YOUNGER LABORATORIES
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CHEMICAL . . . MICROBIOLOGICAL . . . BIOLOGICAL

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December 30th, 1970

Certificate of Analysis

C+25AM

SUBJECT -

Toxicological Investigation Of: Aroclor 6090 -- Chlorinated Polyphenyl
Monsanto Sample Number 132
Monsanto Project Number Y-70-126

STUDY CONDUCTED FOR -

Monsanto Company, St. Louis, Missouri

EXPERIMENTAL PROCEDURE -

A) Range Finding Acute Oral Toxicity (Rats, Mixed Sex)

The diluted compound was fed by stomach tube to Sprague-Dawley strain albino male and female rats in increasing doses at increments of 0.1 fractional log intervals.

Observations were made for toxic signs and the viscera of the test animals were examined macroscopically.

The data, together with the dilution at which the compound was fed, are shown in Table I.

B) Skin Absorption MLD (Rabbits, Mixed Sex)

The diluted compound was applied in increasing doses at increments of 0.2 fractional log intervals to the closely clipped, intact skin of New Zealand white male and female rabbits.

The treated areas were covered with plastic strips and the animals held in wooden stocks for periods up to twenty-four hours, after which time they were assigned to individual cages.

Observations were made for toxic signs and the viscera of the test animals were examined macroscopically.

The data, together with the dilution at which the compound was applied, are shown in Table II.

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EXPERIMENTAL PROCEDURE - (Continued)

C) Skin Irritation (Rabbits, Mixed Sex)

0.5 Gram of finely ground sample was applied to the clipped, intact skin of New Zealand white male and female rabbits under a one inch by one inch square patch, two single layers thick. The patches were held in place with adhesive tape. The trunk of each animal was wrapped with plastic strips, to avoid contamination, for the twenty-four hour exposure period.

Observations were made over a period of seven days for irritation.

The data, scored according to the method of Draize, Woodard and Calvery (Journal of Pharm. and Exp. Therapeutics, Volume 82, December, 1944) are shown in Table III.

D) Eye Irritation (Rabbits, Mixed Sex)

One Hundred (100.0) milligrams of finely ground sample were placed in the conjunctival sac of the right eye of each of three albino male and female rabbits and observations made over a period of seven days for inflammation.

The eyes were rinsed with warm isotonic saline solution after twenty-four hours.

The data, scored according to the method of Draize, et al, are shown in Table IV.

SUMMARY -

Aroclor 6090 -- Chlorinated Polyphenyl

A) Range Finding Acute Oral Toxicity (Rats, Mixed Sex)

The Acute Oral Toxicity for male and female rats was found to be greater than 10,000 milligrams per kilogram and less than 12,600 milligrams per kilogram.

The compound was classed as practically non-toxic by oral ingestion in male and female rats.

B) Skin Absorption MLD (Rabbits, Mixed Sex)

The highest application of 7940 milligrams per kilogram was found to be non-lethal by skin absorption in male and female rabbits.

The compound was classed as practically non-toxic by skin absorption in male and female rabbits.

C) Skin Irritation (Rabbits, Mixed Sex)

The compound was classed as non-irritating when applied as finely ground powder to intact skin of male and female rabbits.

The average maximum score was 0.0 out of a possible 8 during the seven day observation period.

D) Eye Irritation (Rabbits, Mixed Sex)

The compound was classed as a slight eye irritant in male and female rabbits.

The average maximum score was 6.0 out of a possible 110 in one hour.

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BY: MELVIN D. BIRCH

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TABLE I

RANGE FINDING ACUTE ORAL TOXICITY OF

'Aroclor 6090 — Chlorinated Polyphenyl' FOR RATS

Sample Fed As A 20.0% Solution In Corn Oil

Animal No. - Sex	Weight Gm.	Dose Mg./Kg.	Fate
1- Female	220	2,000	Survived
2- Male	265	3,160	Survived
3- Female	205	5,010	Survived
4- Male	220	7,940	Survived
5- Female	200	10,000	Survived
6- Male	200	10,000	Survived
7- Female	200	10,000	Survived
8- Male	210	10,000	Survived
9- Female	200	10,000	Survived
10- Male	200	12,600	Survived
11- Female	200	12,600	Died
12- Male	200	12,600	Survived
13- Female	215	12,600	Survived
14- Male	205	12,600	Survived

DISCUSSION -

The Acute Oral Toxicity for male and female rats was found to be greater than 10,000 milligrams per kilogram and less than 12,600 milligrams per kilogram.

The compound was classed as practically non-toxic by oral ingestion in male and female rats.

Survival time was six days for animal #11.

Toxic signs included reduced appetite and activity, lethargy lasting one to four days, diarrhea for one to two days, increasing weakness, collapse, and death.

At autopsy there was hemorrhagic lungs, liver discoloration (slight), and gastrointestinal inflammation.

Surviving animals were sacrificed seven days after dosing. Macroscopic examination revealed lung congestion, slight liver discoloration, and slight gastrointestinal inflammation in animals #4 - #10 and #12 - #14; the viscera of animals #1 - #3 appeared normal.

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T A B L E II

THE MINIMUM LETHAL DOSE OF 'Aroclor 6090 -- Chlorinated Polyphenyl' BY SKIN ABSORPTION IN RABBITS

Sample Applied As A 25.0% Solution In Corn Oil

Animal No. - Sex	Weight Kg.	Dose Mg./Kg.	Weight Change 5 Days Later Kg.	Fate
1 - Female	1.8	1260	0.0	Survived
2 - Male	2.0	2000	0.0	Survived
3 - Female	2.5	3160	- 0.3	Survived
4 - Male	2.6	5010	- 0.2	Survived
5 - Female	2.7	7940	- 0.4	Survived

DISCUSSION -

The highest application of 7940 milligrams per kilogram was found to be non-lethal by skin absorption in male and female rabbits.

The compound was classed as practically non-toxic by skin absorption in male and female rabbits.

Toxic signs included reduced appetite and activity and slight lethargy for two to seven days.

Surviving animals were sacrificed fourteen days after dosing. Macroscopic examination revealed areas of lung congestion and slight liver discoloration in animals #3, #4, and #5; the viscera of animals #1 and #2 appeared normal.

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TABLE III

SKIN IRRITATION IN RABBITS AFTER APPLICATION OF
'Aroclor 6090 -- Chlorinated Polyphenyl'

Sample (0.5 Gram) Applied As Finely Ground Powder

Animal No. - Sex	Numerical Evaluation At The End Of 1 Hour	24 Hours	48 Hours	72 Hours	120 Hours	168 Hours
1 - Female	0	0	0	0	0	0
2 - Male	0	0	0	0	0	0
3 - Female	0	0	0	0	0	0
Average	0.0	0.0	0.0	0.0	0.0	0.0

DISCUSSION -

The compound was classed as non-irritating when applied as finely ground powder to intact skin of male and female rabbits.

The average maximum score was 0.0 out of a possible 8 during the seven day observation period.

Observations following application -

1-Hour:	No skin changes; zero readings
24- 168-Hours:	No skin changes; zero readings

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T A B L E IV

EYE IRRITATION IN RABBITS AFTER APPLICATION OF

'Aroclor 6090 -- Chlorinated Polyphenyl'

Sample (100.0 Milligrams) Applied As Finely Ground Powder

Animal No. - Sex	Numerical Evaluation At The End Of 1 Hour	24 Hours	48 Hours	72 Hours	120 Hours	168 Hours
1 - Female	6	4	0	0	0	0
2 - Male	6	4	0	0	0	0
3 - Female	6	4	0	0	0	0
Average	6.0	4.0	0.0	0.0	0.0	0.0

DISCUSSION -

The compound was classed as a slight eye irritant in male and female rabbits. The average maximum score was 6.0 out of a possible 110 in one hour.

Observations following application -

Immediate:	Discomfort was slight
10-Minutes:	Slight erythema and discharge; no edema
1-Hour:	Slight erythema, moderate discharge; no edema
24-Hours:	Slight erythema and discharge; no edema
48-Hours:	Eyes normal; zero readings
72- 168-Hours:	Eyes normal; zero readings

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