St. Louis - General Offices

February 16, 1961

Aroclor 1248 Heater

Robert C. Canfield
Krummrich Plant

Dear Bob:

This is to confirm our conversation of this morning in which you requested information concerning the operation of the 1,000,000 BTU/hr. Aroclor heater in the north area at a bulk temperature of 610-620°F. I understand that these temperatures are needed only for a two months production run of a special chemical.

I am attaching a copy of a graph showing the change of viscosity vs. time at various bulk temperatures above 600°F. obtained by Organic Research using a static steel bomb.

The second graph is a plot showing the maximum fluid life vs. temperature. If the correlation is extrapolated linearly, it indicates that Aroclor is stable up to temperatures of 620°F. The curve also has been extrapolated to show a stability of approximately 608°F. The actual stability probably lies between the two extrapolations, however, sufficient data is not available at this time to substantiate any definite point. We do know, however, that the material is infinitely stable at 600°F.

The only heater that I know of that is operating above 600°F. is a unit at the Hatco Chemical Company, Fords, New Jersey, where the bulk operating temperature is 610°F. The viscosity of the fluid has increased from 70 SUS to 145 SUS in eight months time. Based on the decomposition data shown on the two graphs, I believe the increase in viscosity is due to the high film temperatures in this heater rather than from the decomposition at the bulk operating temperature. I have been attempting to get the fabricator of the heater to conduct test runs on their heater for quite some time, as I am of the opinion that the heater is not satisfactorily designed for Aroclor.

You might also check with Dave Nelson in the P_2S_5 area as I understand that he also operates his Aroclor system at temperatures above 600°F. for short periods of time.

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Since the flux rates in the heater will be very low during the time of operation, I see no apparent reason for not using the heater for this purpose. However, since there is a possibility of a more substantial amount of Aroclor decomposition and HCl liberation, I would suggest that you continuously vent the system through the vent tank by taking a full flow through the 1" purge line from the high pressure side of the recirculation line. By all means be sure to keep the moisture below the 100 ppm maximum during operation.

Please let me know if I can be of any assistance to you.

Bell Davis

W. J. Davis

WJD:nlk

Attachments

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