

**ENERGEX Limited****LABORATORY REPORT**

REPORT No.:  
03/3/012  
Page 1 of 2 Pages

**HIGH VOLTAGE TESTING OF LANOLIN BASED LUBRICANTS**

Submitted by: Mr Tony Ey  
Pro-Lan  
2/13 Aranda Street  
Slacks Creek Qld. 4127

Date of Test: 30 April 2003

Test Equipment: 100kV AC Test Set  
Make: Hipotronics  
Serial No.: TL766

Protected Milliamp Meter  
Make: ENERGEX  
Serial No.: 12217

Test Sample: a) Pro-Lan PLM Medium Industrial Liquid  
b) Pro-Lan PLH Heavy Industrial Liquid  
c) Pro-Lan Anti-seize LTA Grease

**Test Method****DRY LEAKAGE TEST**

A suitable length of fibreglass rod (approximately 700mm long) was cleaned of any surface contaminants with alcohol. The fibreglass rod was placed on the testing frame with 70KV applied to both ends and with the centre earthed for one minute. The standing leakage current was measured and recorded.

Each of the products to be tested were applied to the fibreglass rod and tested as above in turn. Refer to Table 1 for test results.

**WET LEAKAGE TEST**

The fibreglass rod was cleaned of surface contaminants with alcohol. After placing on the testing frame, water was sprayed onto the surface of the fibreglass rod and allowed to drip for 1 minute. The test voltage was increased until 70kV was achieved. The standing leakage current was measured and recorded.

Each of the products to be tested was applied to the fibreglass rod in turn and water sprayed onto the surface. After 1 minute the test voltage was increased until 70kV was achieved. Refer to Table 2 for test results.

**Environmental Conditions:**

Relative Humidity measured 58%  
Ambient Temperature measured 29°C

**Uncertainty of Results:**

± 2% for applied AC Voltage at 95% confidence level.  
± 5% for recorded AC Leakage at 95% confidence level.

Date: 5 June 2008

Tested By: *Steve Ferris*Checked By: *iferris*

## CONTINUATION OF LABORATORY REPORT No 03/3/012

Page 2 of 2 Pages

- Notes:
1. Before application of each product the fibreglass rod was cleaned of contaminants.
  2. Products applied by spraying were allowed to dry for a minimum of one minute before testing.
  3. Test voltage was held for 1 minute and leakage recorded.

**TABLE I - DRY LEAKAGE TEST 70kV/300mm**

PRODUCT	LEAKAGE CURRENT (mA)
None (standing leakage)	0.60
Pro-Lan PLM Medium Industrial Liquid	0.70
Pro-Lan PLH Heavy Industrial Liquid	0.70
Pro-Lan Anti-seize LTA Grease	0.75

**TABLE II - WET LEAKAGE TEST 70kV/300mm**

PRODUCT	LEAKAGE CURRENT (mA)
None (standing leakage)	0.60
Pro-Lan PLM Medium Industrial Liquid	1.70 (note 4)
Pro-Lan PLH Heavy Industrial Liquid	1.70
Pro-Lan Anti-seize LTA Grease	1.75 (note 5)

- Notes:
4. Flashover occurred at 67kV. Test set was reset and test voltage raised to 70kV and held for 1 minute without further flashover occurring.
  5. Flashover occurred at 68kV. Test set was reset and test voltage raised to 70kV and held for 1 minute without further flashover occurring.

--o0o--

Date: 5 June 2003

Tested By: *Steve Ferris*Checked By: *[Signature]*



A Commitment to Quality

**Date of Issue:** 01 July 2003  
**Report No:** QRH03-4165  
**Client:** Pro-Lan  
**Attention:** Tony Ey  
**Address:** PO Box 1080  
 Slacks Creek QLD 4217  
**Order No.** Cash  
**Job Description:** Surface coating thickness measurements

ETRS Pty Ltd  
 A.C.N. 006 353 046  
 A.B.N. 21 006 353 046  
 1 Aciri Street  
 Riverview Queensland  
 Australia 4303  
 PO Box 242  
 Booval Queensland  
 Australia 4304  
 Phone (07) 3282 2011  
 Fax (07) 3816 1107

**Identification:** Sample 1 - 1 litre container of liquid PLH Heavy Industrial, dated 11/11/2002

**Test Specification(s)** Coating thickness was determined using gravimetric techniques.

### RESULTS

The Metallographic observations are given in Figures 1.

Sample	Coating thickness (g/m <sup>2</sup> )	Coating thickness μm (microns) <sup>1</sup>
1	14.6	15.9

### COMMENTS

It should be noted that the product was applied in liquid form to vertical, polished metal surface until run-off occurred. Results will tend to vary depending on method of application (ie. aerosol spray, liquid by brush etc.) and the profile of the metal surface to which the product is applied.

Roger Mendel  
 Senior Materials & Process Chemist

<sup>1</sup> Calculation assumes density of the lanolin grease coating layer to be 920Kg/m<sup>3</sup>.