

# TECHNICAL DATA SHEET – BDQ-230

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## Description Product

2-cycle engine oil, TC-W3.

## Features and benefits

**BDQ-230** is a 2-cycle engine oil which is a readily biodegradable<sup>1</sup> formula that passed the National Marine Manufacturers Association (NMMA) certification test for 2-cycle engine oil and the requirements for high performance air-cooled engines. **BDQ-230** meets and exceeds Motorcycle APITC and Husqvarna Chain Saw requirements. This **Low-Smoke formula** contains additives to improve fuel stability.

**BDQ-230** has been especially designed to operate in water-cooled gasoline engines for the boating industry, and in 2-cycle air-cooled engines for general-purpose equipment and for personal and recreational transportation, such as motorcycles, snowmobiles, chain saws, and lawn and garden equipment.

**BDQ-230** does not utilize a solvent to increase gasoline miscibility. This feature offers a significant safety advantage since the product has a flash point of 365°F (185°C) and is, therefore, not classified as flammable or combustible according to OSHA or D.O.T regulations. **BDQ-230** is readily biodegradable and has the potential of one product servicing both water-cooled and air-cooled 2-cycle engines.

## Typical Characteristics

Property	Typical Value	Method
Viscosity, cSt 100°C	9.0	ASTM D-445
Flash point, °C	185	ASTM D-93
Pour point, °C	-36	ASTM D-97
TBN (mg KOH/gm)	2.94	ASTM D-2896

## TC-W3 Program Summary

Bench Tests	Typical Value	Method Pass/Fail Criteria
Cloud point, °C	-29	ASTM D-2500
Compatibility	Clear	Homogenous after mixed separately with each reference oil (*.**) and stored 48 hours
Brookfield (fluidity) cP at -25°C	5130	ASTM D-2988
Evaluation	Pass	less than 7500 cP
Miscibility (inversions at -25°C)		ASTM D-4682
Candidate/reference	75/95	no more than 10% inversions
Evaluation	pass	than reference*
Rust test, %		NMMA Procedure
Candidate/reference	3.16/4.04	equal to or better than reference*
Evaluation	pass	NMMA Procedure
Filterability, % Change, Candidate/Evaluation	+6.5/ pass	decrease in flow not greater than 20%

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

# TECHNICAL DATA SHEET – BDQ-220

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## 2-CYCLE ENGINE OIL PROGRAM SUMMARY

### ENGINE TEST RESULTS :

OMC 40 Horsepower Test (98 hours)		Not lower than 0.6 below same ratings of reference*
Average Piston Varnish, Candidate/Reference	9.2 / 8.9	
Top Ring Stick, Candidate/Reference	10.0/9.5	
Evaluation	Pass	
OMC 70 Horsepower Test (100 hours)		Equal to or better than some ratings of reference***
Average Piston Deposits, Candidate/Reference	6.5 / 5.0	
Second Ring Stick, Candidate/Reference	9.6 / 7.6	
Evaluation	Pass	
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 90% confidence level
Torque Drop, lb-in. Candidate/Reference/Eval.	5.18 / 5.43 / Pass	
Yamaha CE50S Preignition Test (100 hours)		Equal to or better than reference*
Major Preignitions, Candidate/Reference/Eval.	1 / 1 / Pass	

\* #93738 (TC-W II reference oil)

\*\* XPA-3259

\*\*\* OR-71591

### Packaging

200 mL

1 liter

1 gallon

### Standard Disclaimer

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Bio-Lub Canada Inc.

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