



## Renewable Lubricants, Inc.

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### Bio-Corrosion Inhibitor™ (BCI™) & Bio-Volatile Corrosion Inhibitor™ (BVCI™) Products



*"Biobased Lubricants that Perform Like Synthetics"*

#### **Bio-Medium Preservative Lubricant:** Meets Mil-PRF-3150D

A BCI™ product that gives outstanding corrosion protection as measured by humidity cabinet and salt spray test. Provides protection on ferrous and non-ferrous metals and is non-staining. Excellent as a wire rope lubricant, preservative lubricant, etc. on sheet steel and steel parts and is more fire resistant than mineral base formulas with the same viscosity. Also, excellent on copper corrosion test (Passed Clean 1A).

#### *TYPICAL TEST DATA*

ASTM D-445 105 cSt @ 40°C      ASTM D-92 Flash Point 224°C      ASTM D-97 Pour Point -30°C

Humidity Cabinet<sup>1</sup> Days/Fail      Sandblasted Steel Panels 60+days      Polished Steel Panels 60+days

Polished Aluminum 24 days

5% Salt Spray<sup>2</sup> Hours/Fail      Sandblasted Steel Panels 48 hours      Polished Steel Panels 80 hours

Polished Aluminum 240 hours

<sup>1</sup>ASTM D-1748      <sup>2</sup>Federal Standard 791b Method 4001.2

#### **Bio-Acid Fume Rust Preventative Fluids:**

The Bio-Acid Fume Rust Preventative Fluid is a Bio-Corrosion Inhibitor™ (BCI™) product that provides a corrosion inhibiting, waxy film that is especially effective in protecting ferrous metals in salt and acid fume (hydrochloric acid) environments and against high humidity. It is non-staining and water displacing and is also effective on galvanized steel. In addition to corrosion protection, this product is a non-chlorinated metal working fluid that provides extreme pressure, anti-wear, and lubricity performance in heavy duty stamping and drawing applications. This is an excellent BCI™ product that can be used in many industrial and commercial applications where corrosion inhibiting, waxy films are beneficial.

#### *TYPICAL TEST DATA:*

Med-Light Film ASTM D-445 40 cSt @ 40°C meets Ford Specification M-14B90A

Light Film ASTM D-445 5 cSt @ 40°C for easier cleaning

Med-Light Film

Humidity Cabinet<sup>1</sup> Days/Fail 40      Water Displacement<sup>2</sup> 1:1 Dilution-Pass Water Storage-Pass

Light Film

Humidity Cabinet<sup>1</sup> Days/Fail 60+      Water Displacement<sup>2</sup> 1:1 Dilution-Pass Water Storage-Pass

<sup>1</sup>ASTM D-1748 using polished cold rolled steel panels      <sup>2</sup>Mil-C-16173

#### **Bio-Water Emulsifiable™ Corrosion Inhibitor:**

An outstanding, water emulsifiable corrosion inhibitor with BCI technology that provides a light film. It may be used in many metalworking applications where excellent in-house corrosion protection and easy cleaning of parts is essential. When added to water, this BCI product provides the following typical test results.

#### *TYPICAL TEST DATA*

ASTM D-445 53 cSt @ 40°C      ASTM D-92 Flash Point 270°C      ASTM D-97 Pour Point -20°C

Emulsion Base in Water (%)	Humidity Cabinet <sup>1</sup> Days/Fail		5% Salt Spray <sup>2</sup> Hours/Fail	
	Sandblasted Panels	Polished Panels	Sandblasted Panels	Polished Panels
10.0	40	55	24	48
15.0	55	60+	40	72
20.0	60+	60+	48	96
25.0	60+	60+	72	120

<sup>1</sup>ASTM D-1748

<sup>2</sup>Federal Standard 791b Method 4001.2

**Bio-Volatile Corrosion Inhibitors™:****(BVCI™ Ultra Thin Film)**

BVCI™s are outstanding water displacing, non-staining rust preventatives. BVCI™s will rapidly separate water displaced from metal surfaces after machining operations or after alkali cleaning. Ultra thin, highly protective films can be applied easily by dipping, spraying, or brushing. These ultra thin films are effective in the protection of ferrous and non-ferrous metals from atmospheric corrosion even under conditions of high humidity. When BVCI™s are agitated vigorously with water or alkaline solutions, the water will separate completely and rapidly. (ASTM D-445 2 cSt to 7 cSt viscosity range- Non Flammable Flash Points)

*TYPICAL TEST DATA* <sup>1</sup>ASTM D-1748 using polished cold rolled steel panels <sup>2</sup>MIL-C-16173E <sup>3</sup>MIL-C-22235 BLP=Borderline Pass

Humidity Cabinet <sup>1</sup>		Water <sup>2</sup> Displacement	Sandwich Stain Test <sup>3</sup>
Thickness (mils)	Days/Fail		
0.02	30+	BLP	Pass
0.03	40+	Pass	Pass
0.05	50+	Pass	Pass
0.06	60+	Pass	Pass

**Bio-Concrete Mold Release™ Fluids (Soy Based):**

A BCI™ product that is highly effective as a mold release or parting compound for cast concrete products. This biobased formula results in smooth finishes on concrete cast from slurries. In addition to its performance as a parting compound, the product is effective as a rust preventative, protecting the metal forms from rusting during use and storage. The absence of rust on the forms eliminates staining of the formed piece and serious loss of the forms themselves. It allows the metal forms to stay clean; "hang-up" or excessive deposits on the form edges are virtually eliminated. This product is also biodegradable, which is highly important because of loss into the environment. Because of the high flash, the product is safer than petroleum products (more fire resistant).

*TYPICAL TEST DATA*

ASTM D-445 5.3 cSt @ 40°C      ASTM D-92 Flash Point 220°C      ASTM D-97 Pour Point -10°C

**Bio-Penetrating Lubricant/Corrosion Inhibitor (Fingerprint Removal Spec):**

A light biobased lubricant that cleans and helps keep deposits from forming on weapons, while preventing corrosion. Provides a light lubricating film. Meets Mil-C-15074E Corrosion Preventative, Fingerprint Remover Specification. An excellent product for many industrial applications where a light penetrating lubricant/corrosion inhibitor is needed.

*TYPICAL TEST DATA*

ASTM D-445 9.4 cSt @ 40°C      ASTM D-92 Flash Point 115°C      ASTM D-97 Pour Point -20°C

**Bio-Cleaning Compound/Corrosion Inhibitor (Gun Bore Cleaner):**

The BCI product meets Mil-PRF372D Gun Cleaning Compound for bore of small arms and automatic aircraft weapons. Excellent for applications where cleaning and corrosion prevention are necessary. Better cleaning ability than Mil-C-15074E Corrosion Preventative Product.

*TYPICAL TEST DATA*

ASTM D-445 4.4 cSt @ 40°C      ASTM D-92 Flash Point 110°C      ASTM D-97 Pour Point -15°C

**Bio-General Purpose Cleaner/Degreaser (Water Emulsifiable) (Soy Based):**

An excellent biobased, biodegradable product that can be used to replace petroleum solvents for cleaning parts and equipment. May be used as a straight solution or may be solubilized with water before use. When used as a straight solution, the product cleans and breaks down easily with a garden hose or pressure washer. This product also provides short term corrosion protection.

*TYPICAL TEST DATA*

ASTM D-445 36 cSt @ 40°C      ASTM D-92 Flash Point 270°C      ASTM D-97 Pour Point -10°C

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.

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**Availability    F.O.B. :Hartville, Ohio, USA    1 Gallon    5 Gallon Pails    Drums    Bulk**