

DIELECTRIC TEST

Mr. Dave Simonson
 AMREP, Inc.
 945 Pleasant Run Road
 Lancaster, Texas 75146

RE: Dielectric Strength of Red Grease.

Dear Mr. Simonson

Following are the results of the dielectric strength tests and insulation resistance tests for the samples of Red Grease which we received on Friday, July 20. As you know there is no standard test for the dielectric strength of grease; therefore, we modified the ASTM D877-82 Standard, Dielectric Breakdown voltage of Insulating Liquids, by using a 1 inch diameter, flat surfaced brass electrodes without a test cup. Tests were conducted at 0.10, 0.25, 0.50 and 1.00 inch gaps between the electrodes at 500 volts per second rate of rise. The "referee testing method" was employed with one breakdown test performed on each of five successive samples of grease.

The sample size was two inches in diameter and a minimum thickness of one inch plus the gap distance. The sample was then placed on one electrode and the other electrode was pressed into the sample and stopped at the appropriate gap spacing.

Before each breakdown test an insulation resistance test was conducted at 1,000 volts D.C. for a time duration of one minute.

Grease and ambient temperatures during the tests were 23.7° C, and the relative humidity was 60%.

Tabulated below are the breakdown voltages, in kilovolts, for each test and the insulation resistance, in megohms, before each breakdown test for each gap spacing.

Dielectric Breakdown Voltage (KV) A.C.

Gap Spacing	Test #1	Test #2	Test #3	Test #4	Test #5	Mean	Standard Deviation
0.10 inch	4.2	3.1	5.3	4.2	5.6	4.5	0.99
0.25 inch	8.9	9.5	9.2	10.0	9.4	9.4	0.41
0.50 inch	20.0	18.0	21.5	19.0	18.5	19.4	1.39
1.00 inch	33.8	29.2	32.2	32.0	32.8	32.0	1.72





Insulation Resistance (megohms)

Gap Spacing	Test #1	Test #2	Test #3	Test #4	Test #5	Mean	Standard Deviation
0.10 inch	23.5	24.2	23.1	24.5	26.8	24.4	1.44
0.25 inch	29.7	28.5	27.1	26.8	27.3	27.9	1.20
0.50 inch	40.4	41.2	37.5	37.1	39.0	39.0	1.77
1.00 inch	63.1	59.3	52.1	54.0	60.8	57.9	4.64

The foregoing tests were made with a Hipotronics dielectric strength tester, model #OC60A, and a Multi-Volt insulation tester, model # MG-251.

The dielectric strength of air for the same gap spacing as used above is considerably less than the dielectric strength of the grease as obtained in the foregoing tests. Therefore, it is reasonable to conclude that the dielectric strength of the grease would be greater were it possible to remove the random air bubbles from within the grease.

Respectfully,

Richard C. Rush / RB
Richard C. Rush
Laboratory Manager

RR/pe

I certify that the foregoing tests were performed under my supervision and control.

Richard W. Hood
Richard W. Hood, P.E.

