

Plurasafe[®] EnBio TC[®]S

The “NO Burn” Hydraulic Fluid

Helping Make
Products Better™



Plurasafe[®] EnBio TC[®]S is a patent pending synthetic hydraulic fluid specifically formulated to replace mineral oil, vegetable oil and polyol ester based fluids in hydraulic applications requiring high performance and a “no burn” effect on grasses.

Plurasafe[®] EnBio TC[®]S is based on a high quality polyalkylene glycol fluid and selected additives that are combined to give excellent fluid performance as well as being environmentally friendly.

With properly maintained equipment, the life expectancy of **Plurasafe[®] EnBio TC[®]S** in hydraulic systems compares favorably with other synthetic based hydraulic fluids, such as, polyol esters and poly-alpha-olefins (PAO's). In addition, **Plurasafe[®] EnBio TC[®]S** is expected to have longer life than petroleum based fluids and does not form sludge or varnish.

Plurasafe[®] EnBio TC[®]S has been tested and shown to have outstanding anti-wear and corrosion performance.

Plurasafe[®] EnBio TC[®]S has been formulated to provide excellent lubricity, oxidative stability, and elastomer compatibility. **Plurasafe[®] EnBio TC[®]S** fluid is recommended for use with many types of elastomeric materials including copolymers of acrylonitrile and butadiene (Buna N[®]), hydrofluoro carbon polymers (Viton[®]), Hydrogenated Nitrile Butadiene Rubber HNBR (Terban[®]), Butyl rubber and Ethylene Propylene Diene Monomer EPDM. Please note that variation may exist between the same elastomer types from different production sources or companies. In critical applications the specific elastomers used should be tested.

Plurasafe[®] EnBio TC[®]S fluid has a high viscosity index and a low pour point eliminating the need for seasonal fluid changes. It has both a higher flash and fire point than typical petroleum based fluids.

Polyalkylene glycol fluid based fluids are known to demonstrate solvency for common oil-based paints however this is minimized with the use of epoxy based paints. Painting of interior surfaces of the hydraulic system are not recommended.

Polypropylene is recommended for plastic components that will come into contact with **Plurasafe[®] EnBio TC[®]S**.

Adequate filtration improves the performance of all hydraulic systems. It is recommended to use a Donaldson Synteq[®] filter or equivalent for optimum results with **Plurasafe[®] EnBio TC[®]S**.

Please contact your **Plurasafe[®] EnBio TC[®]S** representative for information on compatibility of specific elastomers, filters, paints and plastics.

Plurasafe[®] EnBio TC[®]S is recommended for use in mobile hydraulic systems operating in environmentally sensitive areas. **Plurasafe[®] EnBio TC[®]S** has been formulated to provide excellent grass / turf compatibility.

Typical Properties of Plurasafe [®] EnBio TC [®] S		
Test Description	ASTM	Results
Viscosity at 40°C (cSt)	D445	49.3
Viscosity at 100°C (cSt)	D445	9.3
Viscosity Index	D2270	175
Density, 15.6°C g/cm ³	D4053	1.08
Specific Gravity, 15.6°C/15.6°C	D4053	1.08
Appearance, Clear blue liquid	Visual	Clear
Ash Content	D482	0.01%
Pour Point, (°C)	D97	-39
(°F)	D97	-38
Flash Point, °F (°C)	D92	399 (204)
Rust Prevention, A & B	D665	Pass, A & B
Copper Corrosion	D130	1B
Shear Stability at 40°C & 100°C	D5621	0% Change
Four Ball	D4172	0.45
FZG, Pass Load Stage	D5182	12 Stage

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Plurasafe[®] EnBio TC[®]S is a fully formulated synthetic hydraulic fluid specifically designed to not harm grass and to end turf replacement due to hydraulic line failures or accidental spills on turf.



Eliminate Turf
Replacement Costs



End Grass Burn

Both of these photos are actual burns / kills from a typical hydraulic fluid spill. The photo on the top is a vegetable oil spill and the one to the left is from a petroleum oil based hydraulic fluid spill. The damage was extensive in each case.

Plurasafe[®] EnBio TC[®]S is a new high performance synthetic hydraulic fluid that will not cause “burn” or kill grass when accidentally spilled or leaked onto turf.

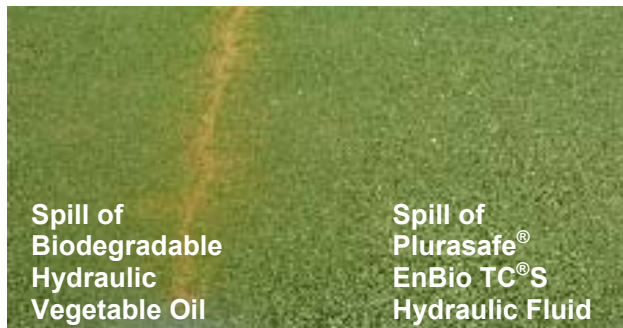
Plurasafe[®] EnBio TC[®]S is a patent pending, environmentally friendly hydraulic fluid that is cost effective to use and will eliminate the need for turf replacement.

BASF Corporation contracted extensive trials on golf courses to verify that spills do not kill or

“burn” a variety of grasses including Bermuda, Bent, Crenshaw, TiffEagle, Paspalm, Poa, Rye and Kikuyu.

No detrimental impact was found even when HOT (~140°F/60°C) **Plurasafe[®] EnBio TC[®]S** fluid was spilled onto these grasses and washed with water.

In the photo below, **Plurasafe[®] EnBio TC[®]S** fluid was test spilled on the grass at the same time next to a Biodegradable Hydraulic Vegetable Oil.



Here is the same spill as performed above eight days later:



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