bcc C. Paton/J. J. Roder
1800 D. R. Hansen
5120 J. A. Kriss

(23)

October 26, 1971

Mr. R. Courtney
Ridgeway Lithograph
4111 150th Ave. N.E.
Redmond, Wash. 98052

Dear Mr. Courtney:

This letter concerns the conversion of your heat transfer unit from Therminol FR to Therminol 55

Literature on Therminol 55 is enclosed. We are arranging for two drums of Therminol 55 to be sent to your attention at no charge. You should drain the Therminol FR from your system thoroughly -- this means removing all of the FR fluid. Therminol 55 can then be added and operation of the system resumed.

We would like to remind you that Therminol 55 is not classified as a fire resistant heat transfer fluid. Consequently, you may wish to consider the use of protective devices to minimize any added fire risks. We suggest that you consult with the insurer of your property relative to this matter.

Also enclosed are labels to be placed on the containers of drained FR fluid for return to the address shown. We will pay the return freight.

Your cooperation is appreciated.

Sincerely,

D. E. Roush
Product Specialist
Heat Transfer Fluids

cs
Enclosures

Note to bcc: Application is pattern waxer for margerine boxes. Initially used Pydraul, but switched to FR-1 because of sludge problems.

MCL000883

FROM

SHIP TO

MONSANTO COMPANY
Department 246
SAUGET, ILLINOIS 62201

RETURNED

for Reclamation or Disposal only.

PRODUCT NAME

WEIGHT

This product contains polychlorinated biphenyls, which some studies have shown may be an environmental contaminant. Extreme care should be taken to prevent any entry into the environment through spills, leakage, use, disposal, vaporization or otherwise.

CAUTION: Contains chlorinated hydrocarbons. Avoid prolonged breathing of vapors or mists. Avoid contact with eyes or prolonged contact with skin. If skin contact occurs, remove by washing with soap and water. Following eye contact flush with water. If clothing becomes soaked with fluid, launder before wearing again. 1063/53

THERMINOL® 55 HEAT TRANSFER FLUID

A low cost synthetic fluid for use in liquid phase up to 600 °F. without system pressurization.

TECHNICAL BULLETIN T-55

"Nothing contained herein is to be construed as a recommendation to use any product in conflict with any patent. MONSANTO MAKES NO WARRANTIES AS TO THE FITNESS OR MERCHANTABILITY OF ANY PRODUCTS REFERRED TO. no guarantee of satisfactory results from reliance upon contained information or recommendations, and disclaims all liability for any resulting loss or damage."

Monsanto

FUNCTIONAL FLUIDS | Monsanto Company, 800 North Lindbergh Blvd., St. Louis, Missouri 63166

MCL000885

Therminol® 55 is a low-cost synthetic heat transfer fluid developed for use in non-pressurized, indirect heating systems. Added to the extensive Monsanto line of heat transfer fluids to meet exacting needs, Therminol 55 demonstrates thermal stability superior to that of hydrocarbon oils of comparative cost.

System start-up at temperatures as low as 0°F. is possible, due to the low temperature viscosity characteristics of Therminol 55. It can be used at temperatures up to 600°F. At 550°F. and below, the fluid has extremely long life.

Therminol 55 systems should be blanketed with an inert atmosphere to minimize fluid oxidation. A system relief valve should also be provided.

Unlike the Therminol FR (fire-resistant) fluids, Therminol 55 can support combustion.

For detailed system information, contact your local Monsanto sales office, or write to: Monsanto Company, Functional Fluids, 800 N. Lindbergh Blvd., St. Louis, Mo. 63166.

TYPICAL PROPERTIES OF THERMINOL® 55

Composition	Alkylated Aromatics
Appearance	Clear Brown Liquid
Odor	Odorless
Pour Point	—20°F.
Flash Point	355°F.
Flame Point	410°F.
Autoignition Temperature	670°F.
Refractive Index	n_{25}^{D} 1.5035
API Gravity 60/60	26.6
Specific Gravity g/cc	0.895
Lb./gallon	7.5
Average Molecular Weight	340

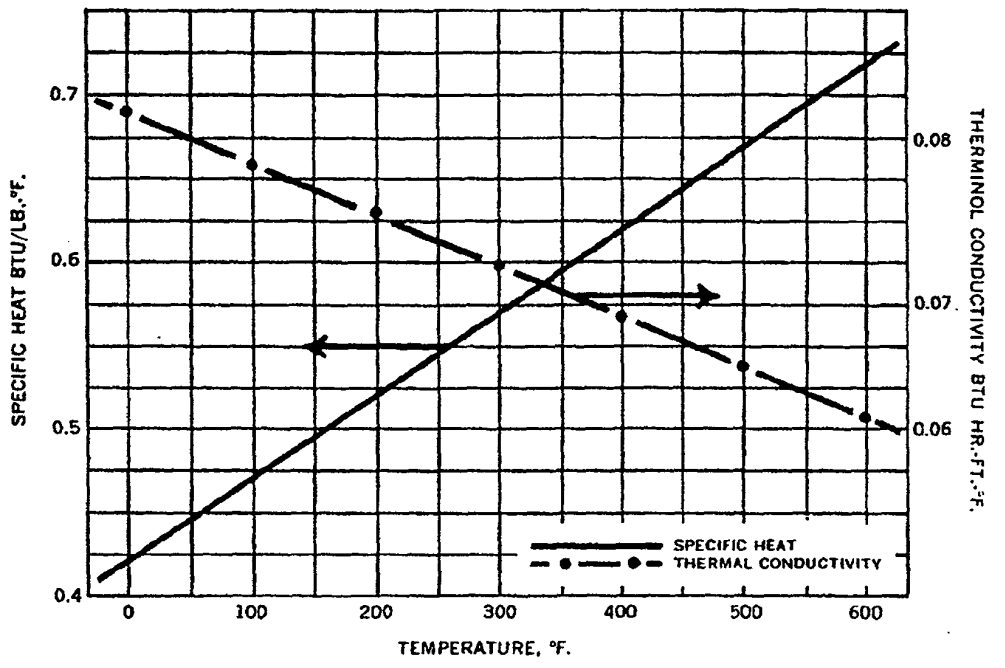
FLUID PROPERTIES OF THERMINOL 55

Temp. °F.	Density gm/cc	Kinematic Viscosity cs	Specific Heat BTU/Lb.-°F.	Thermal Conductivity BTU/hr.-ft.-°F.	Vapor Pressure mm Hg
0	0.9148	1610.0	0.420*	0.0813*	—
100	0.8775	30.1	0.472	0.0784	0.5*
200	0.8403	5.0	0.522	0.0753	3.0
300	0.8031	2.10*	0.572	0.0724	10
400	0.7658	1.18	0.620	0.0692	40
500	0.7286*	0.80*	0.670	0.0661*	100*
600	0.6913*	0.60*	0.718*	0.0630*	250*

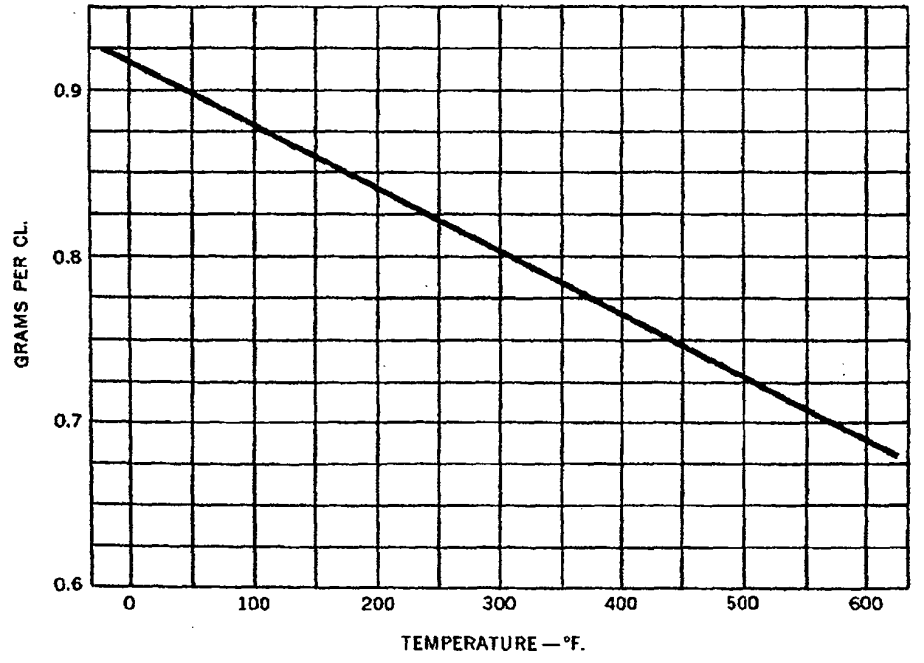
*Extrapolated Data

MCL000886

SPECIFIC HEAT AND THERMAL CONDUCTIVITY

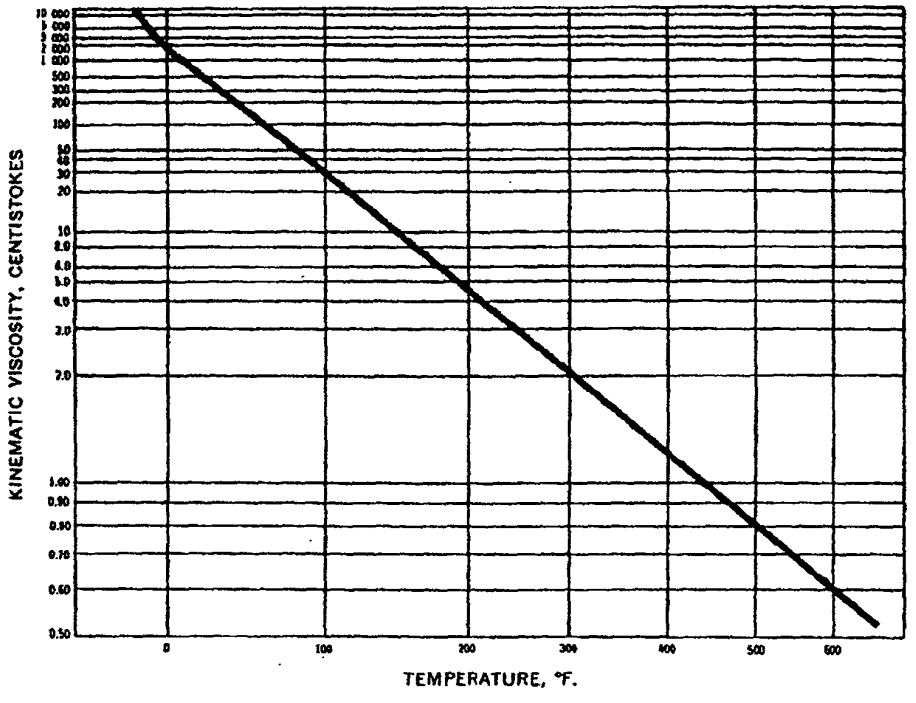


SPECIFIC GRAVITY

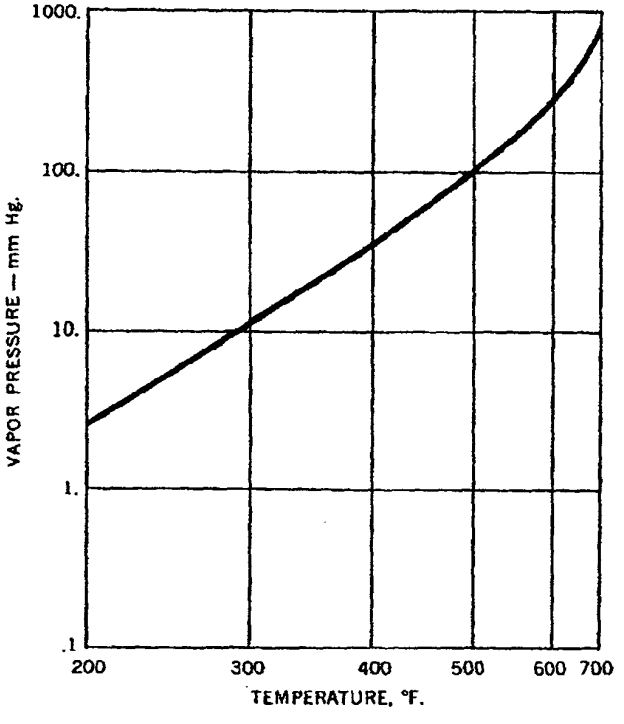


MCL000887

KINEMATIC VISCOSITY



VAPOR PRESSURE



MCL000888

THERMINOL® 66 HEAT TRANSFER FLUID

...for use in liquid phase between 0-650°F without system pressurization

TECHNICAL BULLETIN (T-66)

"Nothing contained herein is to be construed as a recommendation to use any product in conflict with any patent. MONSANTO MAKES NO WARRANTIES AS TO THE FITNESS OR MERCHANTABILITY OF ANY PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations, and disclaims all liability for any resulting loss or damage."

Organic Division / 800 N. Lindbergh Blvd. / St. Louis, Missouri 63166

FUNCTIONAL FLUIDS

Monsanto

MCL000889

Introducing Therminol® 66

Therminol® 66 is a heat transfer fluid for use in liquid phase between 0-650°F without system pressurization. The low pour point of this product permits start up at fluid temperatures as low as 0°F.

To minimize fluid oxidation, systems with Therminol 66 should be blanketed with an inert atmosphere. A system relief valve should also be provided. Therminol 66 is ideally suited to replace organic fluids that have lower boiling points and must operate under system pressure at 650°F.

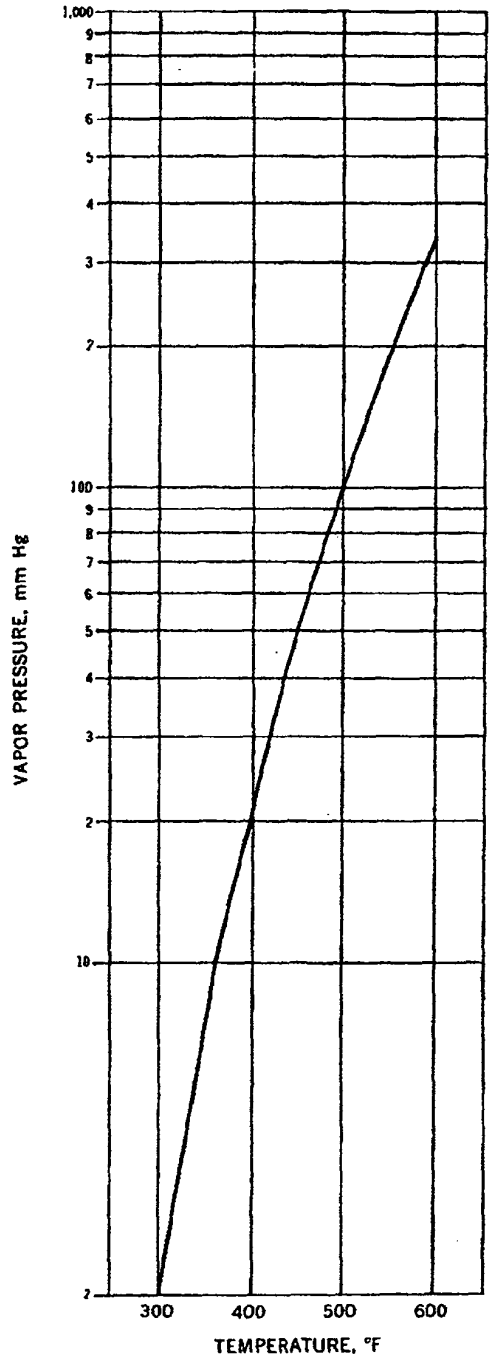
Therminol 66 can support combustion and should not be confused with Monsanto's Therminol FR fire-resistant fluids.

TYPICAL PROPERTIES OF THERMINOL® 66

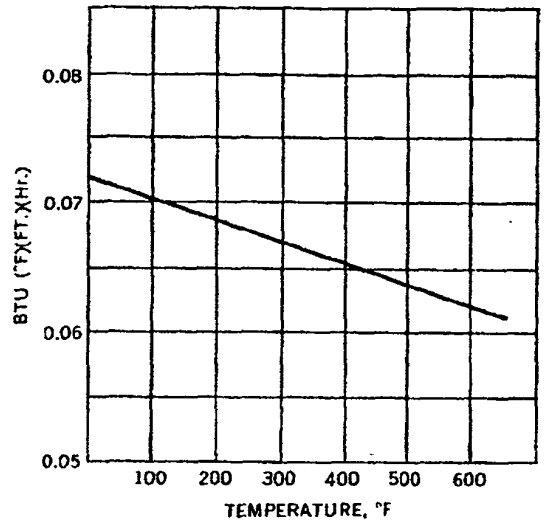
Composition	Modified terphenyls
Appearance	Oily liquid
Color	Practically colorless
Odor	Faint, characteristic
Pour Point	−25° — −28°C. −15° — −18°F.
Flash Point	168° — 180°C. 334° — 356°F.
Flame Point	190° — 202°C. 374° — 392°F.
Autoignition Temp.	364°C. 705°F.
Coefficient of Expansion	0.000741 cc/cc/°C.
Boiling Range	340° — 396°C 644° — 745°F

MCL000890

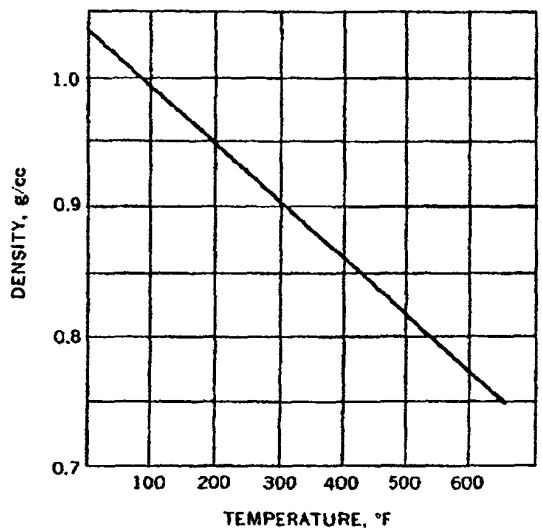
VAPOR PRESSURE



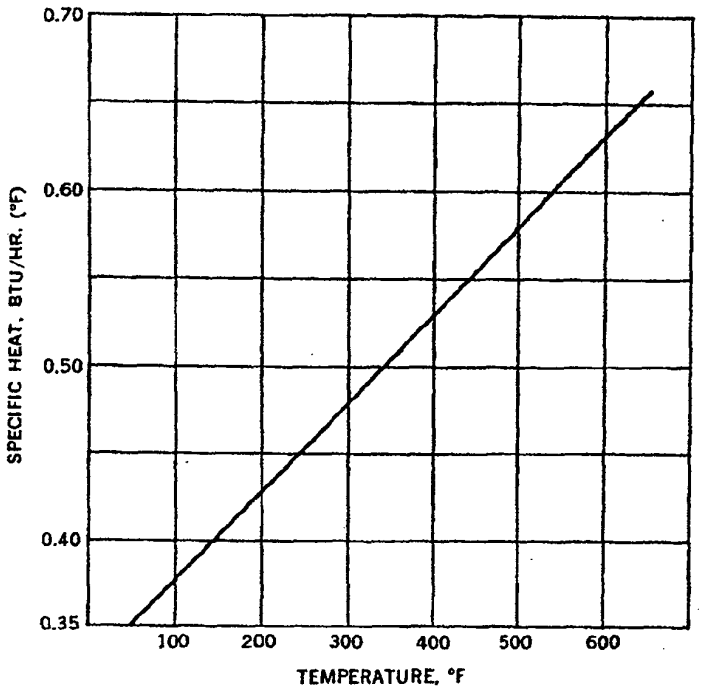
THERMAL CONDUCTIVITY (calculated)



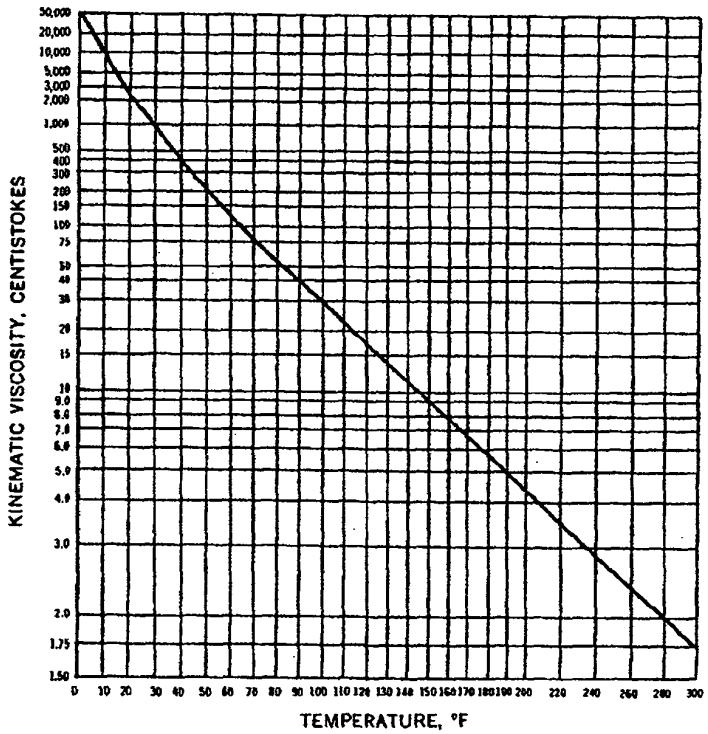
DENSITY



SPECIFIC HEAT



KINEMATIC VISCOSITIES



2-2533-0168-6 LITHO IN U.S.A.

MCL000892

Monsanto

FROM (NAME & LOCATION): P. W. Gann - B2SF

DATE: May 9, 1973 CC:

SUBJECT: PCB Warning Letters, October 26, 1971
Roush Letter

REFERENCE:

TO: Memo to File

This was a form type letter sent to food-related customers who were still using Therminol FR fluids. This letter was a transmittal for fluid sent free of charge to the customer for conversion to either Therminol 55 or Therminol 66. This program initiated on July 17, 1971 and continued through December, 1971. There appears to be no formal mailing list for this letter, but customers would include those on the June 8, 1970 letter mailing and can be referenced to the Therminol FR approval list active at that time (referring to the not approved column). However, copies of the letters which were retained in Jim Roder's files during this period are now filed by customer in the conversion team file currently being retained in George Fague's office.

P. W. Gann

/mc