BT 22

Biosynthetic Technologies' BT 22 is a patented estolide technology that is designed as a biobased base oil. The product is an ISO 150 base oil that creates flexibility in meeting formula viscosity by blending with other products. BT 22 exhibits enhanced lubricity as well as high oxidative and hydrolytic stability. The product can be used to create unique, biobased lubricants and metalworking fluids.

APPLICATIONS

- Metalworking fluids
- Gear oils
- Hydraulic fluids
- Grease

PRODUCT PERFORMANCE BENEFITS

- High Hydrolytic Stability
- High Oxidative Stability
- Enhanced Lubricity
- Metal Surface Affinity
- Low Product Carbon Footprint (PCF)

TYPICAL PROPERTIES

PROPERTY	UNITS	RESULT
Color Appearance	-	Light amber
Form	-	Liquid
Gardner Color	-	4 max
Pour Point	°C	- 21
Total Acid Number (TAN)	mg KOH/g	0.3
Viscosity Index	-	170
Viscosity @ 40°C	cSt	150
Viscosity @ 100°C	cSt	22
Biodegradability (OECD 301)	%	79
Biobased carbon (ASTM D6866)	%	86

HANDLING, SAFETY, HEALTH, AND ENVIRONMENT

See safety data sheet

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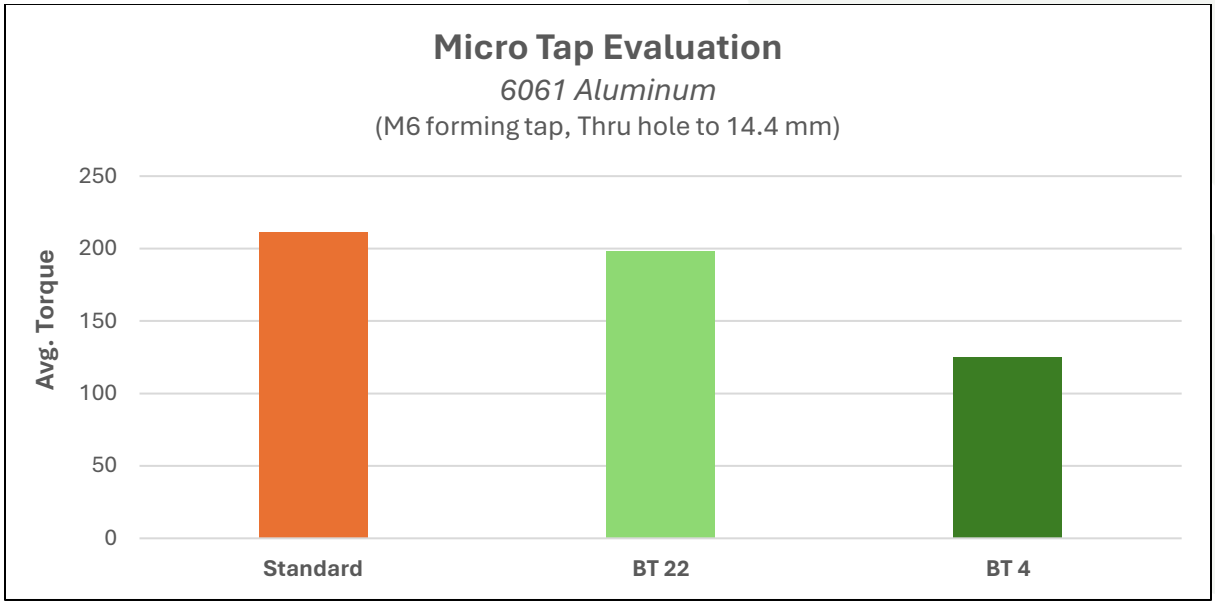
BT 22

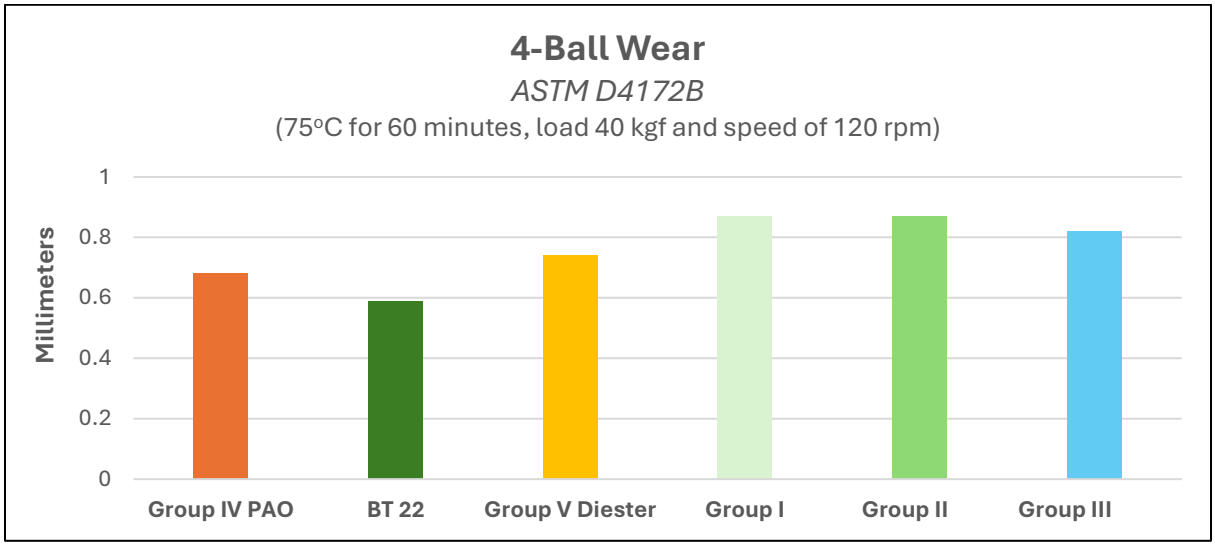
PERFORMANCE TESTING

Micro Tap



The standard used for comparison was a heavy duty semi-synthetic metalworking fluid containing a Phosphate EP additive. The phosphate additive was replaced by BT 4 and BT 22 at 15%. As you can see, the BT 22 sample reduced torque by 10% leading to better performance on aluminum.

4-Ball Wear



The test above was run to compare various base oils in a 4-ball wear test. As you can see, BT 22 performed better than a low viscosity PAO and much better than Group I, II, III and V base oils.

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BT 22

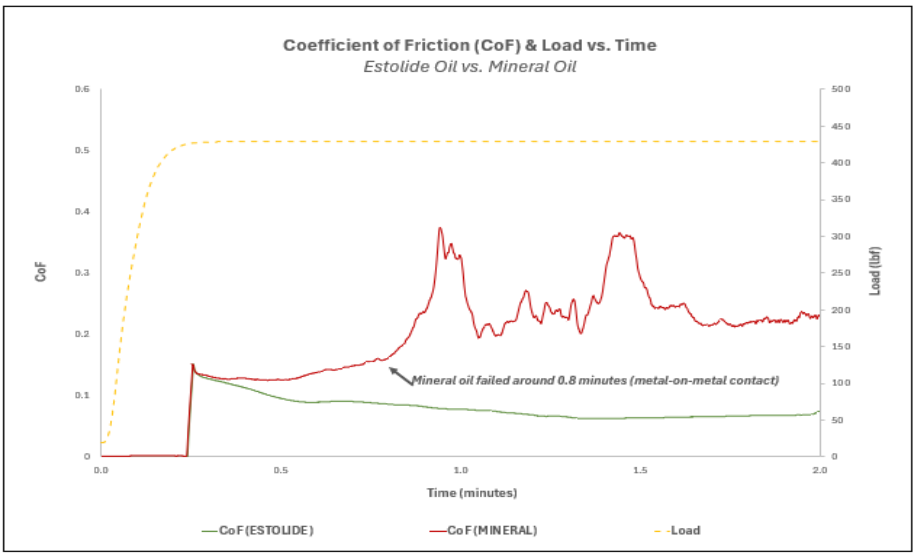
PERFORMANCE TESTING

Drawing & Stamping Fluid

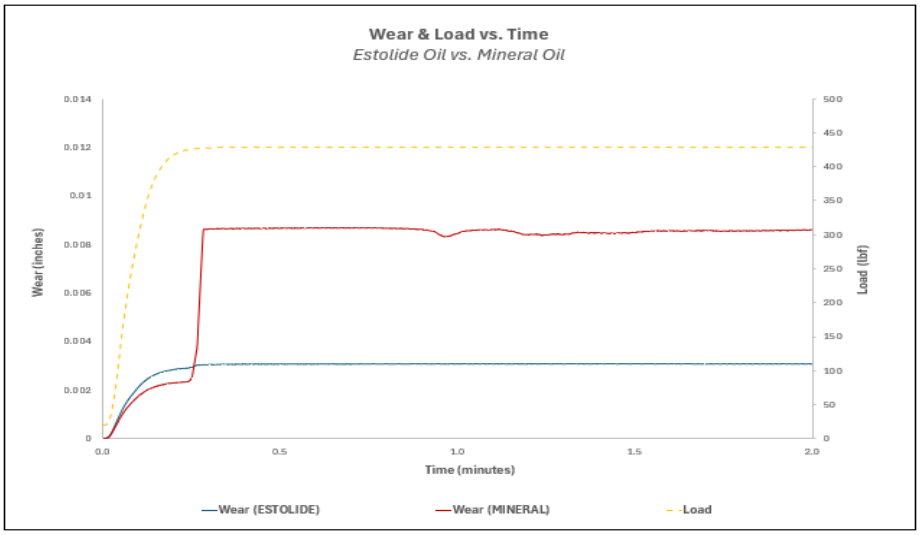
Raw material	Standard	BT 22
2400 SUS Naphthenic oil	50.73	--
200 SUS Naphthenic oil	38.27	--
BT 22	--	89.00
Amine phosphate	1.00	1.00
Methyl stearate	9.00	9.00
Di-alkyl polysulfide	1.00	1.00
	100.00	100.00

Viscosity information

40°C, cSt	86.18	101.80
100°C, cSt	9.22	16.73
Viscosity Index	77	179



Lower CoF values promote enhanced tool life and higher quality machining of work pieces. The BT 22 formulation significantly outperformed the mineral oil formulation, which failed the test around 0.8 minutes.



The lower the wear value, the better performance of the drawing and stamping process that consistently leads to higher quality finished metal work pieces, longer tool performance, and tool longevity.

The BT 22 formulation offers at least 70% improved wear protection compared to the Mineral oil formulation

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