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TECHNICAL REPORT SUMMARY

Date 8/16/78

TO: TECHNICAL COMMUNICATIONS CENTER - 201-2CN

ORIGINAL

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AR 226-0985

Division CRL - Analytical and Properties Research Laboratory		Dept. Number 0502
Project Trace Fluorochemicals in the Environment		Project Number A000006
Report Title IRDC 137-088: FM-3422/Monkey		Report Number 995
To J.E. Long		
Author(s) Jon Belisle		Employee Number(s) 88240
Notebook Reference		No. of Pages including Coversheet 3

SECURITY ► ☐ Open ☒ Closed	3M CHEMICAL REGISTRY ►	New Chemicals Reported ☐ Yes ☒ No
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KEYWORDS:
(Select terms from 3M
Thesaurus. Suggest other
applicable terms.)

Central Research
Analytical Report
Chemical/Analysis

CURRENT OBJECTIVE:

Requestor: J.E. Long; Request #A69503; Project #9172110004

REPORT ABSTRACT: (200-250 words) This abstract information is distributed by the Technical Communications Center alert 3M'ers to Company R&D. It is Company confidential material.

CLOSED ABSTRACT

The level of FM-3422 was determined in the serum and livers of monkeys from the IRDC subacute study 137-088. Furthermore total fluorine content was determined in selected serum samples and the metabolism of FM-3422 characterized by F/NMR.

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CENTRAL ANALYTICAL LABORATORY

Report No. 6995

Date August 16, 1978

Subject: IRDC 137-088: FM-3422/Monkey

Requestor: J.E. Long

Dept. Name Toxicology

Proj. No. 9172110004

Request No. A69503

Dated 8/3/78

Report:

Reference 137-088 by IRDC was a 90 day subacute Rhesus monkey toxicity study of FM-3422. The original study was set at the following dosage levels: 30, 100, 300, 1000 mg/kg/day. The study was revised with dosage levels of 10, 30, 100, 300 mg/kg/day. It appears (see Table below) that the dosage levels were lowered again prior to the study. The serum and livers were each individually submitted for analysis. Each group contained 4 monkeys, 2 male and 2 female as follows:

<u>Group</u>	<u>Dosage Level</u>	<u>Survival</u>
I	0	4/4
II	1 mg/kg/day	4/4
III	3 "	4/4
IV	10 "	4/4
V	30 "	3/4

SERUM ANALYSIS

<u>Monkey</u> ①	<u>Dosage</u> ②	<u>FM-3422 in Serum (ppm)</u>	<u>Total F in Serum (ppm)</u>
7470M	0	0	nm ③
7493F	0	0	nm
7467M	1	0	nm
7489F	1	0	nm
7469M	3	0.1	nm
7474M	3	nm	75
7487F	3	0.1	nm

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<u>Monkey</u> ^①	<u>Dosage</u> ^②	<u>FM-3422 in Serum (ppm)</u>	<u>Total F in Serum (ppm)</u>
7475M	10	nm	150
7498F	10	0.4	nm
7472M	30	0.5	375
7499F	30	0.7	nm

① M = Male, F = Female

② in mg/kg/day

③ nm = not measured

The analysis of the serum for FM-3422 indicated that this compound was present at a very low concentration. Total fluoride analysis indicated the presence of a significant level of fluoride. Therefore the serum of 7472M was prepared for F/NMR analysis.

The NMR spectra indicated (Richard Newmark) the presence of FC-95 with no other significant fluorine peak noted. A very high branched content was observed (80% branched/20% linear). The branched/linear ratio of FM-3422 used in the feeding study was found to be 40% branched/60% linear. Perhaps the branched isomer is retained to a greater extent than the linear.

The fact that a high level of FC-95 was found in the serum and essentially no FM-3422, indicates that FM-3422 is metabolized to the sulfonic acid. Furthermore, the study would indicate that FM-3422 is cleared from the body rather rapidly, that is before it is completely converted to FC-95 since the monkey tolerates FM-3422 at concentrations approximately 10 times greater than FC-95; this suggests that FC-95 builds up slowly with time.

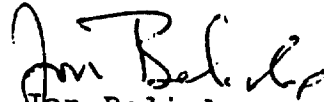
LIVER ANALYSIS

<u>Monkey</u>	<u>Dosage</u> ^①	<u>FM-3422 in Liver (µg)</u>	<u>FM-3422 in Liver (ppm)</u>
7469M	3	110	1.3
7487F	3	190	2.6
7472M	30	1300	14.3
7499F	30	4600	59.2

① in mg/kg/day

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The high values of FM-3422 found in the liver when compared to the low level in the blood may indicate conversion of FM-3422 to the sulfonic acid (see above F/NMR data on serum) in the liver. The data shows that the female accumulates and/or retains FM-3422 at a level 2 to 3 times higher than the male. In addition, the only animal to die during the study was a female, perhaps again suggesting a greater sensitivity of the female to this compound.


Jon Belisle

/jz

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