



Selecting the right material in material handling application

Factors to considered when selecting the right tube

- › Abrasion resistance
- › Impact resistance
- › Tearing and cutting resistance
- › Heat buildup
- › Tensile resistance
- › Resilience (rebound)
- › Sliding resistance
- › Angle of impact
- › Particle size and weigh
- › Velocity
- › Dry or liquid material
- › Chemical compatibility

The key for the choice of the proper rubber material is in selecting the best combination of properties to suit the application. There is no single tube type that works best for all applications.

Options for tube materials

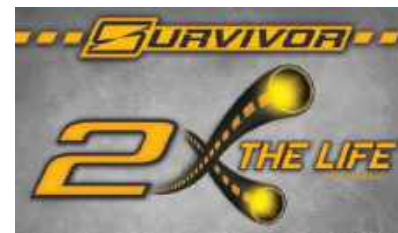
good, better... **BEST**

PURETEN suitable in applications where sharp material is present and any applications where sticking is an issue, particularly efficient for handling slurries

CHEMITUF suitable in applications where impact and cutting forces are present, particularly in dry applications

SURVIVOR the optimum material in abrasion resistance, dry or wet

OIL SANDS a very versatile material, a must when oil resistance is required



Abrasion Resistance

Abrasion resistance is usually a key characteristic in the selection of the right material.

Some conditions may affect the abrasion performance of a material, i.e. in the presence of oil the tube material may **swell** which will reduce its abrasion resistance.

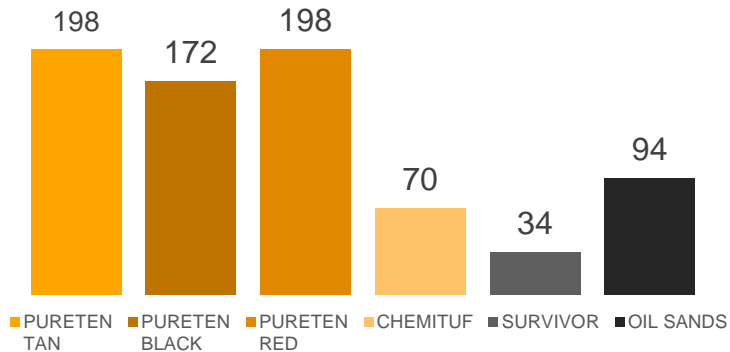
Other predominant factors like **angle of impact** (hose layout, sharp bend), velocity and particle characteristics will affect the performance of the tube material.

	Hardness (shore A)	Static dissipative
PURETEN (TAN)	40	NO
PURETEN (BLACK)	45	NO
PURETEN (RED)	40	NO
CHEMITUF	70	YES
SURVIVOR	50	YES
OIL SANDS	60	YES

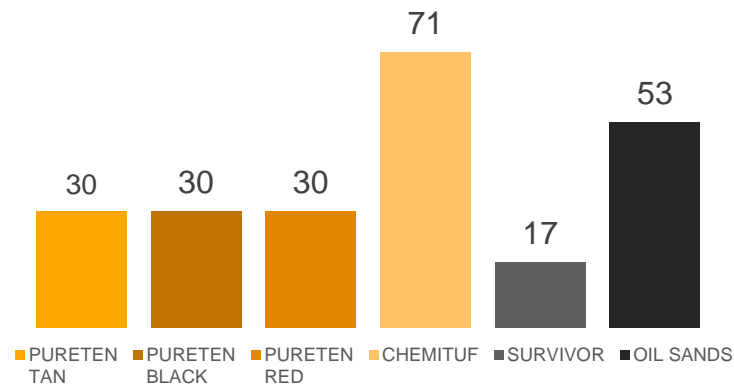
Abrasion Test – DIN 53516

mm3 loss – smaller value the better

Dry Abrasion



Wet Abrasion*



*chemical composition of the slurry should always be verified

General Overview

	Pureten	Chemituf	Survivor	Oil Sands
Tear resistance	G	E	G-E	G-E
Impact resistance	G	E	G	E
Aging resistance	F	F	F	F
Heat resistance	F	G	G	G
Weathering, Ozone resistance	P	F	F	P
Low temp flexibility	E	G	E	G
Compression set	F-G	F	G	F
Permeability	F	F	F	F
Acid (dilute)	F-G	F	F	F
Acid (concentrate)	P	P	P	P
Oil	P	P	P	F
Alkali dilute	F-G	F-G	F-G	F
Alkali concentration	P	P	P	P

P: Poor
 F : Fair
 G : Good
 E : Excellent

Summary

- › In applications where tube wearing represent the main cause of hose retirement, other than the selection of the tube material, increasing the tube thickness within certain limits should result in longest service life.
- › Particles sizes, weight, height in vertical application, velocity and angle of impact will also need to be considered on the proper tube thickness selection.
- › Remember that this document represent a guide and cannot replicate all conditions of use so the best validation will always remain a field test.