

MITSUBISHI MONSANTO CHEMICAL COMPANY

FROM LOCATION : Tokyo

cc: Messrs.

DATE : January 7, 1970

* D. A. Olson

* D. Danna

SUBJECT :

REFERENCE :

TO : Mr. Howard S. Bergen *
St. Louis, Mo.

Dear Howard:

Attached is a xerox copy of a recent study of the hydraulic fluid and potential Pydraul market in Japan. You will note the heavy dependence on phosphate ester-based fluid. The assumption has been made that the Aroclor content of Pydraul would be about 50%. However, this can be drastically changed if these products are re-formulated.

The total demand for hydraulic fluids is growing at an attractive rate. The participation of Pydraul is most uncertain, however, because of the re-formulation, testing and qualifying which will be required, the net effect for MMK seems to be that we can only stand by until the situation is defined in St. Louis. I have told my people here that at least six months will be required for research work on re-formulation. Nevertheless, I shall be most interested in receiving progress reports or any summaries of your modified business strategy.

Best regards,


J. R. Durland

JRD:fu
Encl.*

DSW 150364

STLCOPCB4039805

MITSUBISHI MONSANTO CHEMICAL COMPANY

FROM LOCATION : Tokyo

cc: Messrs.

DATE : January 6, 1970

T. Nakata-Tokyo
Y. Fukuei- "

SUBJECT : PYDRAUL-JAPAN

REFERENCE :

TO : Dr.-J. R. Durland
Tokyo

I am sending you a briefed package of information on the PYDRAUL market in Japan to supplement our discussion on this subject between you, Mr. Nakata and myself a few weeks ago as attached.

Your examination and comments will be highly appreciated.

And, in view of the increasing public concern on water pollution by PCB in the States, (cf: Quarterly Report-July, August, September-of M.D.) we would like to know the Organic Division's comments on whether or not the business strategy of PYDRAUL products will be revised.

S. Setoh
S. Setoh

:uh

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Market of Uninflammable Functional Fluid (Unit: 1,000kl)

(1) Size of Market

Type of Fluid	Present (1969)	After 5-year (1974)
Water glycol	2.0	3.3 - 4.7
Synthetic (*)	0.5	1.7 - 2.3
Total	2.5	5.0 - 7.0

note(*) Ratio of Phosphates/Pydraul at present is approximately 4/1, however, it would be changed to 1/1 in five years if our promotional efforts in the market development for Pydraul products can be made successfully.

(2) Briefing on the hydraulic equipment industry in Japan.

The Hydraulic Industry Institute of Japan made an intensive study on the market for hydraulic equipment in Japan.

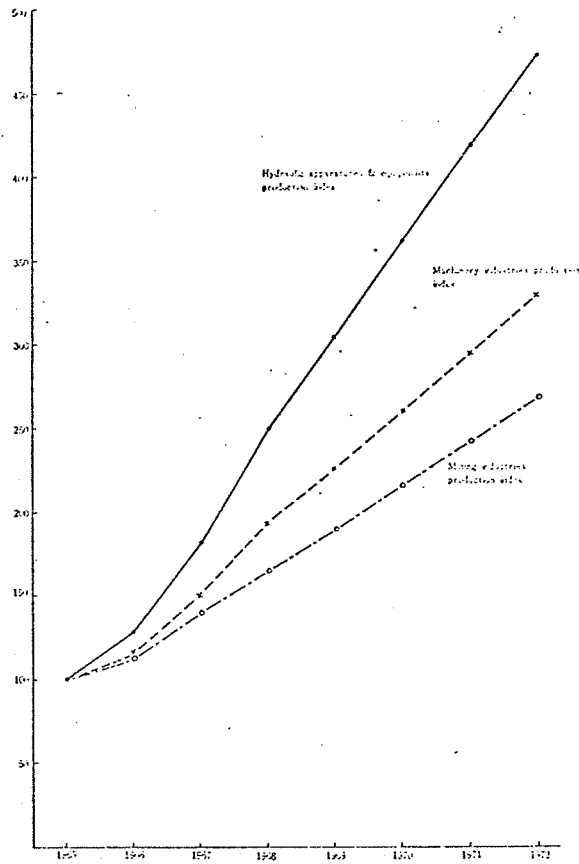
- a) The growth rate of the hydraulic industry in 1972 in comparison with 1967 is, as shown below, 190%.

Civil engineering, construction, mining machineries	217%
Industrial wagon	207
Agricultural equipment	237
Special wagon	203
General machines	167
Metal, primary product mfg, machines	124
Metal, secondary processing machines	149
Plastics processing machines	181
Ships	161
Total	190%

- b) Hydraulic apparatus and equipment production index compared with other industries' production index

DSW 150366

Index of production figure compared



- (3) The following Mr. T. Ishijima's information, cited from S.M./JRD: 4/14/'69, will also be useful for your understanding of PYDRAUL market in Japan.

a) Sales estimation of fire-resistant hydraulic fluids

(Unit: K litre)

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Pydraul	38	86	200	360	560	800	1,040
Other synthetics	160	270	360	440	560	680	840
Water-glycol	1,200	1,500	1,800	2,100	2,300	2,500	2,700
Emulsion	600	680	800	920	1,040	1,200	1,360
Total	1,998	2,536	3,160	3,820	4,460	5,180	5,940

b) Sales estimation of Pydraul (Unit: t)

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Pydraul	43	96	220	400	630	900	1,170
(Aroclor content	22	46	110	200	315	450	585
Sales amount (M¥, net MMK)			60	100	150	210	260

c) Status of synthetic hydraulic fluids competitors

<u>Manufacturer</u>	<u>Trade name</u>	<u>Market price</u>	<u>Note</u>
(Imports) Stauffer (Ando Jimusho)	Cellulube	520 - 530¥/litre	Occupy 90% share of synthetics, to be produced domestically in 1 year
Mobil	Pyroguard	470 - 480¥/litre	
Shell	SFR	470 - 480¥/litre	
(Domestics)			
Idemitsu	Fireproof	380 - 450¥/litre	began practice activities in 1969

Kyodo Petroleum Hydria

470¥/litre

note: Pydraul	400¥/litre
Water-glycol	260 "
Emulsion	165 "

Synthetic hydraulic fluids mentioned above are said to consist of Phosphate esters, mainly TCP.

Phosphate-base fluids need to be added with some additives to improve viscosity index(no need to Pydraul), and minimum price of the fluids might be 450¥/litre.

On the other hand, Pydraul need to be sold at 350¥/litre to compete with them. Flushing cost(incl. profit to dealers) at the time of initial filling will be 100¥/litre on the average. (Accordingly MMK net price will be 250¥/litre)