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# **BASF Elastollan® TPU Flat Traction Belts**

The Future of Elevator Performance  
and Safety



# Elastollan® TPU Flat Traction Belts:

## The Future of Elevator Performance and Safety

More than 100 million visitors have ascended the iconic Shanghai Oriental Pearl Tower, drawn by its futuristic design, panoramic views of the city, and immersive experiences that blend history, architecture, and innovation. But behind the scenes of this tourism marvel lies a quiet revolution in elevator technology and what lies at its core: smarter materials.



For decades, steel wire ropes have been the backbone of elevator systems. But as buildings rise taller and demand for space, energy efficiency, and safety intensifies, the limitations of steel wire ropes – frequent maintenance, higher energy use, and limited design flexibility – are becoming more apparent.

Now, **TPU (Thermoplastic Polyurethane) flat traction belts** are redefining what's possible. Light, strong, flexible, and sustainable, they are enabling a new generation of elevator systems, particularly **Machine Room-Less (MRL)** designs that demand compact, high-performance solutions.

# How Elastollan® TPU Flat Traction Belts Are Transforming Modern Elevator Systems

In a market driven by space constraints, efficiency targets, and rising safety standards, Elastollan® TPU flat traction belts offer distinct advantages over traditional steel wire rope. Here are the three most transformative benefits:

## Compact System Design Through High Flexibility

Elastollan® TPU's high elasticity and bending fatigue resistance allow for **tighter pulley diameters** and smaller bending radii – unlocking new efficiencies in system design:



### Up to 70% smaller traction machines

are possible, freeing valuable shaft space



**Ideal for MRL systems**, where compact integration is key



### Greater mechanical design freedom

for OEMs to optimize layouts and reduce material footprint



**More precise stopping** of the elevator car, improving ride control and overall efficiency by up to 50%

This compact design enables elevator manufacturers to push boundaries in how systems are configured in tight urban environments—without sacrificing reliability or performance.

## Lower Friction, Less Wear, and Extended System Lifespan

Conventional steel wire ropes create metal-to-metal contact with the traction sheave, resulting in friction, wear, and the need for frequent lubrication. Elastollan® TPU flat traction belts solve this.



**Smooth polymer interface** means significantly **reduced friction and part wear**



**No lubrication required**, minimizing maintenance labor, mess, and environmental impact



**Lower stress on pulleys and system components**, leading to longer-lasting parts



**Lower total cost of ownership** for building operators due to fewer replacements and reduced downtime

By eliminating a major source of mechanical abrasion, TPU flat traction belts extend the usable life of both the belt and the traction equipment they run on.

## Energy Efficiency and Comfortable Ride

The lightweight nature of Elastollan® TPU flat traction belts, combined with reduced friction and noise, delivers both operational efficiency and an enhanced user experience:

- **60–70% energy savings** compared to steel wire rope systems
- **Quieter operation** due to smooth surface finish and less vibration
- **Lower heat generation**, which reduces thermal degradation over time
- **Smoother acceleration and deceleration**, delivering more comfortable rides

Together, these benefits help manufacturers meet stricter energy codes and rising expectations from both building developers and end-users.



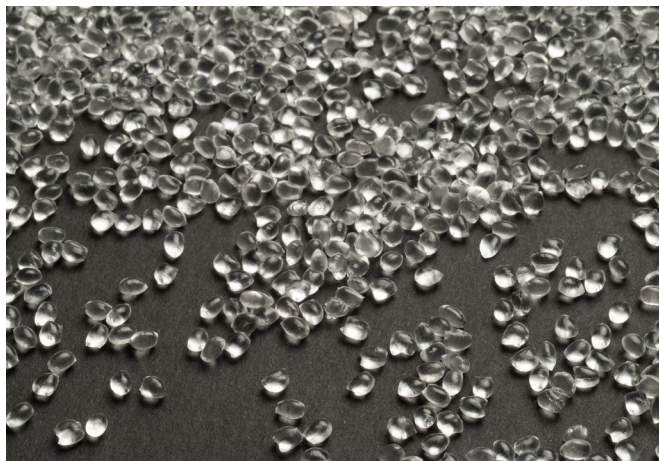
## Fire Safety: A Critical Requirement in High-Rise Design

As cities continue their vertical expansion, fire safety has moved from an engineering checklist to a central regulatory and social concern. Elevators, located within vertical shafts and enclosed environments, are especially scrutinized for flame spread and smoke toxicity.

BASF offers halogen free flame retardant Elastollan® TPU grades that meets the stringent UL94 V-0 classification rating, supporting compliance with both national and municipal fire safety codes. This is especially critical for:

- Elevator shafts in commercial towers, transportation hubs, and high-density residential buildings.
- Design approvals, where material safety plays a central role in project certification.
- Sustainability requirements, as halogen-free flame-retardant TPU supports green building standards and carbon reduction commitments.





# Durability and Material Advantages Beyond Safety

Elastollan® TPU offers an excellent combination of mechanical strength and chemical resistance, making it a **durable and stable** solution for long-term use in demanding vertical transport environments:



**High abrasion resistance** and **hydrolysis resistance** for long operational life

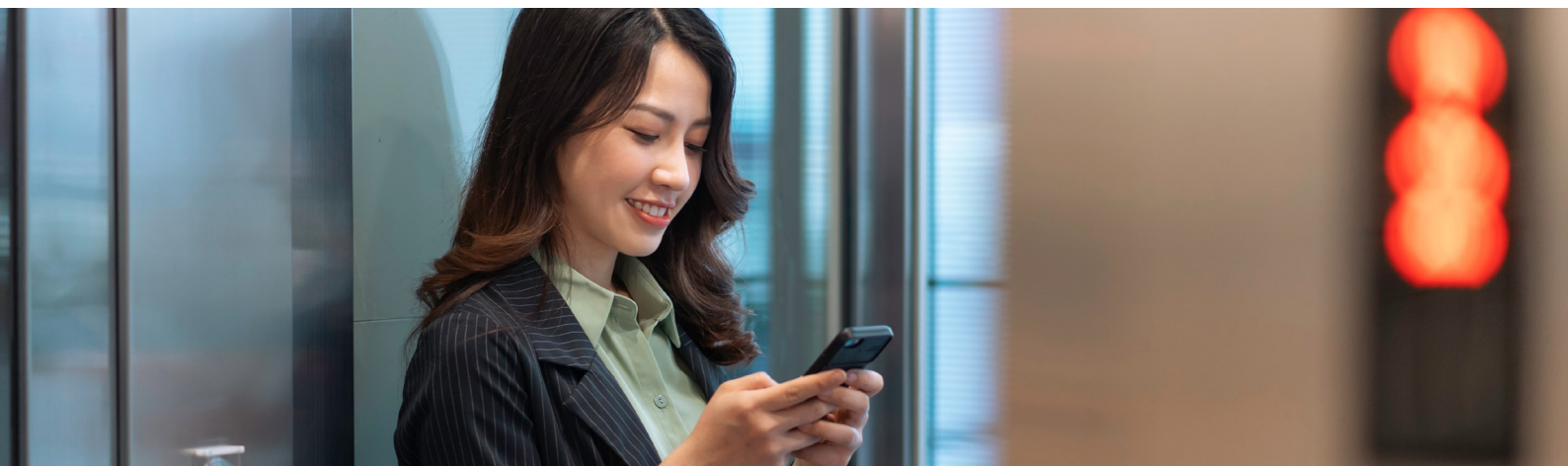


**Stable processing performance** ensures quality consistency across production batches



**Minimal stretch and deformation**, supporting long-term belt tension and traction reliability

TPU's excellent combination of mechanical strength and chemical resistance also makes it a material of choice for a wide range of industrial settings including elevator rollers where components are subjected to continuous movement, high loads, and environmental exposure.



## A Smarter, Safer Way Up

Whether it's a landmark tower in Shanghai or a next-generation residential high-rise, BASF Elastollan® TPU flat traction belts are elevating the standards of vertical transport.

From compact system design and extended component life to reduced energy use and fire-safe performance, BASF helps elevator manufacturers **build smarter, safer, and more sustainable systems** – one floor at a time.

And with BASF's global and local presence, we are readily available to support projects globally with consistent quality and compliance.



Please visit us at **[www.elastollan.com](http://www.elastollan.com)** or  
contact us at **[elastollan-infopoint@basf.com](mailto:elastollan-infopoint@basf.com)**.

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