

At Townley,  
+ Inspiration + Imagination  
leads to Innovation!

TOWNIPRENE®



TOWNIPRENE®  
Proprietary  
Industrial Urethane

**TOWNLEY**

Engineering & Manufacturing Co., Inc.



## Why Towniprene®

In the early sixties, J.O. "Jake" Townley revolutionized slurry handling in the phosphate mining industry by introducing polyurethane as an important new product when molded for wear surfaces or parts in these processes. Working with DuPont, he developed a proprietary urethane formulation called Towniprene® which far outlasted the OEM wear materials, especially rubber and steel.

Townley's unique urethane, called Towniprene®, has been intentionally engineered, both chemically and in process control, to create the best selection of industrial-grade materials for your mining or power-plant slurry application with particle sizes below 1/4" (6.2mm). We produce cast parts and linings from 1 to 2,000 pounds.



During the mineral beneficiation process, fine slurries and reagents used in classification and separation circuits rapidly degrade rubber linings and metal alloy components in process piping, pumps and classification equipment. Thanks to Jake's pioneering work with Towniprene®, our products are still used extensively throughout the world as an excellent fine slurry wear solution.

Our skilled field representatives can review your current wear problems and make sound recommendations to improve your situation with Towniprene® as your new wear material.

Towniprene® is also produced at many of our regional manufacturing plants to better serve our customers with a local capability.



## Towniprene® has excellent material characteristics to improve your process wear

- Superior resistance to sliding abrasion vs. steel
- Impact resistance & resilience
- Perfect for wet slurry handling & blending
- Non-conductive & non-sparking
- Process rumble noise-reduction
- Compressibility & flexibility for conformal sealing
- 70% lighter than steel
- Moldable allowing rigid metal inserts & threads
- Adheres well to metals with our adhesion matrix
- Chemical and reagent resistance 3-10pH
- Quick turn cast molds for prototyping
- CNC machined high-quality molds for long term dimensional stability

## Towniprene® should be your first choice for handling fine slurries

- Coal fired power-plants with limestone and gypsum sizing and dewatering
- Silica, frac sand and clay mixing - transport and sizing
- Potash, Phosphate beneficiation and copper & metal mining pumping, cyclone particle classification, flotation, froth and tailings



# Lined Pipe, elbows, spools, headers, lateral's and T's

**Towniprene® Urethane** is the best choice for medium to fine feed wear resistance when using lined pipe, elbows, spools and fittings. The Towniprene® is molded or spun into the core of the pipe and is contiguous onto the flanges and outlets with no seams no matter the complexity. Our "state of the art" computer-controlled continuous dispensing systems can produce enough urethane to mold 4-to-60-inch ID's and pipe up to 25 feet long with accurate thickness throughout the pipe ID. Each metal core is blasted and has an adhesion matrix applied to ensure lifetime bonding of the lining with the ability to operate continuously at temperatures up to 165°F (74°C).



## Matching ID and Flanges

Townley can fabricate oversized pipe ID to allow for thicker Towniprene® application to enhance wear life. We have many standard-sized molds in our inventory.

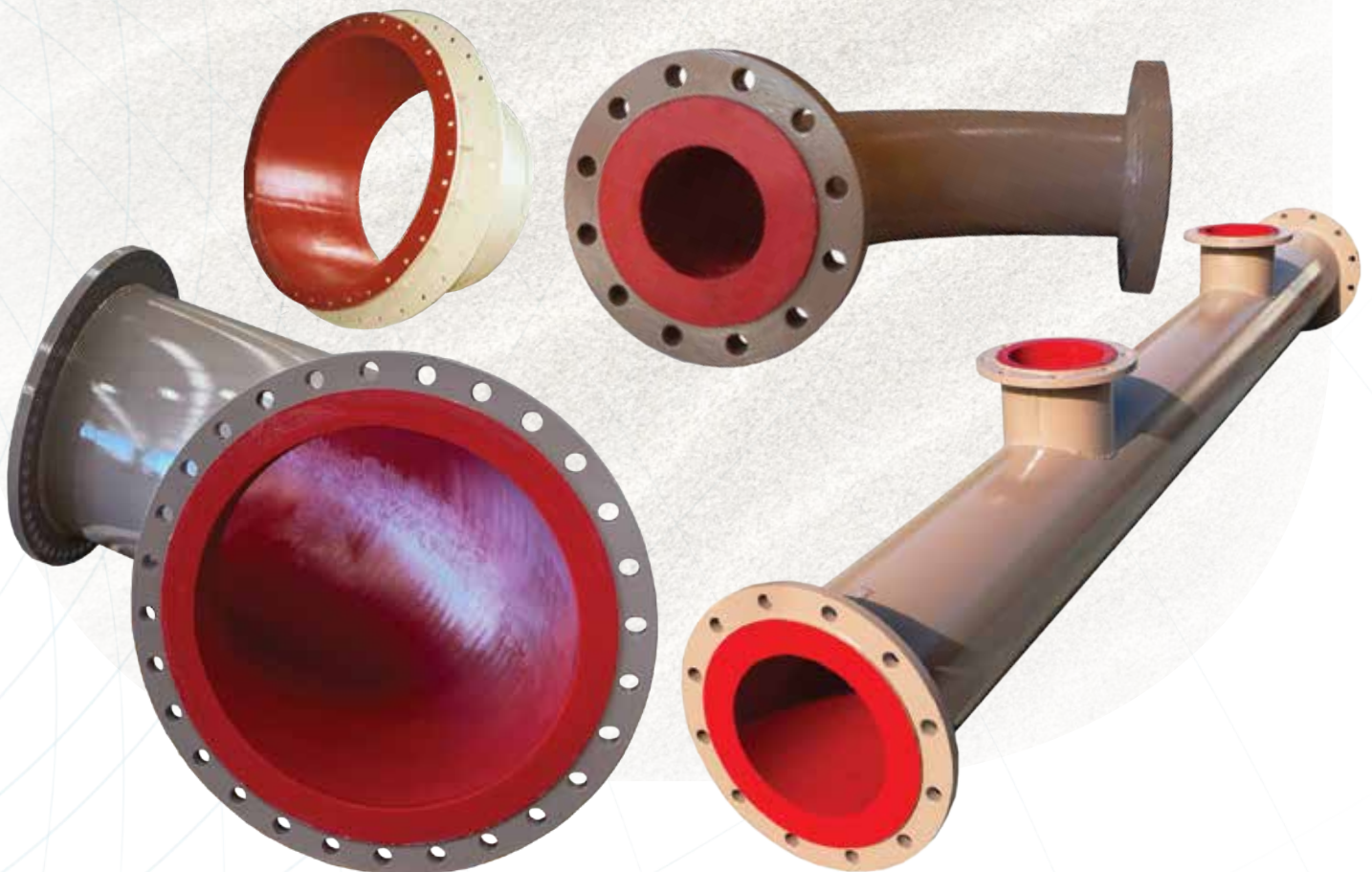
## Environmentally friendly

After long in-service wear life, lined metal piping can be returned to Townley for ecologically clean thermal stripping, metal repair, surface treatment and re-lining. Recycling parts reduces the need to purchase new goods and improves process costs.



## Quick-turn

With our full-service facilities, we can usually provide a reasonable turn-around to meet short outage cycles. For critical wear parts, we can produce spare parts for your warehouse or ours for a quick return to service.

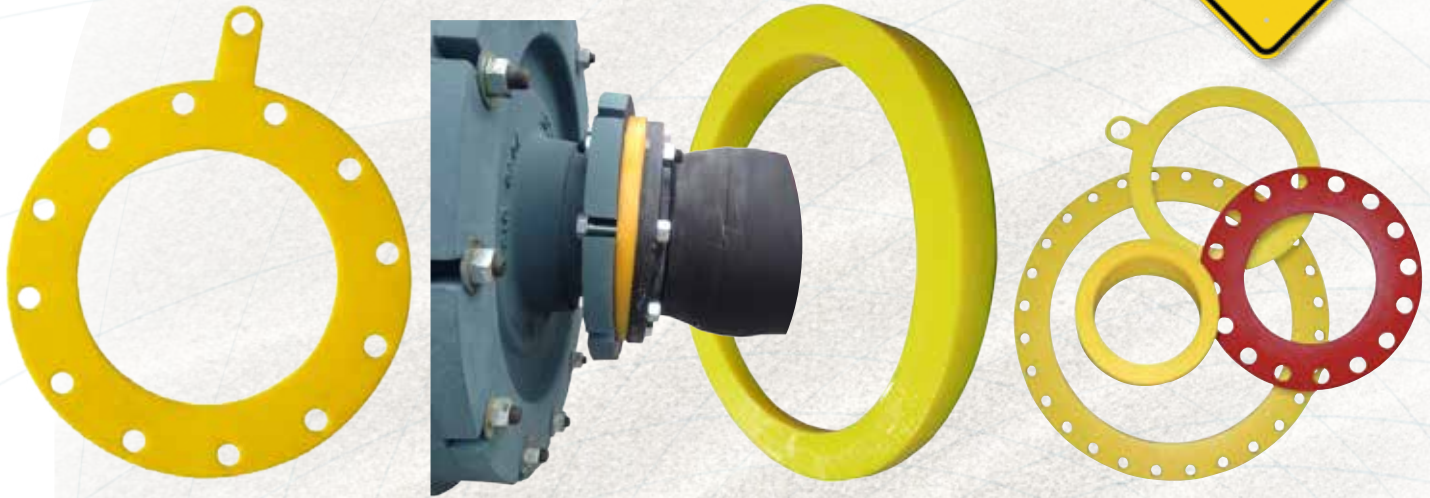




## Gaskets, spacers, spools and wedges

Our higher Durometer (91-95 shore A) Towniprene® is the perfect material to ensure positive sealing of metal pipe flanges in compression, especially when the pipe is misaligned in the field or in the plant. Our gaskets, spacers or wedges can easily be molded to fit undulating ground runs and in-plant pipe mismatch from ¼ - 4" thick. Additionally, they can operate at a continuous 165 °F.

Gaskets can be molded as "drop style" to fit within the Bolt circle or "full-face" incorporating the bolt circle holes including our unique safety tabs to reduce hand injuries during installation.





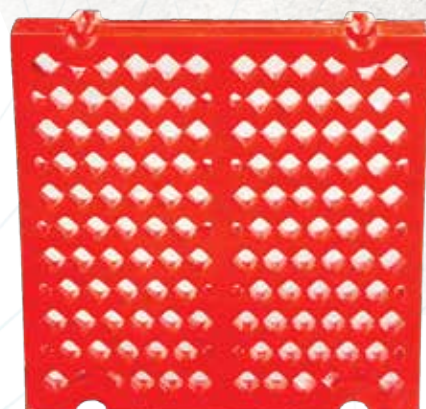
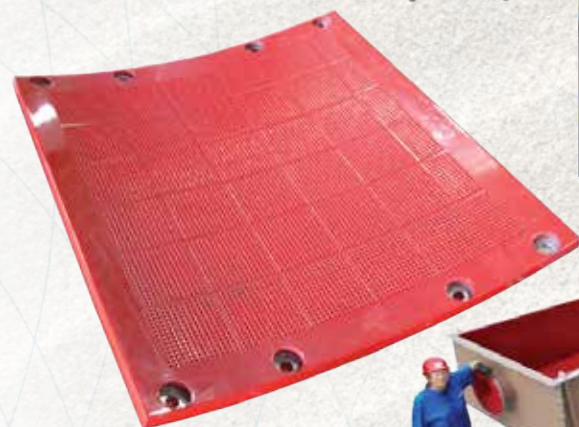
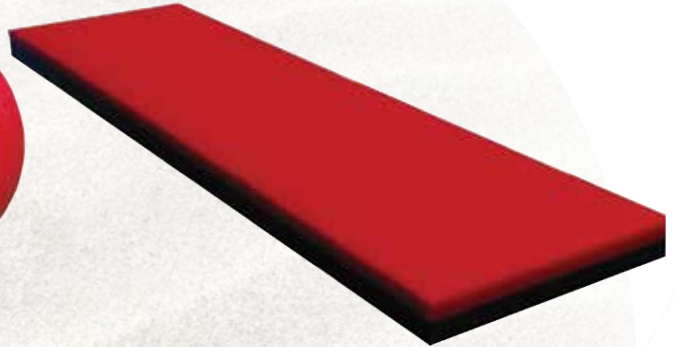
# Slurry handling wear parts and apparatus

We can easily cast Towniprene® into free-standing wear parts or metal re-enforced parts with inserts or backing plates. Townley can also improve the wear characteristics of your parts used in slurry mixing and particle sizing.

We have produced thousands of unique wear parts used in classifying and sizing of solids in slurry applications. This includes metal fabrication, lining, striping and relining your existing products.

## Wear parts such as:

- Chutes & wear pads
- Log washer shoes
- Classifier shoes
- Pug mill paddles
- Trommel and flat washing screens
- Wear pads, flingers and slingers
- Mixing propellers
- Distributor boxes/hoppers & tanks
- Right angle slurry FGD nozzles





# Classification and dewatering hydrocyclones

Towniprene® is the best solution for fine feed cyclones whether for classification, sizing or final dewatering of slurry used in phosphate, metal and mineral mining. Also, in coal-fired power plant FGD circuits where limestone prep and gypsum is processed.

Simple robust construction means trouble-free service for sand, silica, phosphate, and other mining applications where repeatable separation and sizing of fine particles is important. Townley hydro-cyclones are designed and manufactured with replaceable Towniprene® urethane cone bodies, apex, a mating urethane-lined feed chamber, vortex finder and underflow regulator. Fewer parts ensure quick assembly and reduced inventory.



## Cyclone features:

- One-piece Towniprene® urethane slide-in cone for easy replacement and reduced leaking
- 4" to 48" diameter cone body
- 14°, 20° and 30° angle to suit the application
- Optimized chamber, apex, vortex finder and overflow to match or enhance your process requirements
- Designed with extra urethane at typical wear spots
- Complete assemblies, including Townley valves, connectors and overflows are available
- 50 to 5,000-gallon flow rates
- 15 to 300-micron separation
- Adaptable to existing set-ups
- Durable epoxy-painted steel body



Townley repairs and relines other cyclones from:  
**Krebs/linatex/MetPro/Cavex/McLanahan**





# Flotation Cells

Working directly with mining operations, Townley pioneered the use of Towniprene® urethane for flotation cells more than 50 years ago. This was a major milestone in the mining industry because OEM Rubber lined cells quickly degraded from the aggressive organic reagents used to enable effective, efficient flotation and recovery of the valuable metals and mineral concentrate for further refining.

**Typical cell components available for relining are:**

*Throttling valves, standpipes, skirts, stators, rotors, paddles, hoods, impellers, stabilizers, false bottoms, liners, draft tubes, collars, dart valves & seats.*

## Wemco Style

**Parts available for these models:**

Attrition Machine #10, #56, #66, #66B, #76, #84, #120, #144, #164, #190 and #225.

## Galigher Style

**Parts available for these models:**

Agitair 24", 36", #48 standard impeller and Chilli-X style with stabilizers. Agitair Series 100 to 500 cubic foot cells.

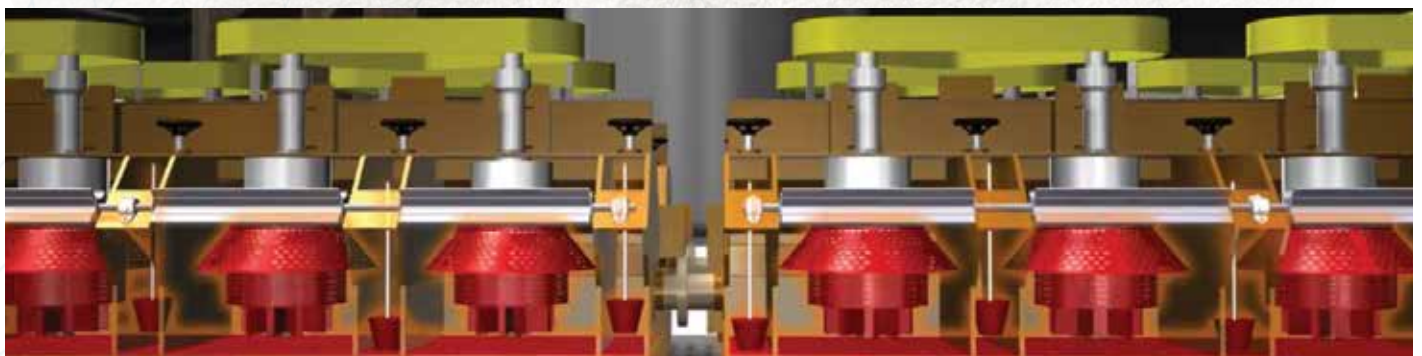
## Denver Style

**Parts available for these models:**

D30, DF30, DR30, DF30, D24, DF24, DR24, D18, DF18, DR18, D14, DF14, DR300, DR500.

## NEW ... Outotec

*Float-force repair & relining.*





# Pumps and pump liners

Townley is the first commercial supplier of industrial-grade urethane to upgrade troublesome rubber-lined and certain alloy wet-end pump parts where fine abrasive and corrosive slurries are being transported.

With excellent wear-resistant properties, many customers rely on Towniprene® urethane “bolt-in” or “bonded-in” volute liners and lined impellers to fit many OEM process and tailings pumps found in mining and power plant processing where **fine abrasive slurries** are present.

Towniprene® proprietary urethane formulations are designed to wear exceptionally well in fine-feed and reagent-filled circuits with pH from 4-10.

We have a large inventory of molds to reline OEM pumps such as:

Our own **Townley UBD** bonded-in shell liners new or re-lined

For tailings and fine feed from 18X20 / 20X20 / 20X22

## ASH SRH/DE & GH Style

Suction liners, volute liners, impellers and gland liners for many sizes from 2" to 21"

## GIW/KSB LSA Style

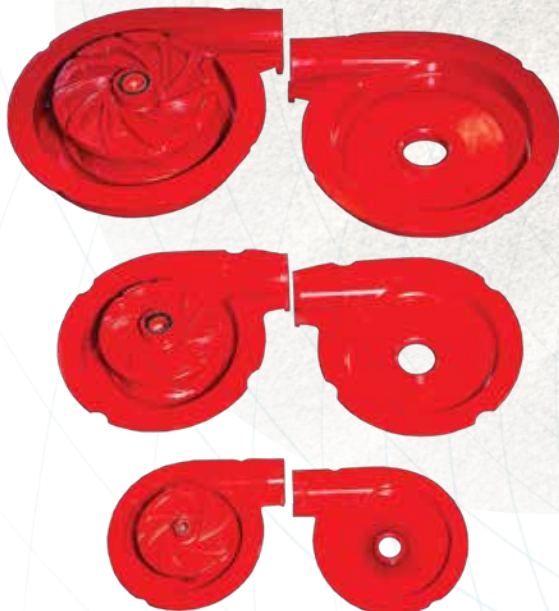
Suction doors, suction liners, shells and impellers for many sizes from 8" to 22"

## Warman/Weir AH Style

Throat bush, cover plate liners, impellers, frame plate liners for many sizes from 1.5" to 18"

## Thomas Style

Suction doors, suction liners, shell gland liner & door and impellers for many sizes from 8" to 20"





## Knife Gate Valves

Townley has developed a unique line of Towniprene® seated knife gate valves for the mining and coal-fired powerplant industries.

Townley's **80TP narrow body** and **80TP-XL wide-body** valves are especially unique to the industry for fine-feed slurry applications. The Towniprene® urethane is molded as the resilient blade seat as well as valve body and onto an integrated flange as a one-piece mold. This construction ensures absolute media shut-off when blade is closed, excellent wear in the body of the valve and the integrated gasket seals well when bolted to the pipe flanges.



Townley's **80BA/SD** body valve is similar to the 80TP but has an integrated high-chrome, abrasion resistant port and bonded into the Towniprene®, to provide superior services in aggressive media like bottom-ash in coal service and severe duty in mining and aggregate service.

The **80-Series valves** are drop-in upgrades to existing installed valves and feature treated blades for corrosion resistance and a precision-machined radius on the sealing edge of the blade to improve valve closure and sealing.

Townley's **Series 150 bi-directional** and **TMV 150 uni-directional large bore valves** were developed for fine tailings and coarse matrix, respectively. Each style valve features a one-piece integral cast Towniprene® seat for predictable sealing when closed. These valves are factory rebuildable.



## Butterfly Valves

The Townley Series 120 large format butterfly valve is designed for handling high-volume fine slurries and make-up process water. Unique to this valve is the use of two Townley wear materials: molded Towniprene® body and seat and Neoprene lining of disk.



Towniprene® 85 durometer

Interference Fit

Neoprene 60 durometer

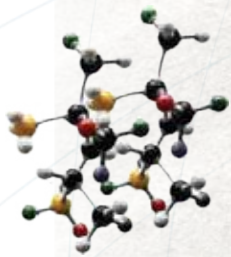
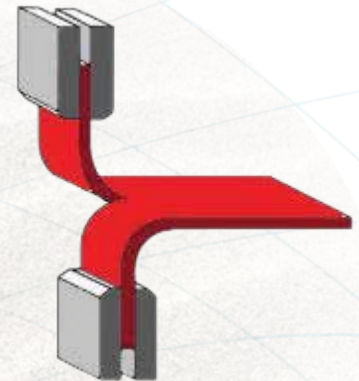
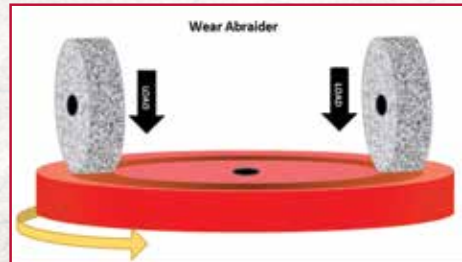




# Polyurethane Properties

What makes Towniprene® so versatile, are the many unique characteristics that can improve the wearlife of process lines when properly applied to each industrial wear application.

- Tear resistance
- 400+% elongation
- Fine abrasion resistance
- Toughness
- Load-bearing ability
- Flexibility
- High rebound
- Abrasion resistance
- Non-brittle
- Flex resistance
- Elastomeric memory
- Noise reduction
- Lower temperature operation <165°F



## Towniprene® Formulations

Towniprene® is available in a variety of formulations to match your application requirements.

### Diisocyanate Type and Grades:

**TDI PTMG Polyether 3380, 3385, 3395**  
- All aggressive wear applications. 85A-95A

**TDI PPG 1190** - Gaskets, light-duty wear applications, structural integrity. 95A

**MDI PTMG 4490** - Aggressive wear applications, range of hardness 55A-95A

**MDI Polyester 6485** - Highest cut tear and abrasion resistance. 85A

### Characteristics of our most versatile urethane product Towniprene® 3380

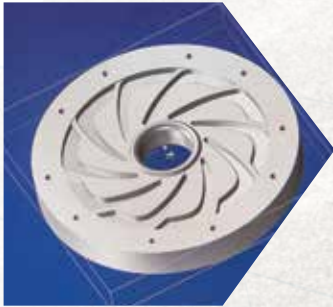
Color	Red
Hardness shore 80	85
Tensile strength Mpa	32
Elongation %	550
Compression set	30
Max temp °F/C	165/74
Resilience	Excellent, Bayshore %50
UV degradation	Excellent, slight color fade
Tear resistance	Excellent, split pli of 50



## Manufacturing with Towniprene®

Starting with precision in-house SolidWorks & CAD/CAM produced molds, the fit and finish of molded parts always yield perfect results in the finished product.

Our pre-polymers and other associated chemistry are precisely mixed & metered with microprocessor control, then dispensed into the molds. These systems allow us to make the continuous uninterrupted filling of large molds to ensure the absolute material integrity of the Towniprene®.



## Quality control for Towniprene®

Townley's in-house laboratory checks incoming raw material prepolymers to ensure pre-manufacturing quality.

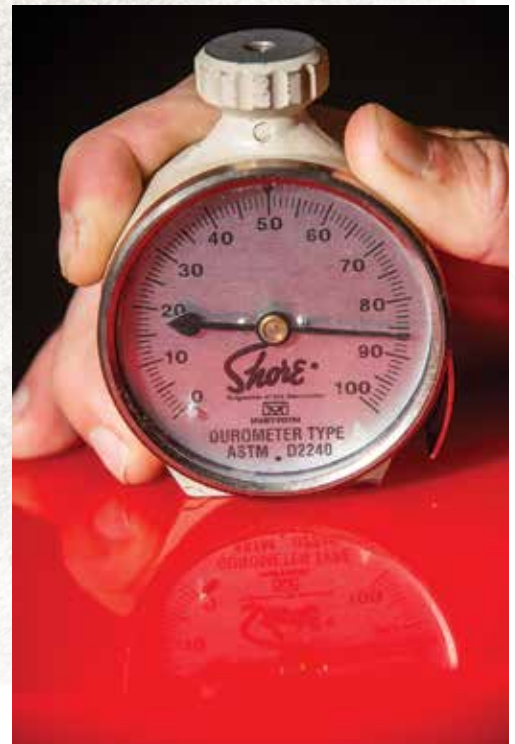
Once manufactured, our lab chemists check representative physical samples to ensure the customer will receive the performance characteristics expected in the end-product. Test results are archived to enable a look-back for field inquiries.



*Elongation & tensile strength*



*Resilience/rebound*



*Durometer/hardness check*



*This is the day which the LORD has  
made; we will rejoice and be glad in it.  
– Psalms 118:24*

# TOWNIPRENE® Proprietary Industrial Urethane

Since 1963 Townley has been a pioneer in manufacturing proprietary Industrial grade Towniprene® urethane products for improved wear characteristics, excellent utility and extreme durability.



Lowering your overall operating costs through extended wear life, better availability and competitive pricing, has always been our commitment to our Customers!



## TOWNLEY

Engineering & Manufacturing Co., Inc.

**SINCE 1963**

P.O. Box 221, Candler, FL 32111

10551 SE 110th Street Road

Office (800) 342-9920

F (352) 687-1862

[www.townley.net](http://www.townley.net)

Made in the USA



Disclaimer: The information presented herein is a general guide to our products. We make no warranties, expressed or implied with respect to the accuracy or usefulness of the information contained. Townley reserves the right to change technical specifications from time to time without notice. Use of any or all information in this document is done at the sole discretion of the user 03/21.