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# TECHNICAL REPORT SUMMARY

Date 8/16/78

TO: TECHNICAL COMMUNICATIONS CENTER – 201-2CN ORIGINAL

AR226-0985

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|---|---|
| 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

**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. Furthermor total fluorine content was determined in selected serum samples and the metabolism of FM-3422 characterized by F/NMR.


Contains NO CBI



Information Liaison Initials

# CENTRAL ANALYTICAL LABORATORY

Report No. 6995

Date August 16, 1978

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

equestor: J.E. Long Dept. Name Toxicology Proj. No. 9172110004

equest No. A69503 Dated 8/3/78

eport:

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:

| Group | Dosage Level | Survival |
|---|---|---|
| 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

| Monkey① | Dosage② | FM-3422 in Serum (ppm) | Total F in Serum (ppm) |
|---|---|---|---|
| 7470M | 0 | 0 | nm③ |
| 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 |

| Monkey[1] | Dosage[2] | FM-3422 in Serum (ppm) | Total F in Serum (ppm) |
|---|---|---|---|
| 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

| Monkey | Dosage[1] | FM-3422 in Liver (µg) | FM-3422 in Liver (ppm) |
|---|---|---|---|
| 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

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