



## Renewable Lubricants, Inc.

476 Griggy Rd., P.O. Box 474

Hartville, Ohio 44632-0474

Voice: 330.877.9982 Fax 330.877.2266

Web: www.renewablelube.com

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



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

RLI Item # 86200

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

#### *TYPICAL TEST DATA*

Emulsion Base in Water (%)	ASTM D-92 Flash Point 160°C		ASTM D-97 Pour Point 0°C	
	Humidity Cabinet <sup>1</sup> Days/Fail	Sandblasted Panels	Polished Panels	5% Salt Spray <sup>2</sup> (Fog) Hours/Fail
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 791D Method 4001.3

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

BCI™ product, that gives outstanding corrosion protection as measured by humidity cabinet and salt spray test. It 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. Excellent on copper corrosion test (Passed Clean 1A).

#### *TYPICAL TEST DATA*

RLI Item #	Bio-Med Preservative ISO 40	86040	Bio-Med Preservative ISO 46 + Tack	86050
	Bio-Med Preservative ISO 10	86010	Bio-Med Preservative ISO 100 + Tack	86060
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> (Fog) 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 791D Method 4001.3

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

Bio-Acid Fume Rust Preventative Fluids are Bio-Corrosion Inhibitor™ (BCI™) products that provide 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. They are non-staining and water displacing and effective on galvanized steel. RLI Item # 86140 is a specially designed Biodegradable no VOC formula that meets the corrosion protection film for MIL-PRF-16173, Class II, Grade 3. These are excellent BCI™ products that are environmentally non-toxic and can be used in many industrial and commercial applications where corrosion inhibiting, waxy films are beneficial. In addition to corrosion protection, the products are used as non-chlorinated metal working fluids that provide extreme pressure, anti-wear, and lubricity performance in stamping and drawing applications and can also be used as wire rope and chain lubricants. (Recommended cleaners: clean surfaces with Bio-Parts Cleaner/Degreaser™ or petroleum solvents; alkali water based cleaners are not recommended).

#### *TYPICAL TEST DATA:*

<b>Med-Light Film</b>	RLI Item # 86110	ASTM D-445 40 cSt @ 40°C meets Ford Specification M-14B90A
<b>Light Film</b>	RLI Item # 86140	ASTM D-445 15 to 30 cSt @ 40°C
<b>Light Film</b>	RLI Item # 86100	ASTM D-445 5 cSt @ 40°C for easier cleaning
Humidity Cabinet <sup>1</sup> Days/Fail 60+		Water Displacement <sup>2</sup> 1:1 Dilution-Pass
	<sup>1</sup> ASTM D-1748 using polished cold rolled steel panels	<sup>2</sup> Mil-C-16173
5% Salt Spray <sup>2</sup> (Fog) ASTM D117 Hours/Fail		Polished Steel Panels >80 hours
	<sup>2</sup> Federal Standard 791D Method 4001.3	
HCl Acid Fume Rust Protection, Hours/Fail		>120 hours

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

RLI Item # 86300

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 3 cSt to 5 cSt viscosity range- Non Flammable Flash Points). These safe ultimate biodegradable products contain approximately 25 to 30% Volatile Organic Compounds (VOCs).

*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

Humidity Cabinet<sup>1</sup>

Thickness (mils)	Days/Fail	Water <sup>2</sup> Displacement	Sandwich Stain Test <sup>3</sup>
0.03	30+	Pass	Pass
0.07	40+	Pass	Pass
0.15	50+	Pass	Pass
0.60	60+	Pass	Pass

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

RLI Item # 86500

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 for Corrosion Preventative and Fingerprint Removal. An excellent product for many industrial applications where a light penetrating lubricant/corrosion inhibitor is needed.

*TYPICAL TEST DATA*

ASTM D-445 22 cSt @ 40°C

ASTM D-93 Flash Point 115°C

ASTM D-97 Pour Point -20°C

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

RLI Item # 86600

This 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 10 cSt @ 40°C

ASTM D-93 Flash Point 110°C

ASTM D-97 Pour Point -15°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.

Patented Product: US Patent 6,383,992, US Patent 6,534,454, US Patent 6,624,124, US Patent 6,620,772 with additional Pending and Foreign Patents

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**Availability****F.O.B. :Hartville, Ohio, USA****1 Gallon****5 Gallon Pail****Drum****Totes****Bulk**