

**Pleiger Plastics Company**

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**Tough Urethanes for Tough Applications**



Urethane Suspension  
**Solutions**

**USA Contacts**

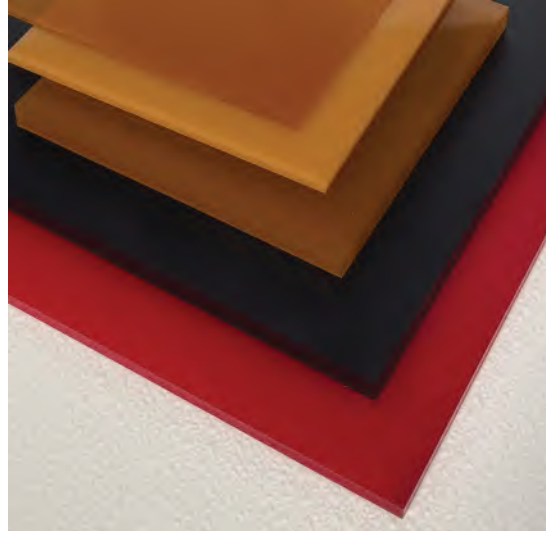
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## What is Polyurethane?

Originating during World War II as an alternative to rubber, polyurethane evolved from a laboratory curiosity into an industrial product. Combining the outstanding properties of rigid plastic, metals, and rubbers, a superior plastic was born. What sets polyurethane apart from other elastomers and steel is its resilience and overall toughness.



### Urethanes are made up of diisocyanate groups, polyols, and an extender.

#### **Polyol**

Ester, Ether, Caprolatones or Carbonates

#### **Isocyanate**

MDI, TDI, NDI, PPDI or TODI

#### **Extender**

Chain extender between two isocyanates  
(Glycol and Amine)

The terms urethane and polyurethane can be used interchangeably. There is a wide variety of urethanes available that are similar in characteristics but differ in specific properties.

## Advantages of Polyurethane

Polyurethane compounds possess an extraordinary combination of physical, mechanical, and environmental properties. The type of resin and the ratio between the resin and the curative can be varied to optimize some of these properties.

### Polyurethane Application Comparisons

Polyurethanes have definite advantages over plastics, conventional rubber and metals which make them a better substitute in applications where these materials are normally used.

... vs. Rubber	... vs. Metal	... vs. Plastic
high abrasion resistance	lightweight	high impact resistance
high cut, tear resistance	noise reduction	elastic memory
superior load bearing	abrasion resistance	abrasion resistance
thick section molding	less expensive fabrication	noise reduction
colorability	corrosion resistance	broader hardness range
oil resistance	resilience	resilience
ozone resistance	impact resistance	thick section molding
castable nature	flexibility	lower cost tooling
broader hardness range	easily moldable	low temperature resistance

### Available as Thermosets

#### **Thermoset –**

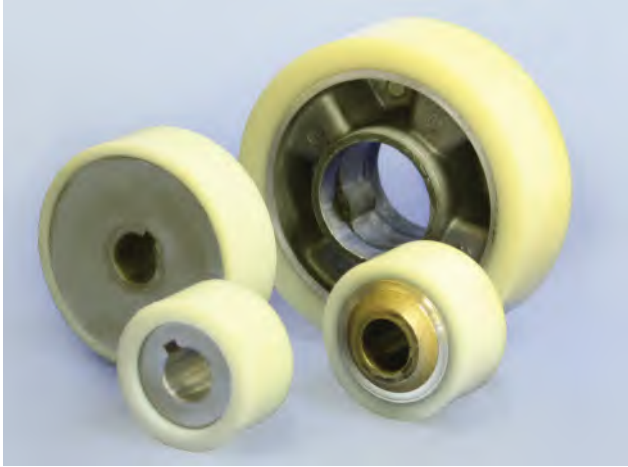
Chemicals are combined and once the reaction occurs, it is poured into a mold before the urethane cures or sets. This process yields the high performance properties that are not obtained by any other process. Pleiger Plastics uses this process to make the Plei-Tech line of urethanes.

### Advantages to Using Polyurethane:

- ✓ Excellent resilience
- ✓ Extra toughness and durability
- ✓ Very high load bearing and cut resistance
- ✓ Low compression set
- ✓ Very good impact resistance
- ✓ Excellent abrasion resistance
- ✓ Oil, solvent and water resistance

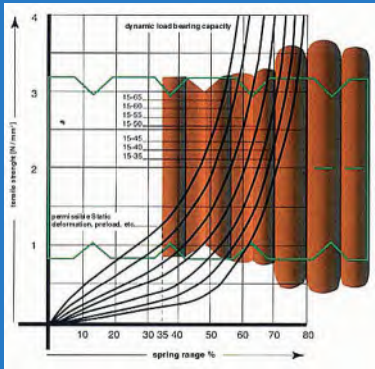
## Vulkollan (Plei-Tech 15)

Vulkollan is a highly elastic cross-linked polyurethane elastomer. It is the highest grade urethane available, due to its superior mechanical characteristics:



- ✔ High dynamic load capacity
- ✔ Higher abrasion and tear resistance than other compounds
- ✔ Highest modulus of elasticity of all elastomers
- ✔ Excellent wear resistance and impact resilience
- ✔ Reduced compression set
- ✔ Good chemical resistance to UV radiation, mineral oils, greases, and solvents

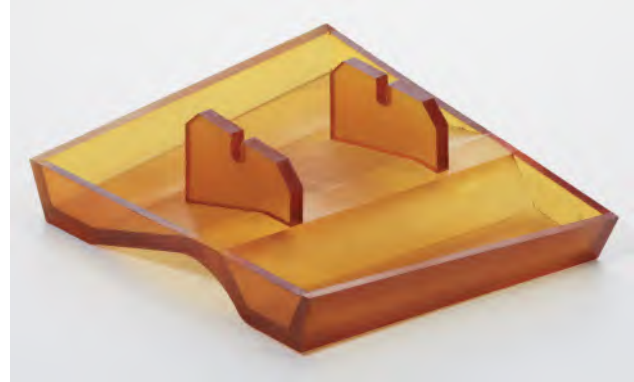
## Vulkollan Foam (PT-15 Foam)



**Plei-Tech 15 Foam** is an open/closed cell polyurethane foam based upon Vulkollan (Plei-Tech 15) chemistry. It is excellent for shock absorption of light to medium loads at high frequency. A cellular Vulkollan piece is able to be compressed up to 70% of its original height with minimal permanent set. Cellular Vulkollan complements solid Vulkollan in applications where increased deformability and reduced stiffness are required. PT-15 foam parts are available in custom molded shapes as well as rod, sheet and tube.

## Custom Molded

Pleiger Plastics was founded on the idea of molding high performance polyurethanes to meet and exceed the requirements of the most extreme applications. Today we are even more committed to that simple concept.



### A few of our specialties include:

- Engineering new parts based on the application
- Matching the right compound to your application
- Tooling design for any application
- Cost effective molding techniques

## Various Suspension Bumpers



## Why Choose Pleiger Plastics?

Founded in 1986, Pleiger Plastics Company was one of the first molders in the United States to process Vulkollan, Europe's highest performing polyurethane systems for molding engineering parts. Pleiger Plastics' business philosophy is to provide high performance, high quality polyurethanes worldwide.

By offering full service molding, Pleiger Plastics gives its business partners cost-effective solutions to difficult problems. Starting with short turnaround quotations, the Pleiger solution lets our customers build the framework for a successful molding project.

In addition to custom molding services, Pleiger Plastics offers a full range of polyurethane sheet, rod, and tube semi-finished goods. Durometers range from 5A to 80D. Special colors and sizes are available upon request.

A full testing lab is used to insure that products manufactured by Pleiger meet our published specifications. These lab services can also be used to identify existing products and determine an appropriate substitute. All of these services are combined to optimize design and performance, which leads to longer lasting products that can be effectively molded and delivered anywhere worldwide

## Contacts

Pleiger Plastics is a division of Paul Pleiger Maschinenfabrik. The Pleiger group has over 500 employees worldwide with manufacturing facilities in the United States, Germany, Korea and China. Pleiger manufactures plastics, hydraulics, electronics, pneumatics, pumps, laser optics and naval products.

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