



# Renewable Lubricants, Inc.

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## Bio-SynXtra™ TC-W3 2-Cycle Engine Oil



### *"Biobased Lubricants that Perform Like Synthetics"*

Bio-SynXtra™ TC-W3 2-Cycle Engine Oil is a patented, readily biodegradable<sup>1</sup>, biobased synthetic formula with improved additive technology, that meets and exceeds the National Marine Manufacturers Association (NMMA) requirements for TC-W3 Water-Cooled 2T Outboard Engines, and TC+ for high performance air-cooled engines. It replaces NMMA obsolete Water-Cooled TC-W (BIA) and TC-WII for older outboard engines. This high performance 2-Cycle formula provides additional antiwear/anti-scuffing protection and is recommended for used in lawn and garden equipment, chain saws, snow blowers, motor scooters, mopeds, and snowmobiles.

Bio-SynXtra™ TC-W3 contains enhanced lubricity boosters and additional cleanliness chemistry that improves lubrication performance for high output Motorcycle API TC and Husqvarna Chain Saw 242/266 requirements. It is specifically formulated to reduce visible smoke and burn clean, minimizing deposits and carbon buildup, and preventing ring sticking and spark plug fouling. In addition, this technology minimizing deposits and carbon buildup in equipment operating at high and low RPMs.

Bio-SynXtra™ TC-W3 is recommended in both carbureted and Direct Fuel Injected (DFI) systems. This ashless, Low-Smoke Formula contains **Stabilized\*** Technology to improve fuel stability.

**For premixed fuel-oil systems, see owner's manual for recommended fuel: oil ratio.**

#### Typical Characteristics

Property	Typical Value	Method
Viscosity, cSt 100°C	8.0	ASTM D-445
Flash point, °C	185	ASTM D-93
Pour point, °C	-42	ASTM D-97
TBN (mg KOH/g)	6.0	ASTM D-2896

#### **TC-W3 Program Summary**

##### **Bench Tests**

Property	Typical Value	Method Pass/Fail Criteria
Cloud point, °C	-29	ASTM D-2500
Compatibility	clear	NMMA_CTCW homogeneous after mixed separately with each reference oil and stored 48 hours
Brookfield (fluidity) cP @ -25°C	5130	ASTM D-2988
Evaluation	Pass	less than 7500 cP
Miscibility (inversions @ -25°C)		ASTM D-4682/#992
Candidate/reference	50/85	no more than 10% inversions
Evaluation	Pass	than reference*
Rust test, %		NMMA Procedure
Candidate/reference	0/3.6	equal to or better than reference*
Evaluation	Pass	
Filterability, % Change,	5.37	NMMA_FPT Procedure
Candidate/Evaluation	Pass	decrease in flow not greater than 20%
Lubricity Test	Pass	AF-27

<sup>1</sup> Readily Biodegradable >80% within 21 days in CEC L-33-T-82 test.

\*STABILIZED by Renewable Lubricants\* is RLI's trademark on their proprietary and patented anti-oxidant, anti-wear, and cold flow technology. High Oleic Base Stock (HOBS) are agricultural vegetable oils. This Stabilized technology allows the HOBS to perform as a high performance formula in high and low temperature applications, reducing oil thickening and deposits.

Patented Product: US Patent 6,383,992, US Patent 6,534,454 with additional Pending and Foreign Patents  
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**TYPICAL ENGINE TEST RESULTS:**

OMC 40 Horsepower Test (100 hours)			Not lower than 0.6 below same ratings of reference**
Average Piston Varnish, Candidate/Reference			
Top Ring Stick, Candidate/Reference			
Evaluation			
OMC 70 Horsepower Test (100 hours)			Equal to or better than some ratings of reference**
Average Piston Deposits, Candidate/Reference			
Second Ring Stick, Candidate/Reference			
Evaluation			
Mercury 15 Horsepower Test (100 hours)	100 hours		100 hours with no stuck rings, plus
Scuffing, Candidate Evaluation	Pass		a) scuffing within allowable limits (30%)
Bearing Stickiness, Candidate Evaluation	Pass		b) needles must fall easily from wrist pin
Compression Loss, Candidate Evaluation	Pass		c) 20 psi maximum compression loss
Overall Candidate Evaluation	Pass		(reference** run every 5 candidate runs)
Yamaha CE50S Tightening/Lubricity Test			Equal to or better than reference** within
Torque Drop, lb-in. Candidate/Reference/Eval.	4.16 / 4.26 / Pass		90% confidence level
Yamaha CE50S Preignition Test (100 hours)			Equal to or better than reference**
Major Preignitions, Candidate/Reference/Eval.			

Reference \*\* OS250541

<b><u>Availability</u></b>	<b><u>F.O.B.: Hartville, Ohio, USA</u></b>	<b><u>Quart</u></b>	<b><u>Gallon</u></b>	<b><u>Pail</u></b>	<b><u>Drum</u></b>	<b><u>Totes</u></b>	<b><u>Bulk</u></b>
Product Item #		85201	85203	85204	85206	85207	85207