

Monsanto

Monsanto Company
6670 East Flotilla Street
Los Angeles, California 90022
(213) RAYmond 3-2482

January 28, 1970

Mr. Rick Richards
Lever Brothers, Inc.
6300 Shulla
City of Commerce, Ca.

Dear Rick,

Following our meeting of Tuesday, January 27, I believe we concur in the decision that the present charge of Therminol FR-2 must be drained from the system and replaced with a new charge of Therminol. The basis for this is the results which were obtained on the sample of Therminol taken on 1/12/70. These results are as follows:

Viscosity @ 100°F. - 93.5 cs. ✓

Acid No. - 2.3

Moisture - 60 ppm

Hi-boiler - 11.5% ✓

As we discussed in detail, the extremely high viscosity value plus a hi-boiler content in excess of 10% indicate that severe fluid degradation has taken place. Furthermore, it is evident that this degradation has taken place in the last 6 months since we have sample results on hand indicating that fluid viscosity was only 38cs. as of last June (8/12/69 report of these results is attached). As reported to you, we believe this rapid fluid degradation is primarily due to the interaction of stearic acid and Therminol although the exact kinetics of this reaction is unknown. As reported to you in the 8/12/69 memo, an estimated 5% contamination of a high molecular weight organic acid was found in the Therminol, though you were not able to find the source of such contamination in a shutdown of the system. In addition to the contamination problem, degradation was probably aided by the fact that you are operating at 575-580°F., which closely approaches the limit of thermal stability for the Therminol FR fluids. Although the high temperature may have contributed to fluid degradation, we would certainly not expect such severe degradation in a short period

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