

Monsanto

Aroclor

FROM (NAME & LOCATION)

E. S. Tucker - R&D Laboratories Applied Sciences - South Second St.

DATE

December 10, 1969

cc:

M. W. Farrar

R. E. Keller

W. R. Richard

E. P. Wheeler

SUBJECT

REFERENCE

TO : J. S. Metcalf JMETC
Inorganic Division Research

We have had your samples in hand for some time now and I should like to apologize for the necessary delay in analyzing them.

The results of the analysis are shown in the attached table.

So far we have looked at 5 dishwasher detergents and eight of the Monsanto manufactured components.

Multiple analysis of the detergents has confirmed the presence of low levels of Aroclor in Finish and Electro-Sol, both of which are manufactured by Economic Laboratory, Inc., St. Paul, Minnesota and in All (Lever Brothers). We have been unable to make a completely positive identification of Aroclor in Cascade and Calgonite, the other detergents analyzed. These detergents all contained low levels of electron capture active materials but the chromatographic fingerprints did not match our production material. If polychlorinated biphenyls are present in these products the level would be in the range of 1-10 ppb.

We have not analyzed the alkyl phenol, Sterox CD, Sterox AJ, Alkylate 230, and ACL-59 but are planning to as time permits.

E. S. Tucker

E. S. Tucker

js

DSW 373058

TABLE I

Sample	Amount Found ppm	Type of Aroclor	GC/Mass Confirmation
Finish	1.72	1248	+
Electro-Sol	0.60	1248	+
All	0.23	1242	+
Cascade	ND	-	ND
Calgonite	ND	-	ND
	<u>ppb</u>		
Sodium Tripolyphosphate Long Beach	0.4	1242	-- *
Sodium Tripolyphosphate Augusta, Georgia	<0.2	as 1242	-- *
Sodium Tripolyphosphate Lot #34 Carondelet	<0.2	"	-- *
Sodium Tripolyphosphate Trenton	<0.2	"	-- *
Sodium Tripolyphosphate Code #116, Lot #S-890 Kearny	<0.2	"	-- *
Tetrapotassium Pyrophosphate Lot #461-H-25	<0.2	"	-- *
Tetrapotassium Pyrophosphate Lot #S-891	<0.2	"	-- *
NTA Lot #308 - Alvin	<0.2	"	-- *

* Less than detection limit of GC/Mass system not submitted
 ND - None detected

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Peak Area
Arachlor 1242

CAPILLARY COLUMN PEAK IDENTIFICATION:

Arachlor
1242

- (1) Biphenyl
- (2) 2-Chloro biphenyl
- (3) 3-Chloro biphenyl
- (4) 4-Chloro biphenyl
- (5) 2,2'-and/or 2,6-Dichloro biphenyl
- (6) 2,5-and/or 2,4-Dichloro biphenyl
- (7) 2,3'-Dichloro biphenyl
- (8) 2,4'-and/or 2,3-Dichloro biphenyl
- (9) 3,5-Dichloro biphenyl
- (10) 3,4-, 3,4'- and/or 4,4'-Dichloro biphenyl
and/or 2,5,2'-Trichloro biphenyl
- (11)
- (12) 2,3,2'-Trichloro biphenyl
- (13)
- (14) 2,5,4'-Trichloro biphenyl
- (15) 3,4,2'-Trichloro biphenyl
- (16) 2,3,4'-Trichloro biphenyl
- (17)
- (18)
- (19)
- (20)
- (21)
- (22) 3,4,4'-Trichloro biphenyl

CAPILLARY COLUMN CHROMATOGRAPHIC CONDITIONS:

Instrument: Perkin-Elmer Model 800

Type Detector: Flame Ionization

Column: 0.02" X 100' SE-52 Silicone Gum Rubber Support
Coated Open Tubular (S.C.O.T.)

Column Temperature: 200° to 260°C
@ 2°/Min.

Detector Block Temperature: 260°C

Injection Port Temperature: 340°C

Sample Volume Injected: 0.010 ml.
Split 1 to 30

Solvent: CS₂

Sample Concentration: 20%

Flow Rates

Nitrogen: 10 ml./min.

Auxiliary Gas: 10 ml./min.

Hydrogen: 30 ml./min.

Air: 400 ml./min.

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CAPILLARY COLUMN PEAK IDENTIFICATION:

- (1) Biphenyl
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- (3) 3-Chloro biphenyl
- (4) 4-Chloro biphenyl
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- (7) 2,3'-Dichloro biphenyl
- (8) 2,4'-and/or 2,3-Dichloro biphenyl
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and/or 2,5,2'-Trichloro biphenyl
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- (12) 2,3,2'-Trichloro biphenyl
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Solvent: CS₂

Sample Concentration: 20%

Flow Rates

Nitrogen: 10 ml./min.

Auxiliary Gas: 10 ml./min.

Hydrogen: 30 ml./min.

Air: 400 ml./min.

DSW 373061