Scientific Associates
3755 FOREST PARK BOULEVARD
ST. LOUIS 8, MISSOURI • JEFFERSON 1-5922

September 26, 1955

CERTIFICATE OF ANALYSIS

SUBJECT -

Toxicological Investigation of Pydraul 600.

TEST CONDUCTED FOR -

Monsanto Chemical Company, St. Louis, Missouri.

Monsanto Project No.: 55-43A.
Monsanto Sample No.: 56, Lot 107.

EXPERIMENTAL PROCEDURE -

(A) Acute Oral Toxicity In Rats

In our report dated 7/13/55, we found an oral LD_{50} in rats of 30.5 grams of Pydraul 600 per kilogram. The large dose produced diarrhea that persisted for days.

In order to find out what would happen if another group of rats was fed at a high level, the same sample of Pydraul 600 was given orally by stomach tube to six rats at a level of 25.0 grams per kilogram. The results are shown in Table I.

(B) The Oral LD_{50} of Pydraul 600 For Rabbits

Undiluted Pydraul 600 was introduced into the stomachs of New Zealand white rabbits by means of a rubber catheter attached to a hypodermic syringe. After the lethal dose range was found, groups of rabbits were fed at levels designed to blanket the toxicity range thereby supplying data for calculation of the LD_{50}.

Selected animals from those succumbing were autopsied and macroscopic examination made of the viscera. The data are given in Table II.

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TABLE I

THE ACUTE ORAL TOXICITY OF PYDRAUL FOR RATS

Animal No.- Sex	Weight Grams	Dose G./Kg.	Weight Change 5 Days After Dosing %	Fate
1- Female	255	25.0	- 18.0	Died--7 Days
2- Male	240	25.0	- 21.0	Died--6 Days
3- Female	235	25.0		Died--4 Days
4- Female	255	25.0	- 12.0	Survived
5- Female	220	25.0	- 20.0	Died--6 Days
6- Male	260	25.0	- 14.0	Survived

DISCUSSION -

Four of the six rats dosed at 25.0 grams per kilogram died in 4 to 7 days. Weight losses in five days ranged from 12.0 to 21.0% for all of the animals. Severe diarrhea developed in a few hours after dosing and continued in animals 1, 2, 3, and 5 until they died. The two survivors did not recover from the condition for at least a week. Death or survival seemed to depend upon whether or not the animals were able to overcome the severe diarrhea.

At autopsy there was severe gastrointestinal inflammation with excess mucus. Both the liver and lungs were moderately congested.

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TABLE II

THE ORAL LD_{50} OF PYDRAUL 600 FOR RABBITS

Animal No.- Sex	Weight Kilograms	Dose G./Kg.	Weight Change 5 Days After Dosing %	Fate
1- Male	2.0	0.45	+ 4.0	Survived
2- Female	2.0		0.0	Survived
3- Female	1.9		- 6.5	Died--10 Days
4- Male	2.5		- 3.0	Survived
5- Female	2.3		+ 5.0	Survived
6- Female	2.5	0.67	- 7.5	Died--13 Days
7- Female	2.0		0.0	Survived
8- Male	2.2		- 8.0	Died--7 Days
9- Female	2.7		- 4.5	Survived
10- Female	2.1		0.0	Survived
11- Male	2.6	0.85	- 10.0	Died--14 Days
12- Male	2.7		- 6.0	Died--6 Days
13- Male	2.5		- 14.0	Died--15 Days
14- Female	2.3		- 5.5	Survived
15- Female	1.8		- 8.0	Died--8 Days

DISCUSSION -

The oral LD_{50} was placed at about 0.72 gram per kilogram. Survival time ranged from 6 to 15 days. The animals became lethargic, lost appetite, and gradually wasted away. Weight losses ran as high as 35% in those surviving for the longest length of time. Some of the animals developed convulsions a few hours before death. There was mild to moderate diarrhea that cleared up after several days.

At autopsy the liver was somewhat dry and discolored. The stomach was moderately shrunken from lowered food intake.

SUMMARY -

Out of six rats fed Pydraul 600 orally at a level of 25.0 grams per kilogram, four died and two survived. In a previous study with a different group of rats, we found an oral LD_{50} of 30.5 grams of Pydraul 600 per kilogram. The same sample was used in both tests.

The oral LD_{50} of Pydraul 600 for rabbits was 0.72 gram per kilogram. The compound proved to be much more toxic for rabbits than for rats.

SCIENTIFIC ASSOCIATES

Fred M. Younger

BY: FRED M. YOUNGER

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