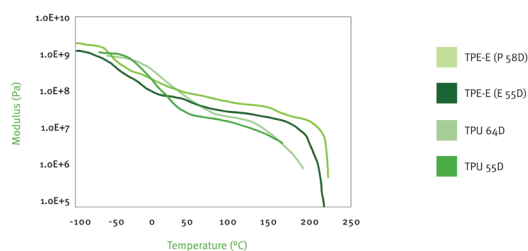
Dynamic Tensile Creep Comparison

(tensile hysteresis (@1Hz) load increasing per cycle @23°C)



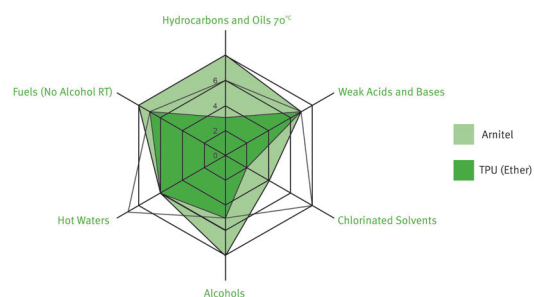
M. El Fraay, V. Althstadt Polymer 44 (2003) 4655-4662

DMTA Arnitel vs TPU



Arnitel has a much wider operating temperature window and more consistent performance vs T.

Chemical Resistance



DSM Engineering Plastics

In close partnership with our customers, we develop innovative high performance engineering plastic solutions for a smarter world.

Learn more via our website
www.dsm.com/plastics

or contact us directly via
www.dsm.com/contactdep

DSM – Bright Science. Brighter Living.™

Royal DSM is a global science-based company active in health, nutrition and materials. By connecting its unique competences in life sciences and materials sciences DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders simultaneously. DSM delivers innovative solutions that nourish, protect and improve performance in global markets such as food and dietary supplements, personal care, feed, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials. DSM and its associated companies deliver annual net sales of about €10 billion with approximately 25,000 employees. The company is listed on Euronext Amsterdam. More information can be found at or www.dsm.com.

© DSM 2019