ACU-TECH®
PIPING SYSTEMS

ABRASION RESISTANT COMPOSITE POLYMER PIPE

ACU-TUFF

ACU-TECH.COM.AU

What is Acu-Tuff?

Acu-Tech Piping Systems is dedicated to creating supreme solutions for every project and our product Acu-Tuff pipe is no exception.

Acu-Tuff is a polymer lined HDPE abrasion resistant piping system that is designed and tested for the transport of liquids, sludge and slurry containing abrasive media and contaminants.

This innovative pipe is a breakthrough product in the mining industry. Its vigorous design offers a longer lifespan, high cost-efficiency and is proven to have better durability than conventional metal or PE pipelines.

Its excellent wear and impact-resistance makes it ideal for tailings pipelines, slurry pipelines and other abrasive applications used in mining operations.

Acu-Tuff is offered in two types:

- Above ground installation
- Underground installation

The co-extruded pipe provides three layers:

Inner layer:

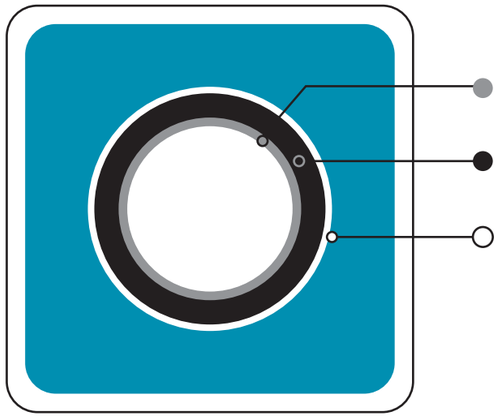
Maximises abrasion resistance, even in the harshest applications, providing better durability than conventional metal or PE pipes.

Second layer:

PE 100 Pipe that offers advantages such as flexibility, resistance to cracks and tremulous events.

Outer layer:

Protective layer that reduces pipe temperature in sunlight, leading to reduced thermal expansion and snaking.



ACU-TUFF Abrasive Slurry Compound

PE 100 Pipe

Outer Protective Layer

Note: Available in black for below ground installations (without external white jacket).

Why choose Acu-Tuff?

Acu-Tuff's protection against abrasion, corrosion and leakage, helps minimise both planned and unscheduled downtime. This can reduce operating costs, improve transfer efficiencies and maximise your plant's production.

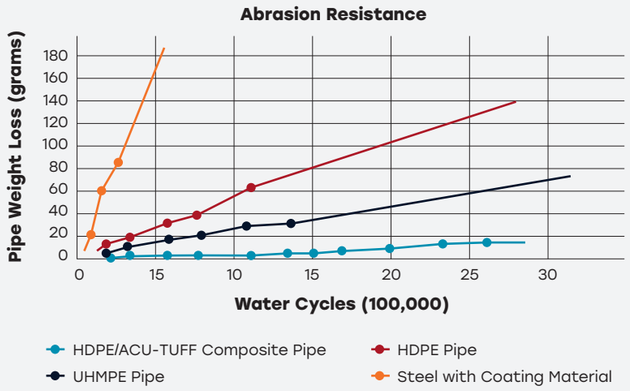
Benefits

- High wear resistance.
- Impact resistance.
- Better durability than conventional metal or PE Pipelines.
- Maintenance intervals are notably extended.
- Shorter downtimes leading to higher productivity.
- Reduced thermal expansion.
- PE properties offer advantages such as flexibility, resistance to cracks and tremulous events.
- Ease of installation.

Laboratory Test

Abrasion Wear Test

The following graph shows results from a Darmstadt Test that measured the abrasion resistance of a range of pipeline materials. The test consists of a tilting or rocking pipe, pivoted at its centre.
An abrasive slurry of stones and water moves up and down the pipe in the longitudinal direction.



Mortar Wear Test to QB/T 2268-2088

Pipe materials were made into specified sample plates. The samples were placed in the wear slurry which was a sand/water mixture (52 vol %/48 vol %) and was rotated at various speeds and durations. The samples were then collected and weighed to compare the amount of weight loss from abrasion.

Test conditions

Rotation speed:	1400rpm
Wear time:	11 hours
Specimen size:	100x100x4mm

Weight Lost	HDPE	PEX	UHMWPE (MW: 2,5 Million)	**ACU-TUFF**
%	9.6	5.2	3.7	**0.27**

Rotation speed:	1400rpm
Wear time:	8 hours
Specimen size:	100x100x4mm

Weight Lost	UHMWPE	TPU	**ACU-TUFF**
%	7.0	1.8	**1.5**

Rotation speed:	680rpm
Wear time:	4 hours
Specimen size:	100x100x4mm

Weight Lost	Steel (Q235)	HDPE	UHMWPE	Rubber	**ACU-TUFF**
%	9.6	0.99	0.45	0.33	**0.11**
%		3.48	1.56	0.94	**0.74**

Tests by Industry Experts

In collaboration with PATERSON & COOKE

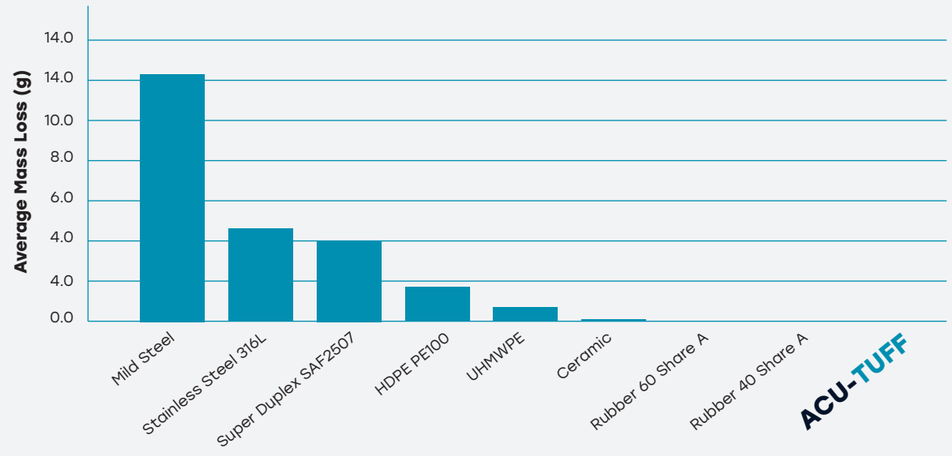
The following test was conducted by Paterson & Cooke Australia in collaboration with Acu-Tech Piping Systems.

The objective was to assess wear resistance of Acu-Tuff compared to that of other pipe materials by measuring the mass and volume lost from a high-velocity slurry flow.

Samples of tailings found in Australia were used in the test.

The below results conclude that Acu-Tuff performed better in the wear test to that of UHMPWPE, HDPE, Stainless Steel 316L, Super Duplex Steel, and Mild Steel.

The bar graph below shows the results of the test in mass loss per sample type:



Project Performance

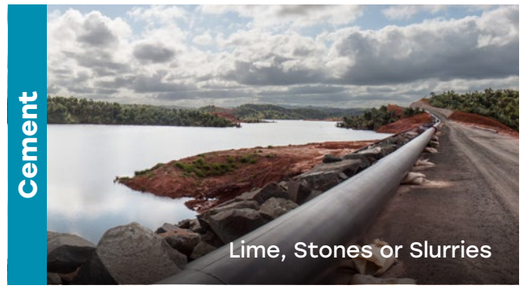
Acu-Tuff abrasion resistant pipe has been used in various mining projects in Asia including Rio Tinto, and Pangang Steel Mine.

Compared to normal steel elbows that can leak within short periods of time, Acu-Tuff's abrasion-resistant elbow can last a long time with minimal damage and leakage.

Fittings

Acu-Tuff can be used with butt-fusion technology and electrofusion couplings for strong welded joints. Alternatively, flanges and mechanical sealing joints can be used in the same fashion as steel pipes.

Applications



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The HDPE Pipe Systems Specialists

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