



Form 8747-11-A

TECHNICAL REPORT SUMMARY

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TO: TECHNICAL COMMUNICATIONS CENTER - 201-2CN

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Division	Environmental Laboratory (EE & PC)	Dept. Number	0535
Project	Fate of Fluorochemicals	Project Number	9970612643
Report Title	Analytical Methodology and Support	Report Number	008
To	D. L. Bacon		
Author(s)	Arthur Mendel	Employee Number(s)	043939
Notebook Reference	41947, 44191, 46269, 47703, 48277, 49400	No. of Pages including Coversheet	22
SECURITY ►	☐ Open (Company Confidential) ☒ Closed (Special Authorization)	3M CHEMICAL REGISTRY ►	New Chemicals Reported ☐ Yes ☒ No

KEYWORDS:
(Select terms from 3M
Thesaurus. Suggest other
applicable terms.)

EE & PC-Div.
Fluorochemicals

CURRENT OBJECTIVE:

Progress Report

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.

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FM 3422 Sorption onto Soil (46269-50)

Sorption-desorption soil studies were conducted by S. K. Welsh, and the results are given in Table 2.

Soil TLC (48277-30)

Various types of soil were ground and sieved, and that fraction of 262 micron size was saved for TLC studies (42669-42). An intimate mixture of 150 g of 262 micron size greenhouse soil (sandy loam) with 80 ml of water was well slurried and spread onto 10 x 20 cm glass plates using an in-house designed spreader (designed by J. W. Belisle, A. Mendel, and G. Guthrie). The plates were allowed to air dry. A plate was spotted 2 cm from the bottom with radiolabeled-FC-95, -FC-143, and-FM 3422. The samples were those used earlier for water solubility studies. The plate was air-dried and developed 100 mm from the original spot in the ascending mode with water in a filter paper-lined TLC developing tank previously equilibrated with water for one day. The development required nearly two hours and the air-dried plate was then autoradiographed (13). Results showed that FC-143 and FM 3422 did not leave the origin ($R_f=0$). The spot, due to FC-95, was extremely faint for visualization but appears not to have migrated either ($R_f=0$).

Preliminary Studies on Samples from Bionomics Labs

A. Examination of Foil-lined Caps for Interferences (46269-50)

Four foil-lined caps which Bionomics Labs uses to seal bottles containing samples were screwed onto four clean bottles containing 25 ml of deionized water. The bottles were mechanically shaken for 4 hours, and the combined 100 ml of water was extracted with ethyl acetate. This extract was concentrated and chromatographed. No apparent interference for FM 3422 was noted. This extract was then spiked with FM 3422 to confirm no interference at the retention time of FM 3422.

B. Examination of Standards and Controls Prepared at Bionomics Lab

Personnel from Bionomics Labs prepared standard solutions of FM 3422 in water, then submitted one-liter samples of these standards and controls to us for analyses. The respective sample was extracted with ethyl acetate and the organic extract was concentrated to 10 ml. An aliquot was used then for GC analyses, and the results are summarized in Table 3 (Notebook 46269-50).

Table 3

Analyses for FM 3422 (in ppb) in Bionomics Samples

<u>Sample I.D.</u>	<u>Theoretical Conc. (ppb)</u>	<u>Determined</u>
A5609	20	20.8; 19.8
A5610	20	19.8; 20.6
A5611	10	10.2; 9.9
A5612	10	9.7; 10.1
A5613	5	5.2; 5.2
A5614	5	4.8; 5.1
A5615	2.5	2.5; 2.6
A5616	2.5	1.2; 1.3
A5617	1.25	(a)
A5618	1.25	(a)
A5619	Control A	<0.1
A5620	Control B	<0.1
A5621	Solvent Control A	<0.1
A5622	Solvent Control B	<0.1
A5670	1.25	1.1; 1.0(b)
A5670	1.25	1.0; 1.6(b)

(a) received broken in shipment; (b) replaces original samples A5617; A5618

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