

The World's First **DEWALT** Bar&Chain Biodegradable Oil

DXCC1200 -16oz
DXCC1201 -32oz
DXCC1202 -1gal
DXCC1205 -55gal



Available today at:

- Home Depot
- Amazon
- Grainger
- Bomgaars
- ACME Tools
- DoltBest
- MAC TOOLS



Chainsaw Oil in USA

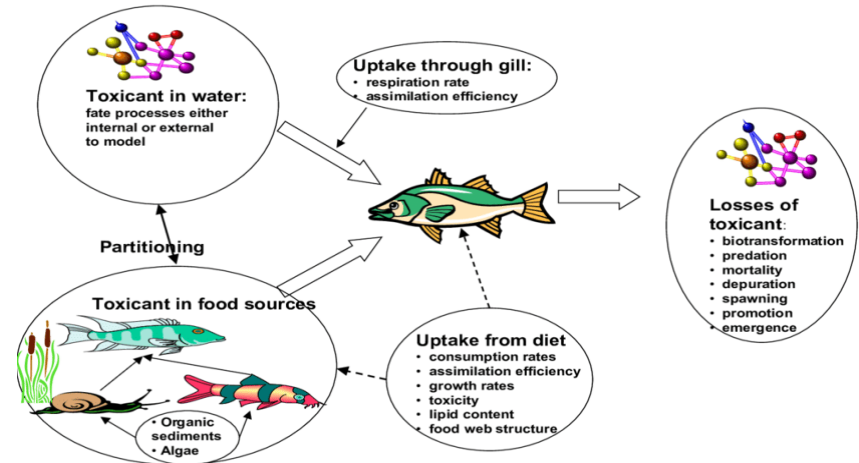
- Chainsaw oil is a 100% total loss application. What goes in, goes right out into water, plants and soil

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Influence of Oil Contamination on Physical and Biological Properties of Forest Soil After Chainsaw Use

- Over 60 different brands of chain oil in the US Zero industry standards. How does that make sense when its direct pollution? Petroleum chain oil is pollution.

Bioaccumulation

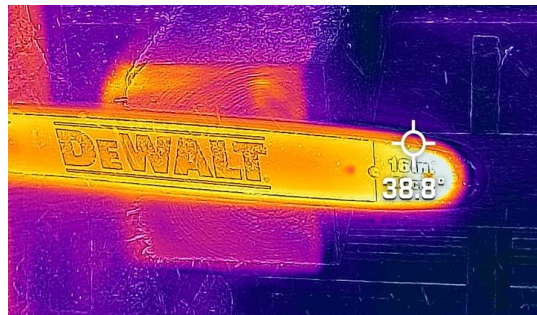


DEWALT Bar&Chain Biodegradable Oil

SPECIFICATIONS
ISO 100
Gas + Electric compatible
Petroleum compatible
BioPreferred Federal Mandated Purchasing
Soy-based, American farmers
American Made

PERFORMANCE
30-50% better friction/wear
Higher load rating
All Seasons -20F to 520F
Higher thermal stability (220 VI) than <u>any</u> petroleum product
Optimal tack
Lower bar + motor temps vs Stihl Woodcutter (thermocouple tested)

SUSTAINABILITY
USDA Certified Biobased
Ultimate Biodegradable Certified
EPA Environmentally Acceptable Lubricant (EAL)
OECD 201,202,203 PASS
EPA lab tested “practically non-toxic” Category IV
Partnered with Soybean Council and American Farmers



DEWALT vs STIHL*

*We make no claims or rights to trademarks associated with STIHL or STIHL products. Comparisons are from STIHL data sheets and independent ISO Certified labs

500% deviation in viscosities for the same saw



Woodcutter
~130cst
lowest cost



Winter grade
~68cSt
low temp



BioPlus
~34cSt
basic eco



Platinum Syn
120-173cSt
highest cost



One oil, all saws,
all seasons!

- USDA Bio Certified 99%
- Large temp range
- High load rating 180kg
- Lower friction <.4mm
- Lower bar temps
- Mid tack ~30mm
- High flash pt. >520F
- High VI >220



4 types of oil multiple sizes

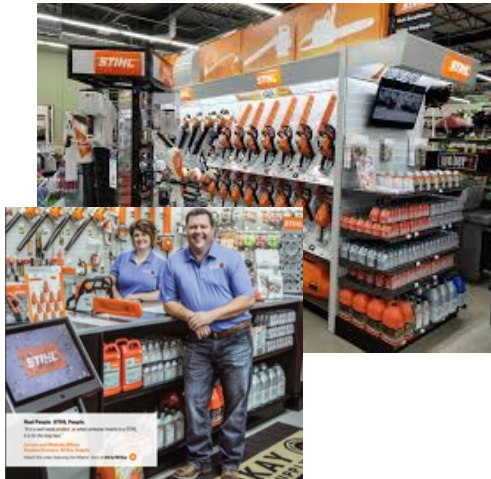


DEWALT vs STIHL BioPlus*

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D5183 wear-in scar	Avg 0.34 mm		Avg 0.58 mm	
Wear-in CoF =	0.056		0.0938	
Run Load when T>77°C =	1962	200 kg	1275 N	130 kg
Time to 77 C	11843	3.3 hrs	7315	1.9hrs
Seisure?	N		N	
Stage #	20		13	
Avg CoF	0.06		0.094	
Run Load at EOT 85°C =	2452	250 kg	1472	150 kg
Seisure?	N		N	
Stage #	25		15	
Avg CoF	0.063		0.107	
Total CoF change	0.018		0.35	
Avg Friction wattage	30.3		31.3	
Ball scar dia. EOT =	Avg 0.78 mm		Avg 1.06 mm	

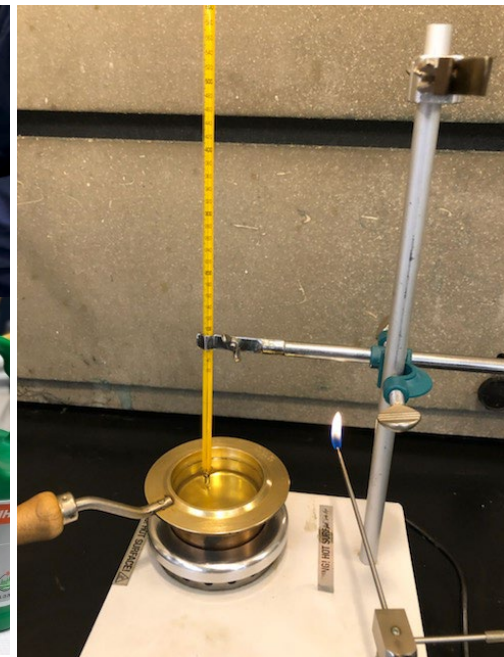
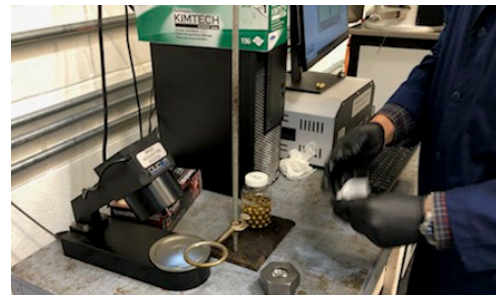


4 Types of Oil Multiple Sizes

- 300% higher viscosity
- 6x more tack
- 52%+ higher load rating under ASTM D5183 tribology test
- 30% lower wear
- Certified Biodegradable, Non-toxic and BioPreferred

Performance testing to ASTM oil global standards

- ASTM D5183 – Coefficient of friction (<.07)
- ASTM D92 – Flash pt. (>520F)
- ASTM D4172 – Wear scar (<.40mm)
- ASTM D6749 – Pour pt. (-21F)
- ASTM D665B – Saltwater corrosion PASS
- ASTM D2270 – Viscosity Index (220+)
- ASTM D2783 – Extreme pressure (180kg)
- Ductless Siphon – Tack (30-40mm)



Environmental testing and certifications for eco-human safety

- OECD 301B – Ultimate/Readily Biodegradable (HIGHEST)
- OECD 201 – Alga and Cyanobacteria growth inhibition (PASS)
- OECD 202 – Daphnia acute toxicity (PASS)
- OECD 203 – Fish acute toxicity (PASS)
- USDA BioPreferred – 95%+ Renewable Biocarbon Certified



Texas Commission on Environmental Quality

NELAP-Recognized Laboratory Accreditation is hereby awarded to



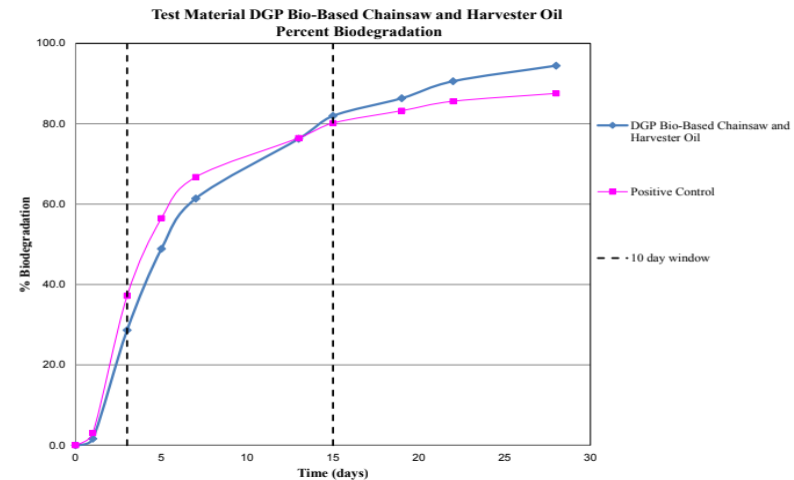
Bio-Aquatic Testing, Inc.
2501 Mayes Road, Suite 100
Carrollton, TX 75006-1378

in accordance with Texas Water Code Chapter 5, Subchapter R, Title 30 Texas Administrative Code Chapter 25, and the National Environmental Laboratory Accreditation Program.

The laboratory's scope of accreditation includes the fields of accreditation that accompany this certificate. Continued accreditation depends upon successful ongoing participation in the program. The Texas Commission on Environmental Quality urges customers to verify the laboratory's current location(s) and accreditation status for particular methods and analyses (www.tceq.texas.gov/goto/lab). Accreditation does not imply that a product, process, system or person is approved by the Texas Commission on Environmental Quality.

Certificate Number: T104704208-21-12
Effective Date: 4/1/2021
Expiration Date: 3/31/2022

[Signature]
Executive Director Texas Commission on Environmental Quality





**INSTITUTE OF
MATERIALS
SCIENCE**

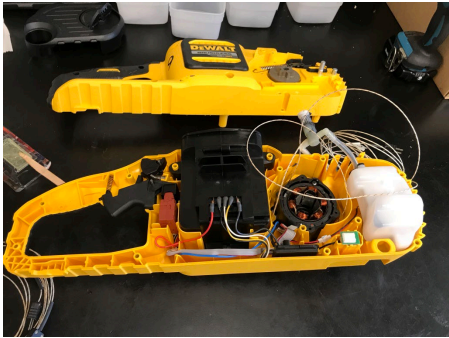
Bio-Based Oil Testing in Saws

**Dr. Paul Nahass, Director, Industrial Affiliates Program
December 2021**

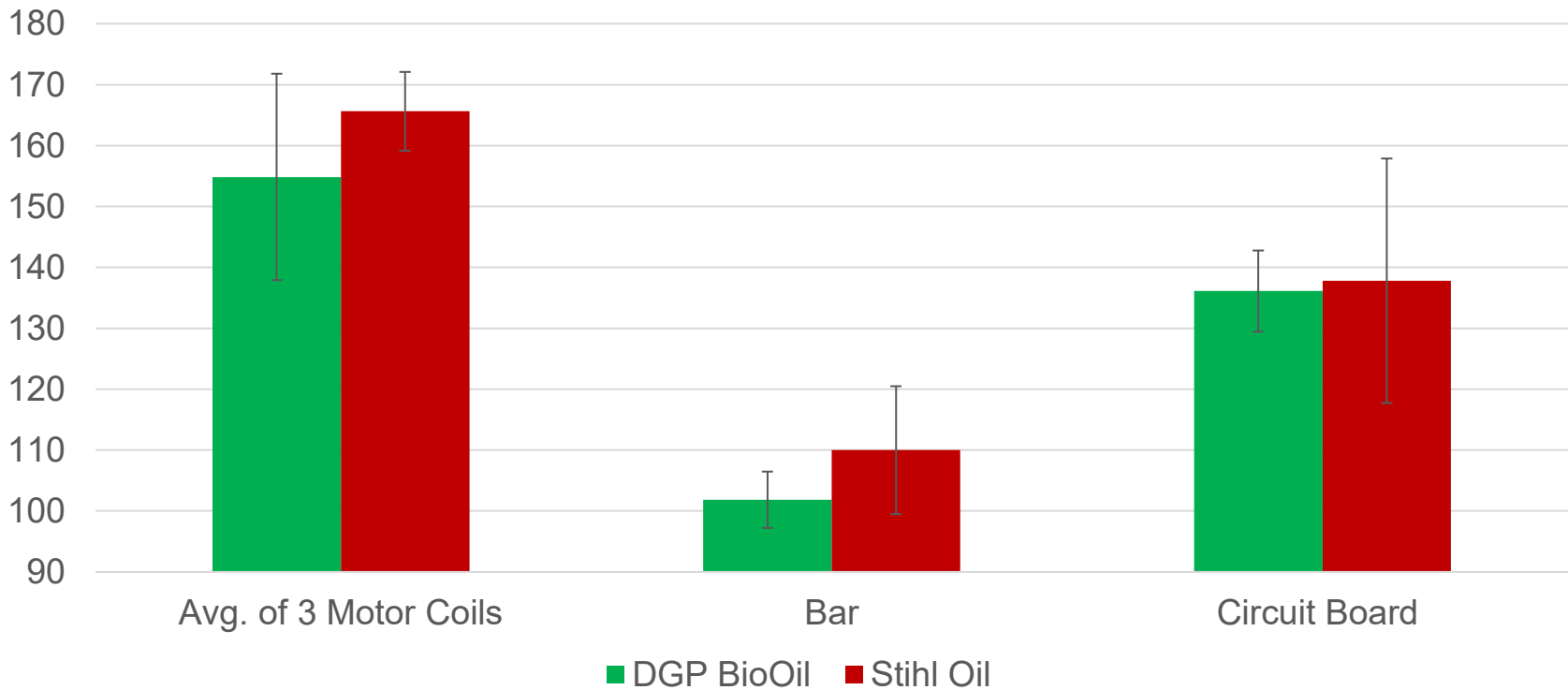
UConn

Test Plan – administered by Dept of Forestry UConn

- Procedure
 - Trees cut and hewn to 6",4",2" from UConn Forest
 - Thermocouples glued to saws: bar, pcb, motor coil
 - Continuous cuts for entire battery cycle
 - New saws using petroleum oil and news saws using bio oil
 - Measure dynamic temperatures across 8000 cuts

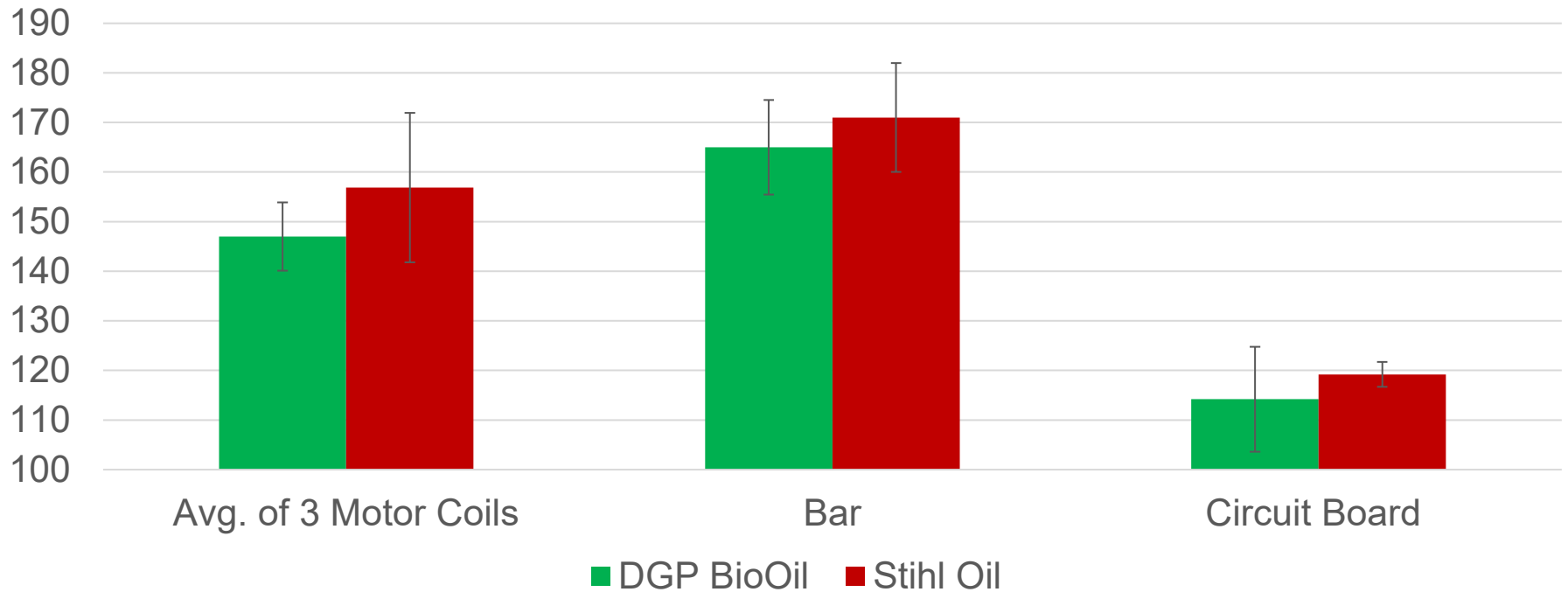


Max Run Temps. (deg. F) During cutting (3 battery drains)
16" chain saws (Avg. of 5 saws with each oil)



- *Saws with DGP oil consistently exhibited lower max temps. at each measured position: motor, bar, circuit board*

Max Run Temps. (deg. F) During cutting (3 battery drains)
12" chain saws (Avg. of 5 saws with each oil)



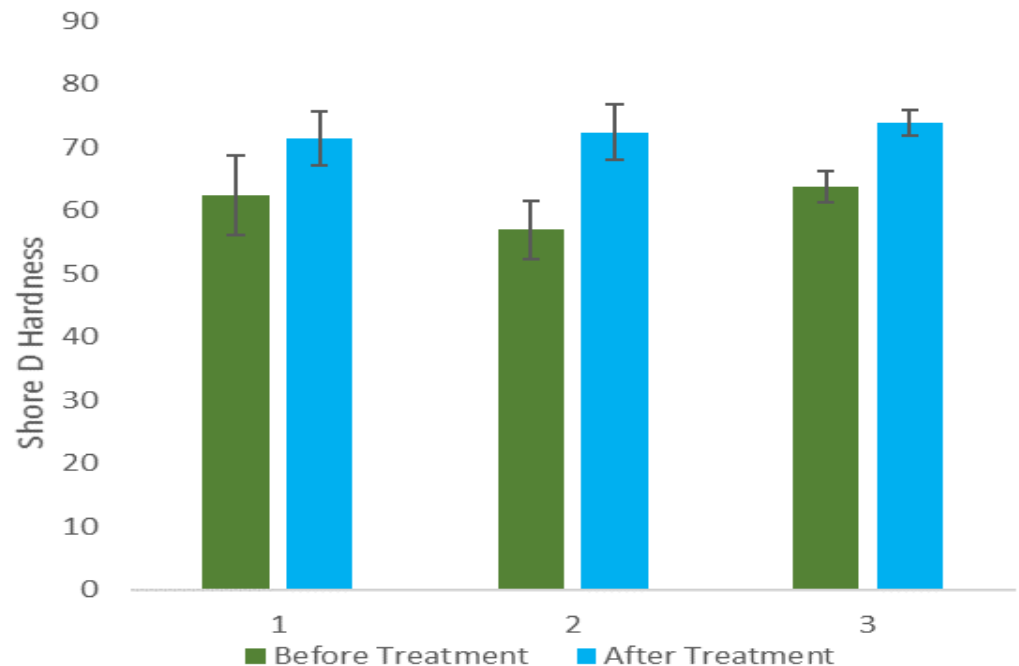
- Saws with DGP oil consistently exhibited lower max temps. at each measured position: motor, bar, circuit board

- Methods:

- Soak test: 3 plastic pieces soaked in DGP oil 1hr
- Chamber test: 24 hours after soak, put oil in oven at 90 °C for 48 hours.
- Rub test (ASTM D5402-19):
 - 100% cotton rag saturated with DGP oil rubbed manually across a 1" x 4" piece of nylon casing at rate of ~1/s per double rub, with 1000-2000 g applied force for 100 double rubs.

- Results:

- Shore D hardness
 - change in Sample 1 within standard deviation,
 - Minor increase in hardness for Samples 2 & 3
- Infrared spectroscopy:
 - no change in chemical structure of nylon casing after soak, chamber tests



- Results (cont'd):
 - Photo observation:
 - No significant visual changes observed other than increased reflectivity from residual oil.
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 - No significant visual changes observed other than increased reflectivity from residual oil.

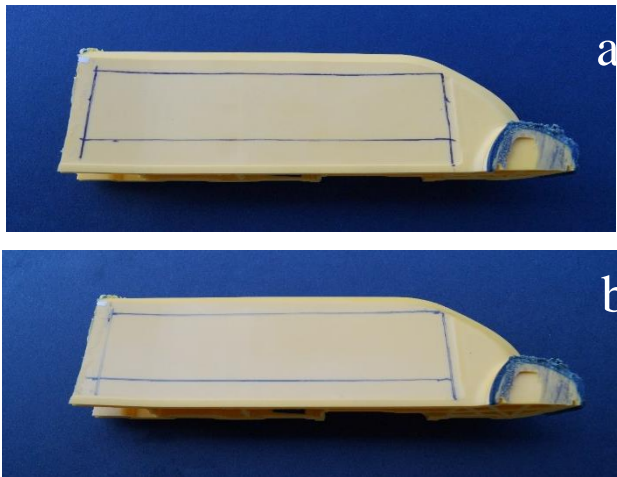


Figure 5: Sample before (a) and after (b) rub test.

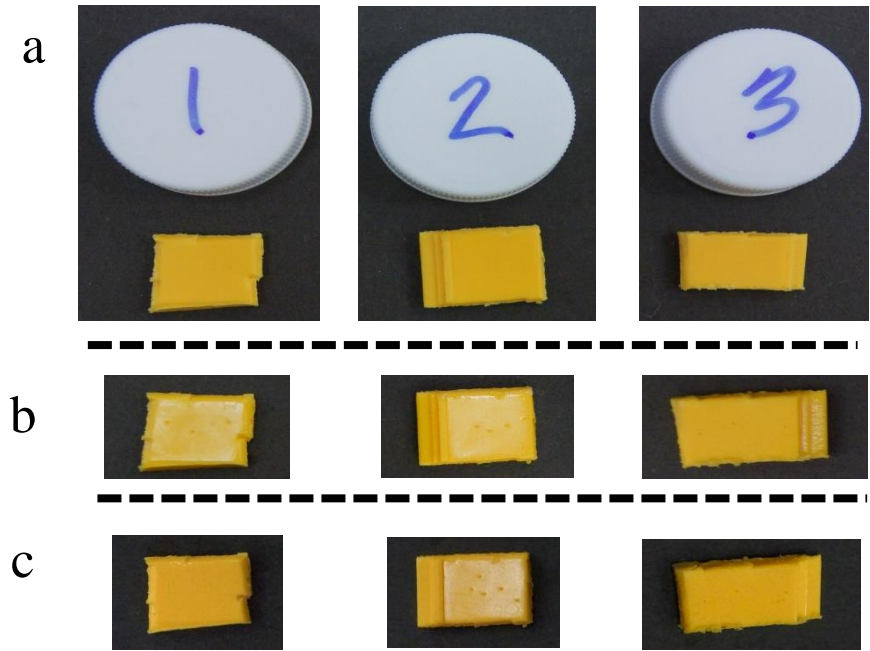


Figure 6: Samples before testing (a), after soak test (b), and after chamber test (c).



The highest performance, independently certified, bio-based lubricant platform for outdoor power equipment