

TECHNICAL DATA SHEET – BDQ-710

BIO-LUB CANADA INC.

650, Route 349 Nord, Saint-Alexis-des-Monts (Québec) Canada J0K 1V0

Phone : 819-265-2026, Fax : 819-265-2464

www.bio-lubcanada.com

Description Product

BDQ-710 is a hydraulic oil ISO 46 made from vegetable oil. This hydraulic oil is environmentally friendly, can be used for construction machinery, excavation, farming, forestry and other areas where hydraulic oil should be used.

Features and benefits

BDQ-710 is a hydraulic oil ISO 46 BIODEGRADABLE made for PREVENTIVE PROTECTION OF ENVIRONMENT in all areas of use especially in high risk areas such as protected water areas. A burst pipe or a similar accident can have serious consequences for wildlife and flora. In such cases, **BDQ-710** helps reduce environmental pollution to an acceptable minimum.

BDQ-710 is SAFE, because it is composed with mixture biodegradable oil and less toxic additives. The yield levels are still as good compared to standard hydraulic oil (not biodegradable).

BDQ-710 is shear stable and maintains his character multi-grade during use.

Packaging

20 liters (Pail)

205 liters (Drum)

Physical and chemical properties

Appearances and odor : Yellow liquid mild odor

Viscosity at 40°C : 43.8cP

Viscosity at 100°C : 9.67cP

Viscosity index : 199

Flash point : 243°C

Pour point : -40°C

Density : 0,88g/cm³ at 15°C

Solubility in water : Insoluble

Caution

Product may ignite if heated.

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Hydraulic oil **BDQ-700, 710** and **720** are ultimately biodegradable¹ vegetable based formulas that replace mineral oil based hydraulic fluids.

These fluids are formulated to perform in hydraulic systems that require anti-wear, anti-rust, anti-oxidation, anti-foam, and demulsibility properties. They are highly inhibited against moisture and rusting in both fresh and sea water and pass both A and B sequences of the *ASTM D-665 Turbine oil rust test*. Incorporating specific additives into the formula increases the viscosity index past synthetic levels. Zinc-free additive systems have also been developed that are environmentally friendly and meet or exceed pump requirements.

Hydraulic oils **BDQ-700, 710** and **720** are designed for use in mobile and stationary hydraulic vane, piston and gear-type pumps and have shown to have exceptional anti-wear performance. Very little wear was encountered, 0 to 25 mg in accelerated biobased tests using Dension-5D, Vickers 20VQ, 35VQ-25 (M-2950-S) and V-104C (ASTM D-2882) pump stand tests at pressures and temperatures ranging from 2000 to 3000 psi and from 150°F to 210°F. The anti-wear performance exceeds the requirements of U.S Steel 126 and 127, the load stage 10 in the FZG (DIN51354), DIN 51524 and GM (LS-2). They also meet the requirements for ashless GL-3 gear oil in reduction units gear sets where they meet the viscosity ranges. These hydraulic oils meet and exceed the U.S federal specification AA-59354 as a replacement specification MIL-H-46001D.

The high viscosity index of **BDQ-700, 710** and **720** naturally improves the thermal shear stability of the formula and increase load capacity. With its extremely low volatility increases the flash point and fire safety features in the formula. **BDQ-700, 710** and **720** are formulated to provide seal conditioning for longer seal life and to reduce oil leakage from the system. These fluids should be used in hydraulic system where low toxicity and biodegradability properties are required. Base oils and additives used in these products pass and exceed behaviour safely the criteria of acute toxicity (LC-50). These criteria were adopted by the U.S. Fish and Wildlife Service and U.S. Hydraulic fluid **BDQ-700, 710** and **720** are environment responsible lubricants that are formulated from renewable agricultural plant resources. We believe that the future of Earth lies in the use of renewable materials.

¹Ultimate biodegradation (Pw1) within 28 days in ASTM D-5864 - Aerobic Aquatic Biodegradation of lubricants.

The test data below show that hydraulic oil **BDQ-710** hydraulic oil ISO 46 provide high performance in a wide variety of stationary and transportation equipment that operate in broad ranges of environmental conditions. In equipment operating outside, wear from poor cold temperature pumpability, surge loads, moisture, and dusty environments are more prominent. **BDQ-710** is formulated to improve performance in equipment that require excellent anti-wear, hydrolytic stability and excellent pumping characteristic at low temperature such as -35°C. In addition, the following tests on the hydraulic oil ISO 46, **BDQ-710**.

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Typical specification	Method	ISO 46	Spec. Requirements
Specific gravity at 15.6°C	ASTM D-287	0.88	Report
Viscosity at 40°C	ASTM D-445	43.8	Note 1
Viscosity at 100°C	ASTM D-445	9.67	Note 1
Viscosity at -15°C, Brookfield	ASTM D-2983	1100 cP	Note 1
Viscosity at -25°C, Brookfield	ASTM D-2983	3,000 cP	Note 1
Viscosity at -30°C, MRV TP1	ASTM D-4684	8000 cP	10W=<60,000
Viscosity at -35°C, MRV TP1	ASTM D-4684	11,000 cP	5W=<60,000
Viscosity index	ASTM D-2270	199	90(min)
Pour point	ASTM D-97	-40°C	Note 1
Flash point (COC)	ASTM D-92	243°C	198°C(min)
Fire point (COC)	ASTM D-92	268°C	218°C(min)
Hydrolitic stability, Copper Wt. Loss (mg)	ASTM D-2619	0.0208	0.2
Copper Appearance		1B	Report
Change in Acide Number		0.20	Report
Water layer		3.0	4
% Insolubles		0.001	Report
Foam Sequence I, II, III (10min)	ASTM D-892	0 Foam	0 Foam
Rust Prevention Distilled Water	ASTM D-665	Pass	Pass
Syn. Sea Water		Pass	Pass
Copper Corrosion Strip 3hr at 100°C	ASTM D-130	1B	D IN 515242 (max)
Rotary Bomb Oxidation, (minutes)	ASTM D-2272	360	USS 120 (min)
Oxidation Stability (Pressure Differential Scanning Calorimeter) min	ASTM D-5483 Modified	70.0(165°C)	Note 2
Neutralization Number mg KOH/g	ASTM D-974	<0.4	1.5(max)
Swell of Synthetic NBR-L Rubber, % (Avg.) Volume Change (%)	DIN 53538, Part 1	6.0	0 à 12
Shore A Hardness Change (%)		-4	0 à -7
Filterability A-No Water (s) (Avg.)	Denison TP02100 HF-0 Requirement	268	600 (max)
B-2% Water (s) (Avg.)		271	2xA (max)
Demulsibility, ML oil/water/Emulsion	ASTM D-1401	40/40/0	40/37/3 (max)
4 Ball Wear, 1h, 167°F, 1200 RPM, 40 Kg	ASTM D-4172	(10 minutes) 0.3-0.4	(30 minutes) USS 127 0.5 (max)
FZG Tests	DIN 51354	12	US.Steel 10 (min)
Biodegradation Classification	ASTM D-5864	Ultime PW1	Ultimate PW1
Environmentally Friendly	ISO 15380	Yes	
USDA Biobased Tested Environmental Management System	New Carbon ISO 14001 :1996	Yes Yes	meets/exceeds over 50%
Note 1 Viscosity Sufficient for Application Note 2 Not Required			

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