

## COOLTHANE®

Coolthane was engineered for primary and secondary containment of fuels and other aggressive products. Coolthane products are extremely flexible and highly puncture resistant and offer excellent heat sealing characteristics.

Coolthane products also offer good strength characteristics and excellent low temperature properties. Coolthane products remain hydrolytically stable through years of service in fuel and chemical applications.

Coolthane is available in ether and ester versions. Ether-based Coolthane offers more stability when exposed to water and has good resistance to petroleum hydrocarbons. Ester-based Coolthane has excellent resistance to petroleum hydrocarbons.

Coolthane withstands a broad range of chemicals and fuels with little or no deterioration of physical properties.

The overall superior performance coupled with the flexibility of the Coolthane geomembrane is the result of the combination of select polymer blending, stabilizers and the unique reinforcing medium. The exclusive 'rip-stop' design of the Coolthane scrim, polymer processing and product manufacturing techniques provide the client with a truly versatile and high performance geomembrane.

Coolthane is used worldwide in these typical applications:

- Chemical suits
- Dock Shelters
- Flexible hoses
- Inflatable boats
- Oil Booms
- Onion tanks
- Roll up doors
- Tank seals
- Primary and secondary containment liners
- Fuel and water bladders (military grade available)
- Fuel and water pillow tanks (military grade available)



Highly resistant to punctures, tears, abrasions, ultraviolet radiation, temperature extremes, hydrocarbons and a host of fuels and chemicals, Coolthane meets and exceeds the requirements of the containment industry for primary and secondary applications.

There are many urethane products in the Cooley lineup, ranging from very high strength military specified liners and water bladder materials, inflatable boat and oil boom materials to lightweight Coolthane fabrics to meet all of your most demanding applications.

Cooley has been a leader in the development of high performance fabrics and films for thousands of transportation, medical, agricultural, industrial, chemical and environmental applications.

Coolthane offers the following outstanding benefits:

Outstanding chemical and fuel resistance

Excellent at low temperatures

High abrasion resistance

Incinerable

Rip-stop design

High tear resistance

UV resistance

Flexibility



Cooley offers NSF 61 approved, (National Sanitation Foundation Standard for potable water), versions of CoolPro™, Coolguard® and CoolThane®.

The Cooley group offers the widest range of geomembranes available, including Coolthane® urethanes, Coolguard® with Elvaloy®, Coolpro™ polypropylenes, polyvinyl chloride (PVC) and thermoplastic polyurethane (TPU).

Elvaloy® is a registered trademark of DuPont. Coolpro, Coolthane and Coolguard are trademarks of the Cooley Group.

# COOLTHANE®

Coolthane thermoplastic urethane (TPU) bridges the gap between flexible rubbers and rigid plastics. TPU is the reaction product of polyether or polyester polyols with diisocyanates. This rubber-like material can be engineered to accomplish a number of end uses from secondary containment of petroleum tanks in Alaska to potable water storage in Arizona.

Coolthane offers several advantages over competing materials:

**Abrasion Resistance:** Higher abrasion resistance than most other polymeric liners. The results shown to the right are the number of cycles needed to abrade the surface of Coolthane and expose the scrim using an H18 wheel under 1,000 gram load. Actual field results are even better due to the natural rebound elasticity of TPU, which is not measured in standardized lab tests.

**Low Temp Flexibility:** TPU's have been used successfully in extremely low temperature environments around the Arctic Circle. TPU remains flexible in temperatures as low as -65°F.

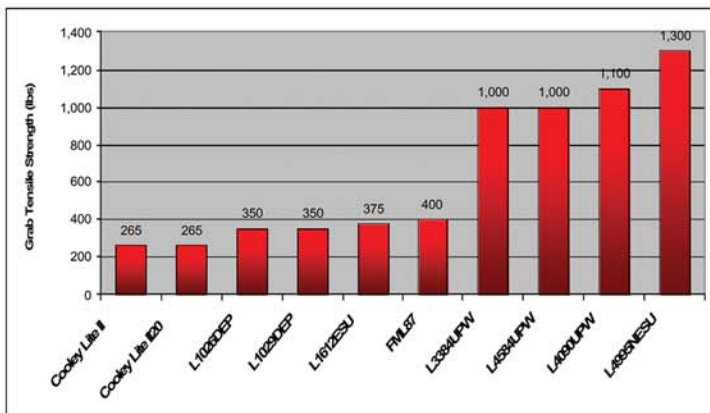
**High Scuff Resistance:** Higher than most other polymers at equivalent hardness.

**Chemical Resistance:** TPU is chemically resistant to ozone, petroleum products, fats, greases and a variety of solvents. Following is a short list of chemicals approved for use with Coolthane:

ASTM Fuel A	Crude Oil	Hexane	Naphtha
Animal Fats	Diesel Fuel	Kerosene	PCB's
Castor Oil	Gasoline	Lubricating Oils	Transformer Oil
Cotton Oil	Glycerol	Mineral Oil	Vegetable Oil

Order either polyether or polyester grade depending on end use environment

**Strength:** TPU's are extremely tough compared to other thermoplastics. This strength and durability allows a thinner gauge to be used compared to competing materials:

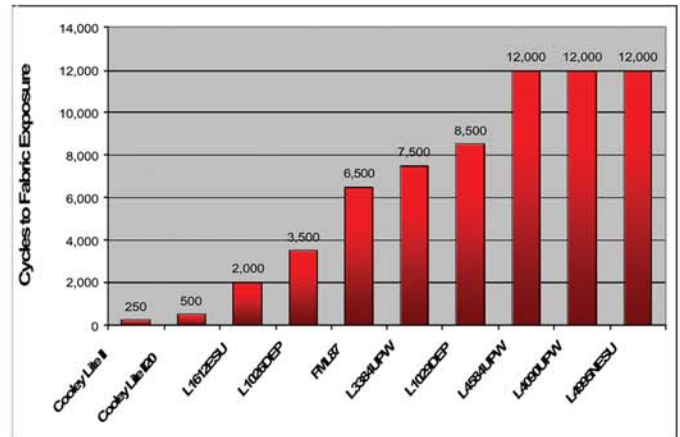


**Mildew Resistance:** Certain TPU grades are inherently resistant to mildew, bacteria and fungus growth, making them an excellent choice for marine environments.

**Tear Resistance:** TPU is much more difficult to tear when it has a nick in it, (for example, from shipping damage or dragging over the ground), than other polymeric liners.

**Weldability:** TPU's unique melt characteristics allow it to be fabricated using a wide variety of methods such as radio frequency (RF), thermal and ultrasonic methods.

The data cited above is presented for comparison and information only, and is not a product specification. Please contact Cooley Customer Service for a Technical Data Sheet for the product of interest.



**Coolthane is offered in two different grades, depending on end use:**

**Polyester TPU** is more resistant to fuels, has a lower diffusion rate to fuels and offers better aging (oxidation) resistance.

Typical applications include: oil booms, fuel tank secondary containment, collapsible fuel tanks, and coated fabrics.

**Polyether TPU** provides superior low temperature properties and is also inherently stable when exposed to high humidity, and is naturally more fungus resistant.

Typical applications include: inflatable boats, collapsible water tanks, tents and coated fabrics.

**Cooley / Group**  
WHERE CHEMISTRY MAKES THE DIFFERENCE

The information contained herein or that is supplied by us, or on our behalf, is based upon data obtained through our own research and is considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data, the results obtained from the use thereof, or that any such use will not infringe upon any patent. This information is furnished upon the condition that the person receiving it shall evaluate its suitability for the specific application.

Coolthane® is a registered trademark of the Cooley Group.