

HEAT TRANSFER - THERMINOL FR SERIES
(Domestic)

Assumption: Withdraw FR series from the market

Introduction

-no other fire resistant fluids available
-probably over 2500 FR fluid systems operating
-probably over 1,250,000 gallons of fluid in these systems
with an original minimum value of \$3,600,000 and with fluid
still having value to the user. The user inventory of fluid
is unknown.
-in 1969, 250,000 gallons of FR fluids were shipped
-in 1970, 300,000 gallons of FR fluids may be shipped
-at this time we believe present Therminol FR systems can be
switched to either Therminol 55 or 66, but user will be
required to protect plant investment and employee life by other
means and at additional expense. Conversion to these fluids
can result in an expense to us and a temporary loss in sales.

Summary

For this situation we have examined the user from two aspects --
those using Therminol FR in the heating of cooking oils for food
preparation including vegetable oil deodorizing, and those using
Therminol FR in industrial process heating including space heating.

Food Cooking

<u>Company</u>	<u>Fill (gals)</u>
Joe Lowe Corp. - do-nuts	2000
Do-Nut Corp. of Amer.	1000
Design Plus Engineering - fish fry plants	4000

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Frito-Lay Corp.	5000
Jiffy Fry Co. (Foremost-McKesson)	<u>4500</u>
	16500

Our sales runs show about 78 customers, however, there are many more units operating which we are unaware of since user has not ordered in fluid in many years. Contact with OEM's will be necessary to locate these systems.

We believe there may be a minimum of 25,000 gallons in food cooking systems.

Industrial Process Heating

<u>Company</u>	<u>Fill (gals)</u>
Goodyear Tire & Rubber Co.	70,000
Bendix Corp.	15,000
Grumman Aerospace	12,000
West Bend Co.	11,000
National Southwire	10,000
Lubrizol	10,000
General Tire & Rubber Co.	10,000
Humble Oil Co.	9,500
Inmont Co.	8,000
PPG Ind.	7,000
Tenneco	6,000
Hooker Chem. Co.	6,000
Owens Corning Fiberglas	4,000

In addition to these top users there are many other

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significant systems in the 2,000-5,000 gal range at companies such as Firestone, Ford, Armstrong Cork and others.

We believe there may be over 1,200,000 gallons in these applications.

Details

Contracts: None exist, other than acceptance of orders which we will ship over the next two months.

Responsibility: It would seem that we will have to extend financial and technical assistance to the user in any conversion situation. This is based on the user having designed his plant and system to operate on our FR fluids and that the fluid in the system still has value. There is another factor, and that is, we are increasing the users risk or exposure to catastrophe involving his plant or his personnel when we cut him off from a supply of FR fluid.

Limits: If the user converts his FR system to a non PCB containing fluid it will be at our request. He will then expect us to share a portion of the cost related to fluid. Our responsibility should be limited to fluid only. We do not have the capability of system redesign or hardware selection.

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Costs:

It seems a minimum situation for us would be something like the following:

....credit user \$.05/lb plus freight upon receipt of the fluid.

....credit account \$.10/lb plus freight if system fill is less than one year old.

There are additional costs which we will become involved with and which will increase our costs over those suggested above. These costs are:

Material	\$.10/lb.
Container	\$.015/lb.
Shipping	\$.04/lb.
Disposal	<u>\$.05/lb.</u>
	\$.205/lb.

Approximately \$2.55/gal.

If our estimates are correct then total costs related to materials only may be:

1,250,000 gallons X 2.55/gal = \$3,200,000

User Reaction:

....some may involve us in legal action on the basis that we are depriving them of plant and personnel protection

....cooperate with us by draining and discarding fluid under our direction (there is no satisfactory means of simply topping an FR system and then in a years time through subsequent additions expect FR to be replaced by the non-PCB fluid).

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-after draining clean system if needed
-add petroleum oil, Therminol 55 or 66
-blanket system with N₂ to retard
degradation
-install fire detection devices, sprinklers
or other fire suppressant equipment

Miscellaneous: Any way we look at it interruption of the supply of an FR fluid will be costly to us and to the users. The FR fluid has been sold on the basis of two very valid properties -- fire resistance and long fluid life in terms of years.

JR
4/23/70

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**HEAT TRANSFER - THERMINOL FR SERIES
(DOMESTIC)**

Why we should continue to produce^e and supply Therminol FR fluids

Needs:

Fluid heat transfer systems are usually the vital part of a process, consequently, the user must protect this part of his investment to avoid serious interruption of production and loss of life.

System:

The heat transfer system is a closed system. Any leakage can be easily controlled, collected and disposed.

There are only four sources for leaks in a system:

-threaded fittings -- we advise users to design for welded connections over 1" in diameter. We can stipulate weld all fittings.
-pump mechanical seal -- we can stipulate enclosed seal with drain to collection sump or canned pumps.
-seal at the heat using equipment -- we can stipulate that drain be installed to a sump.
-vent from expansion tank -- we can stipulate that vent be directed to collection sump, or to a cold seal tank.

The use of check valves at selected points in a system can minimize fluid discharge in the rare

case of a rupture at the using equipment or in the heater coil.

The control of system design, and collection and disposal of FR fluid leakage is profitable and a feasible situation.

Market:

In the last few years the market has expanded significantly for a variety of reasons:

-increased concern for and protection of operating personnel
-increased value of equipment and plants
-addition of skilled personnel to our sales force

Percent Dollar Sales Increase

1967	23%
1968	35%
1969	37%
1970	25% (projected)

-over 2500 operating systems in many industries contributing reliability to a process or a product
-only fluid operating in space heating applications -- apartments, hospitals, office buildings and plants

Profitability:the FR fluids gross profit is and has been in excess of 60%.

Products:

-broadest product line covering a range of temperatures and operations
-only heat transfer fluids for operation in non-pressurized systems to over 700°F.
-only fire resistant heat transfer fluids approved by FM and rated by UL

Personnel:

-Men in sales and research who are specialists and who have devoted their careers to understanding the use of organic fluids in heat transfer

End User:

-there is a very strong cooperative atmosphere and working relationship. The user needs and wants the fire resistant fluid, wants a leak free system, wants good labor relations and will design a leak free system or modify an existing one.

J. R. Fallon

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