

b): GEB/RD/MTJ/SS
B. B. Langton - EVERETT
W. G. Martin - NEW YORK

May 31, 1967

Mr. M. G. Gollaher
CHARLES PFIZER & COMPANY, INC.
Groton,
Connecticut 06340

Dear Mr. Gollaher:

Please excuse the delay in reporting results on the sample of THERMINOL FR-1 submitted to us for evaluation April 14, 1967.

	<u>Sample</u> <u>4/12/67</u>	<u>New THERMINOL FR-1</u> <u>Specifications</u>
Viscosity @ 100°F., centistokes	22.8	18
Acid Number, mgKOH/g.	Neutral	<0.01
Moisture, PPM	462	<50
Hiboiler, %	0.5	None

Values for viscosity, acid number and hiboiler are well within our tolerable limits for used fluid. The moisture level, however, is quite high which is probably the result of a cycling operation described in your letter. We find that moisture can be adequately reduced to the 150 PPM level by venting a slip stream of hot fluid from the discharge side of the circulating pump to the vapor space of the expansion tank. Continued recirculation of hot to the expansion tank will heat the contents of the tank to the point where moisture will be driven off through the atmospheric vent. The increased moisture level may also be due to the possible suspected ruptured tube in the cooler thus allowing water to enter the THERMINOL loop.

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THERMINOL FR-1 is satisfactory for use at 500°F. and can be used to 600°F. in properly designed systems. You are presently using Bayonet type electrical heaters which frequently have watt densities in excess of 18-20 watts/sq. in. Associated with high watt densities are high surface temperatures which can lead to somewhat increased fluid decomposition. As a general rule of thumb, we would like to see watt densities of the order of 12 watts/sq. in. with corresponding flow rates of approximately 1 gal./min./kilowatt heat input.

You are in a much better position to evaluate your system than I, but from the information provided in your letter of April 14 I would not expect you would have difficulty using the THERMINOL FR-1 in your system.

If we can be of further service please feel free to call on our Fluids Specialist in your area, Mr. Bill Martin at:

Monsanto Company
Everett Station
Boston, Massachusetts 02149

Telephone (617) 387-5010

or me here in St. Louis.

Very truly yours,

Donald E. Roush
Engineering Specialist
Functional Fluids

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