

December 7, 1993

To whom it may concern:

The attached third-party test involved three different sets of oil samples, two of which contained one sample of pure oil and the same oil with MT-10 Metal Treatment™ in a three percent (3%) by volume ratio. The oil used was Texaco HD-57 journal oil, which is the American Association of Railroad's (AAR) specified oil for traction motor journal bearings.

The tests were conducted independently to provide evidence to support our claims that MT-10 Metal Treatment™, when used in the proper and recommended ratio, is **not** corrosive to the system to which it is added.

The first test, ASTM D664, is described in the attached laboratory report. The results show there was no acidic difference between the oil itself and the oil with three percent MT-10 added.

The next test described in the report is ASTM D130. This test involves the oil's ability to affect copper in a corrosive manner. Once again, the results indicate there was no difference between the oil itself and the oil with three percent MT-10 added.

The third and final test described, ASTM D2893, involves only one sample of the same oil with three percent MT-10 added. In this test, the oxidation characteristics were recorded as a result of exposing the oil and MT-10 to a high temperature of 95°C for 312 hours. At the end of this test, a Kinematic viscosity is calculated as follows:

$$\text{Viscosity Increase, \%} = [(B - A)/A] \times 100$$

The results indicate that the total increase in Kinematic viscosity is less than one percent (1%), which shows outstanding characteristics of the oil and MT-10 together.

It is suggested that these tests may be duplicated by any concerned party in accordance with the ASTM standards and guidelines, and the reproduction will yield the same results. This report is being published in accordance with the expected guidelines of usage from Muscle Products Corp. insomuch that this report shall be provided to any third party in its entirety without alteration.

If you have any questions involving these test procedures or the results, please feel free to contact us.

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# SOUTHWEST RESEARCH INSTITUTE

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December 5, 1993

Mr. George Fennell  
Muscle Products Corporation  
112 Fennell Drive  
Butler, PA 16001  
FAX: 412-283-8310  
PHONE: 412-283-0567

Re: Laboratory Testing

Dear Mr. Fennell:

The three samples you submitted for laboratory testing have been completed. Sample No 001 and 002 were analyzed by ASTM D664, Sample No. 003 and 004 by ASTM D130, and Sample No. 004 by ASTM D2893. The test results are listed in the table provided below.

SAMPLE ID	TEST METHOD	RESULTS
Sample No. 001	D664	0.21 KOH mg/g
Sample No. 002	D664	0.21 KOH mg/g
Sample No. 003	D130	1b
Sample No. 004	D130	1b
Sample No. 005	D2893	0.80% increase

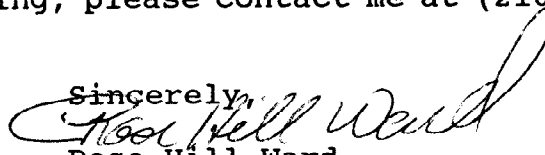
**ASTM 664:** This test determines the acidic components present in the petroleum product sample. The results are reports as the amount of milligrams of potassium hydroxide per gram of sample required to titrate a sample.

**ASTM D130:** This test method determines the corrosiveness of a sample to copper. A polished copper strip is immersed in the sample at a specific temperature and time length. The copper strip is evaluated with the use of ASTM standard copper strips.

**ASTM D2893:** This test method determines the oxidation characteristic of an extreme-pressure fluid lubricant, gear oil or mineral oil. The viscosity of the sample is taken before and after oxidation, giving a calculate kinematic viscosity increase.

If there are any questions concerning this report, if we may be of assistance with any further testing, please contact me at (210) 522-2024.

Sincerely,



Rose Hill Ward  
Research Scientist  
Petroleum Products Research  
Automotive Products and  
Emission Research Division

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