

Dr. Kehoe

June 7, 1961

Memorandum to: Dr. Imbus
Dr. Zavon

Subject: LEAD DETERMINATIONS FOR ~~THE~~ ETHYL CORPORATION

In the recent past all the results of the determinations for lead in biologic specimens submitted to the Laboratory from various Ethyl Corporation installations have been routed to Dr. Alvin Davis for appropriate action. The procedure for the disposition of these reports in the future has been reviewed with Dr. Sanders. Dr. Sanders has requested that the reports be handled in the routine fashion by the members of the Clinical Division with the exception that the completed reports should be sent to him for mailing or other disposition. Copies of the reports will be filed as they have been filed in the past.

LHM

Lee H. Miller, M.D.

LHM:wp

cc: Dr. Kehoe ✓
Dr. Sanders
Dr. Princi
Mr. Cholak
Mr. Bruegman

KE 0002759

N 6404

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 97th period of exposure (7hr./period).

Each sample was collected over a three day period ending 2-13-61.

Submitted: 2-13-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-993	6-2-13-61-26F*	CONTROL	106	2.90	2.74
61A-994	7-2-13-61-26F	CONTROL	152	3.40	2.23
61A-995	14-2-13-61-11F	TML	127	1.85	1.46

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

Reported: 3-28-61

KE 0002760

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 87th period of exposure (7hr./period).

Each sample was collected over a three day period ending 1-30-61.

Submitted: 1-30-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-701	6-1-30-61-24F*	CONTROL	116	3.10	2.68
61A-702	7-1-30-61-24F	CONTROL	120	1.60	1.33
61A-703	14-1-30-61-18F	TML	151	2.70	1.79

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002761

Reported: 3-28-61

Material: Samples of blood collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 92nd period of exposure (7 hr./period).

Submitted: 2-7-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of blood

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ 100 G.</u>
61A-855	6-2-6-61-8B*	CONTROL	16.3	0.014
61A-856	7-2-6-61-8B	CONTROL	14.1	0.014
61A-857	14-2-6-61-6B	TML	17.0	0.085

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002762

Reported: 4-28-61

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 102nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 2-20-61.

Submitted: 2-20-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-1182	6-2-20-61-27F*	CONTROL	107	1.15	1.08
61A-1183	7-2-20-61-27F	CONTROL	108	1.10	1.02
61A-1184	14-2-20-61-21F	TML	136	1.90	1.40

*First number of code is dog number, next three numbers is the final date of collection of the sample, and the final numbers are the series of sample and material.

KE 0002763

Reported: 4-27-61

Material: Samples of blood collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dog #6 is a control.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was drawn following the 107th period of exposure (7 hr./period).

Submitted: 3-7-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of blood.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/100 gm.</u>
61A-1669	6-2-24-61-9B*	CONTROL	19.2	0.021
61A-1670	14-2-24-61-7B	TML	20.6	0.166

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002764

Material: Pooled tissues of four rats which were used in a Lead Alkyl inhalation experiment.

Treatment: These rats died while being exposed to the vapors of TML in air at a concentration of 0.012 mg. TML per liter of air. They received an average of 116 periods of exposure (7 hr./period) each. The first death was after 110 exposures, and the last after 120 exposures.

Submitted: 3-2-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-1499	328-3-2-61	BRAIN	5.2	0.05	1.01
61A-1500	329-3-2-61	HEART	2.7	0.19	6.95
61A-1501	330-3-2-61	KIDNEY	8.8	0.55	6.26
61A-1502	331-3-2-61	LIVER	42.3	1.78	4.21
61A-1503	332-3-2-61	LUNG	5.3	0.44	8.26
61A-1504	333-3-2-61	SPLEEN	0.6	0.04	6.10

KE 0002765

Reported: 5-4-61

Material: Samples of tissues from a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #2 received 2 periods of exposure (7 hr./period) to the vapors of TML in air at a concentration of 0.045 mg. TML per liter of air. Twenty days later it received 8 periods of exposure (7 hr./period) to the vapors of TML in air at a concentration of 0.024 mg. TML per liter of air. The dog was sacrificed at final exposure.

Submitted: 8-17-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Analysis Number</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-6347	LIVER	232	4.20	1.81
60A-6348	SPLEEN	47	0.18	0.39
60A-6349	LUNG	77	0.22	0.28
60A-6350	HEART	62	0.34	0.54
60A-6351	KIDNEY	40	0.55	1.39
60A-6352	BRAIN	43	0.27	0.64
60A-6353	FEMUR	32	0.13	0.40
60A-6354	FAT	27	0.02	0.06

KE 0002766

Reported: 5-9-61

Material: Samples of pooled tissues from rats used in a Lead Alkyl inhalation experiment.

Treatment: These rats received 150 periods of exposure (7 hr./period) to the vapors of TML in air at a concentration of 0.012 mg. TML per liter of air.

Submitted: 3-6-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Tissue</u>	<u>Milligrams Pb/100 gm.</u>
61A-1616	341-3-3-61	BRAIN	3.84	0.018	0.47
61A-1617	342-3-3-61	HEART	1.70	0.015	0.88
61A-1618	343-3-3-61	KIDNEY	5.51	0.155	2.81
61A-1619	344-3-3-61	LIVER	42.88	0.970	2.26
61A-1620	345-3-3-61	LUNG	4.07	0.063	1.54
61A-1621	346-3-3-61	SPLEEN	1.44	0.080	5.56

KE 0002767

Reported: 5-25-61

Material: Samples of pooled tissues of rats used in a Lead Alkyl inhalation experiment.

Treatment: Controls receiving no exposure to lead.

Submitted: 4-17-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-2718	367-4-12-61	BRAIN	8.82	0.003	0.04
61A-2719	368-4-12-61	HEART	4.23	0.004	0.08
61A-2720	369-4-12-61	KIDNEY	11.60	0.016	0.14
61A-2721	370-4-12-61	LIVER	77.28	0.131	0.17
61A-2722	371-4-12-61	LUNG	6.77	0.012	0.18
61A-2723	372-4-12-61	SPLEEN	4.01	0.005	0.12

KE 0002768

Reported: 6-1-61

Material: Samples of pooled tissues of rats used in a Lead Alkyl inhalation experiment.

Treatment: These rats were killed 40 days after 150 periods of exposure (7 hr./period) to the vapors of TML in air at a concentration of 0.012 mg. TML per liter of air.

Submitted: 4-17-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-2712	361-4-12-61	BRAIN	4.35	0.013	0.29
61A-2713	362-4-12-61	HEART	2.23	0.007	0.32
61A-2714	363-4-12-61	KIDNEY	5.19	0.031	0.60
61A-2715	364-4-12-61	LIVER	32.74	0.400	1.22
61A-2716	365-4-12-61	LUNG	3.15	0.015	0.47
61A-2717	366-4-12-61	SPLEEN	1.66	0.019	1.14

KE 0002769

Reported: 6-1-61

Material: Samples of tissues from a dog used in a Lead Alkyl Inhalation experiment.

Treatment: Dog #14 was sacrificed following 107 periods of exposure (7 hr./period), to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air.

Submitted: 3-7-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Analysis Number</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Tissue</u>	<u>Mg. Pb/ 100 G.</u>
61A-1681	LIVER	154	2.80	1.81
61A-1682	SPLEEN	19	0.09	0.45
61A-1683	LUNG	52	0.09	0.18
61A-1684	HEART	59	0.28	0.48
61A-1685	KIDNEY	32	0.35	1.09
61A-1686	BRAIN	22	0.15	0.70
61A-1687	FEMUR	40	0.19	0.46

KE 0002770

Reported: 6-14-61

Material: Samples of tissues from a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #6 is a control

Submitted: 3-7-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues.

Results

<u>Analysis Number</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-1671	LIVER	192	0.19	0.10
61A-1672	SPLEEN	72	0.03	0.04
61A-1673	LUNG	48	0.02	0.04
61A-1674	HEART	52	0.01	0.02
61A-1675	KIDNEY	32	0.02	0.05
61A-1676	BRAIN	25	0.01	0.03
61A-1680	BONE	26	0.04	0.17

KE 0002771

Reported: 6-26-61

Material: Samples of the tissues of a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #4 received 8 periods of exposure (7 hr./period) to the vapors of TML in air at a concentration of 0.044 mg. TML per liter of air.

Submitted: 2-15-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-1038	Liver	238	4.64	1.95
61A-1039	Spleen	28	0.17	0.61
61A-1040	Lung	71	0.32	0.45
61A-1041	Heart	84	0.55	0.66
61A-1042	Kidney	51	0.87	1.70
61A-1043	Brain	41	0.33	0.80
61A-1044	Femur	37	0.09	0.23*
61A-1045	Fat	100	0.05	0.05

*This result was checked by repeat analysis on the sample solution.

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RE 0002772

Reported: 4-4-61

Material: Samples of urine and feces collected from rats used in a lead inhalation experiment.

Treatment: Control rats were not exposed to lead.

TML rats are being exposed to the vapors of TML in air at a concentration of 0.012 mg. TML per liter of air. Urine sample was collected from glass exposure chamber following exposures #116 through #142. Feces sample was collected under cages during the week in which rats received exposures #143 to #148.

Submitted: 3-9-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine and feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>URINE</u>			<u>Weight Grams</u>
			<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>	
61A-1732	353-3-9-61	TML	44	0.16	3.70	
61A-1733	354-3-9-61	CONTROL	67	0.02	0.30	
61A-1734	355-3-9-61	TML				34.2
61A-1735	356-3-9-61	CONTROL				32.5

Reported:

Material: Pooled tissues from eight rats used in the Lead Alkyl Inhalation experiments

Treatment: Five male and three female rats were exposed to the vapors of TML in air at a concentration of 0.022 mg. TML per liter of air. All of the rats died between the 30th and 41st period of exposure (each period of 7 hours duration).

Submitted: 8-1-60 by Dr. R. K. Davis

Required: Concentration of Lead in tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Weight of Sample Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 G.</u>
60A-5935	263-7-27-60-BRAIN	6.88	0.07	1.02
60A-5936	264-7-27-60-HEART	3.35	0.37	11.00
60A-5937	265-7-27-60-KIDNEY	12.00	0.70	5.83
60A-5938	266-7-27-60-LIVER	42.30	4.50	10.70
60A-5939	267-7-27-60-LUNG	12.20	1.20	9.80
60A-5940	268-7-27-60-SPLEEN	1.03	0.07	6.90

Reported: 11-9-60

KE

0002774

Material: Samples of feces collected from dogs used in the Lead Alkyl Inhalation experiments

Treatment: The exposure of dog #1 consisted of two seven-hour periods, on 7-11 and 12-60, to the vapors of TEL in air at a concentration of 0.068 mg. TEL per liter of air. The exposure of dog #2 consisted of two seven-hour periods, on 7-11 and 12-60, to the vapors of TML in air at a concentration of 0.023 mg. TML per liter of air. Samples from dog #3 were collected following the fifth period of exposure (each of 7 hours duration) to the vapors of TEL in air at a concentration of 0.042 mg. TEL per liter of air. Samples from dog #4 were collected following the fifth period of exposure (each of 7 hours duration) to the vapors of TML in air at a concentration of 0.044 mg. TML per liter of air. Samples from dogs #6,7,10,11,12 and 13 are Control samples. Each sample was collected over a three day period ending 7-26-60.

Submitted: 8-2-60- by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 G.</u>
60A-5964	1-7-27-60-6F*	123	2.00	1.62
60A-5965	2-7-27-60-6F	539	8.40	1.56
60A-5966	3-7-27-60-3F	9	4.50	50.00
60A-5967	4-7-27-60-3F	90	4.95	5.50
60A-5968	6-7-27-60-1F	29	2.80	9.70**
60A-5969	7-7-27-60-1F	77	4.85	6.30**
60A-5972	10-7-27-60-1F	40	0.74	1.85
60A-5973	11-7-27-60-1F	101	2.75	2.72
60A-5974	12-7-27-60-1F	100	5.00	5.00**
60A-5975	13-7-27-60-1F	123	2.40	1.95

*First number of code is dog number, next three is date of final sample collection, and final numbers are the series of sample and material.

**Good check were obtained for these results, upon re-analysis of sample solution.

Material: Samples of urine collected from dogs used in the Lead Alkyl Inhalation experiments

Treatment: The controls are dogs #6,7,16 and 17

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. The samples were collected following the 25th period of exposure (each of 7 hr. duration).

Each sample was collected over a three day period ending 10-31-60

Submitted: 11-2-60 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Volume of Sample Milliliters</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
60A-8139	6-10-31-60-12U*	130	0.011	0.08
60A-8140	7-10-31-60-12U	400	0.030	0.08
60A-8143	14-10-31-60-6U	500	0.203	0.41
60A-8144	15-10-31-60-6U	320	0.121	0.38
60A-8145	16-10-31-60-2U	780**		
60A-8146	17-10-31-60-2U	690	0.028	0.04

*First number of code is dog number, next three numbers is the date of final sample collection, and the final numbers are the series of sample and material.

**Sample lost

Reported: 11-15-60

KE 0002776

Material: Samples of urine collected from dogs used in the Lead Alkyl Inhalation experiments.

Treatment: The controls are dogs #6,7,16 and 17.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML/L. of air. Samples were collected following the twentieth exposure period (each of 7 hr. duration).

Each sample was collected over a three day period ending 10-24-60.

Submitted: 10-25-60 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine.

<u>Analysis Number</u>	<u>Description</u>	<u>Volume of Sample Milliliters</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
60A-7956	6-10-24-60-11U*	260	0.017	0.06
60A-7957	7-10-24-60-11U	155	0.019	0.13
60A-7960	14-10-24-60-5U	410	0.460	1.12
60A-7961	15-10-24-60-5U	550	0.162	0.30
60A-7962	16-10-24-60-1U	625	0.024	0.04
60A-7963	17-10-24-60-1U	635	0.029	0.05

*First number of code is dog number, next three numbers is the date of final sample collection, and final numbers are the series of sample and material.

KE 0002777

Material: Samples of feces collected from dogs used in Lead Alkyl Inhalation experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #10 and 11 are being exposed to the vapors of TEL in air at a concentration of 0.012 mg. TEL per liter of air. Samples were collected following the 24th period of exposure (7 hr./period).

Dogs #14 and 15 are pre-exposure.

Each sample was collected over a three day period ending 9-26-60.

Submitted: 9-27-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-7258	6-9-26-60-7F*	CONTROL	316	3.10	0.98
60A-7259	7-9-26-60-7F	CONTROL	407	9.80	2.40
60A-7262	10-9-26-60-7F	TEL	71	2.60	3.67
60A-7263	11-9-26-60-7F	TEL	508	6.00	1.18
60A-7264	14-9-26-60-1F	NONE	329	4.50	1.37
60A-7265	15-9-26-60-1F	NONE	213	3.30	1.55

*First number of code is dog number, next three numbers is the final date of sample collection, and final numbers are the series of sample and material.

Reported: 1-10-61

KE 0002778

Material: Samples of feces collected from dogs used in Lead Alkyl Inhalation experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 5th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 10-3-60.

Submitted: 10-4-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed to</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-7468	6-10-3-60-8F*	CONTROL	137	6.00	4.37
60A-7469	7-10-3-60-8F	CONTROL	272	3.30	1.21
60A-7472	14-10-3-60-2F	TML	193**		
60A-7473	15-10-3-60-2F	TML	346**		

*First number of code is dog number, next three numbers is the final date of sample collection, and final numbers are the series of sample and material.

**Sample lost.

Reported: 1-10-61

KE 0002779

Material: Samples of feces collected from dogs used in Lead Alkyl Inhalation experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 10th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 10-10-60.

Submitted: 10-11-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-7632	6-10-10-60-9F*	CONTROL	158**		
60A-7633	7-10-10-60-9F	CONTROL	120**		
60A-7636	14-10-10-60-3F	TML	88	1.50	1.70
60A-7637	15-10-10-60-3F	TML	206	2.50	1.21

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

**Sample lost.

KE 0002780

Reported: 1-10-61

Material: Samples of feces collected from dogs used in Lead Alkyl Inhalation experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 15th period of exposure. (7 hr./period).

Each sample was collected over a three day period ending 10-17-60.

Submitted: 10-17-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-7790	6-10-17-60-10F*	CONTROL	239	2.40	1.00
60A-7791	7-10-17-60-10F	CONTROL	151	3.80	2.52
60A-7794	14-10-17-60-4F	TML	258	2.70	1.05
60A-7795	15-10-17-60-4F	TML	325	3.10	0.95

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

Reported: 1-10-61

KE 0002781

Material: Samples of feces collected from dogs used in Lead Alkyl Inhalation experiments

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML/l. of air. Samples were collected following the 20th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 10-24-60.

Submitted: 10-25-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-7964	6-10-24-60-11F*	CONTROL	153	3.20	2.09
60A-7965	7-10-24-60-11F	CONTROL	135	1.40	1.04
60A-7968	14-10-24-60-5F	TML	348	3.60	1.04
60A-7969	15-10-24-60-5F	TML	412	7.80	1.89

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material

Reported: 1-13-61

KE 0002782

Material: Pooled tissues of 3 male and 2 female rats used in Lead Alkyl Inhalation experiments, (sections of the tissues were removed for micropathology).

Treatment: These are Control rats. They were killed 39 days after 150 periods of exposure (7 hr./period) to 32 liters per minute of room air plus 0.1 liters per minute of dry nitrogen.

Submitted: 11-17-60 by Dr. R. K. Davis

Required: Concentration of Lead in tissues.

<u>Analysis Number</u>	<u>Description</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-8541	308-11-17-60	BRAIN	7.7	0.0021	0.027
60A-8542	309-11-17-60	HEART	4.7	0.0013	0.027
60A-8543	310-11-17-60	KIDNEY	10.6	0.0214	0.202
60A-8544	311-11-17-60	LIVER	12.5	0.0333	0.266
60A-8545	312-11-17-60	LUNG	6.7	0.0020	0.030
60A-8546	313-11-17-60	SPLEEN	2.4	0.0020	0.083

Reported: 1-24-61

KE 0002783

Material: Samples of feces collected from dogs used in Lead Alkyl Inhalation experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 30th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 11-7-60.

Submitted: 11-8-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-8286	6-11-7-60-13F*	CONTROL	89	2.90	3.26
60A-8287	7-11-7-60-13F	CONTROL	103	2.30	2.23
60A-8290	14-11-7-60-7F	TML	88	2.20	2.50
60A-8291	15-11-7-60-7F	TML	195	2.30	1.18

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and materi

Reported: 1-24-61

KE 0002784

Material: Samples of urine collected from dogs used in Lead Alkyl experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 59th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 12-19-60.

Submitted: 12-19-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
60A-9376	6-12-19-60-19U*	CONTROL	190	0.019	0.10
60A-9377	7-12-19-60-19U	CONTROL	200	0.028	0.14
60A-9380	14-12-19-60-13U	TML	225	0.400	1.77
60A-9381	15-12-19-60-13U	TML	650	0.300	0.46

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

Reported: 1-26-61

KE 0002785

Material: Samples of feces collected from dogs used in Lead Alkyl experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 35th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 11-14-60.

Submitted: 11-15-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-8456	6-11-14-60-14F*	CONTROL	166	2.80	1.69
60A-8457	7-11-14-60-14F	CONTROL	113	1.30	1.15
60A-8460	14-11-14-60-8F	TML	121	1.60	1.32
60A-8461	15-11-14-60-8F	TML	267	3.10	1.16

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002786

Reported: 1-26-61

Material: Sample of room air collected in 95% Ethyl Alcohol
Treatment: 3.6 M³ of room air was scrubbed with brominated 95% Ethyl Alcohol, over a period of 26 days.
Submitted: 1-23-61 by Dr. R. K. Davis
Required: Concentration of Lead and Nickel in sample of room air.

<u>Analysis Number</u>	<u>Description</u>	<u>Volume of Sample M³</u>	<u>Micrograms Ni/M³</u>	<u>Micrograms Pb/M³</u>
61A-547	213-1-19-61	3.6	3.4	5.7

KE 0002787

Reported: 1-27-61

Material: Samples of urine collected from dogs used in Lead Alkyl experiments.

Treatment: Dogs #6 and 7 are CONTROLS.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 72nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 1-9-61.

Submitted: 1-10-61 by Dr. R. K. Davis

Required: Concentration of Lead in Samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
61A-205	6-1-9-61-21U*	CONTROL	290	0.023	0.08
61A-206	7-1-9-61-21U	CONTROL	285	0.022	0.08
61A-209	14-1-9-61-15U	TML	190	0.410	2.16
61A-210	15-1-9-61-15U	TML	310	0.420	1.36

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

Reported: 1-27-61

KE 0002788

Material: Samples of urine collected from dogs used in Lead Alkyl experiments

Treatment: Dogs #6 and #7 are controls

Dogs #14 and #15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 64th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 12-26-60.

Submitted: 12-27-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of urine

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
60A-9566	6-12-26-60-20U*	CONTROL	310	0.023	0.07
60A-9567	7-12-26-60-20U	CONTROL	200	0.040	0.20
60A-9570	14-12-26-60-14U	TML	200	0.121	0.60
60A-9571	15-12-26-60-14U	TML	750	1.320	1.76

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

✓ Dr. R. A. Kehoe
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KE 0002790

Material: Samples of urine and feces collected from rats used in Lead

Treatment: CONTROL rats were not exposed to lead.

TML rats are being exposed to the vapors of TML in air at a
mg. TML per liter of air. Urine sample was collected, from
exposure chamber, following the 87th through 115th period of
Feces samples were collected, from paper placed under the
111th through 114th period of exposure (7 hr./period).

Submitted: 1-17-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine and feces.

Analysis Number	Description	Exposed To	URINE			Weight Grams
			Volume ml.	Mg. Pb/ Sample	Mg. Pb/ Liter	
61A-437	334-1-16-61	TML	44	0.130	2.96	
61A-438	335-1-16-61	CONTROL	115	0.048	0.41	
61A-439	336-1-16-61	TML				23.5
61A-440	337-1-16-61	CONTROL				27.0

Reported:

Material: Sample of blood collected from a dog used in Lead Alkyl Inhalation studies.

Treatment: This dog was being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was taken at sacrifice after 87 periods of exposure (7hr./period).

Submitted: 1-30-61 by Dr. R. K. Davis

Required: Concentration of Lead in sample of blood.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Milligrams Pb/100 Grams</u>
61A-714	15-1-30-61-6B*	18.4	0.12

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002792

Reported: 2-6-61

Material: Samples of feces collected from dogs used in Lead Alkyl inhalation experiments.

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 39th period of exposure (7 hr./period)

Each sample was collected over a three day period ending 11-21-60.

Submitted: 11-21-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 g.</u>
60A-8647	6-11-21-60-15F*	CONTROL	158	1.70	1.08
60A-8648	7-11-21-60-15F	CONTROL	163	0.94	0.58
60A-8651	14-11-21-60-9F	TML	137	1.85	1.35
60A-8652	15-11-21-60-9F	TML	233	2.40	1.03

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

Reported: 2-9-61

KE 0002703

Material: Samples of blood collected from dogs used in a Lead Alkyl Inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dogs #14 and #15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 72nd period of exposure (7 hr./period).

Submitted: 1-9-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of blood.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/100 gm.</u>
61A-184	6-1-9-61-7B*	CONTROL	17.0	0.010
61A-185	7-1-9-61-7B	CONTROL	16.5	0.020
61A-188	14-1-9-61-5B	TML	15.4	0.075
61A-189	15-1-9-61-5B	TML	15.3	0.085

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

KE 0002794

Material: Samples of blood collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 54 period of exposure (7 hr./period).

Submitted: 12-13-60 by Dr. R. K. Davis

Required: Concentration of lead in samples of blood

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ 100 G.</u>
60A-9232	6-12-12-60-6B*	CONTROL	19.2	0.015
60A-9233	7-12-12-60-6B	CONTROL	23.9	0.010
60A-9236	14-12-12-60-4B	TML	10.4	0.065
60A-9237	15-12-12-60-4B	TML	10.7	0.045

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers is the series of sample and material.

KE 0002795

Reported: 2-10-61

Material: Samples of feces collected from dogs used in a Lead Alkyl Inhalation experiment

Treatment: Dogs #6 and #7 are controls.

Dogs #14 and #15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 44th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 11-28-60.

Submitted: 11-28-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
60A-8829	6-11-28-60-16F*	CONTROL	150	1.65	1.10
60A-8830	7-11-28-60-16F	CONTROL	153	2.40	1.57
60A-8833	14-11-28-60-10F	TML	157	3.10	1.97
60A-8834	15-11-28-60-10F	TML	223	3.80	1.70

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and Material.

KE

0002796

Material: Samples of feces collected from dogs used in an Lead Alkyl inhalation experiment

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 49th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 12-5-60.

Submitted: 12-6-60 by Dr. R. K. Davis

Required: Concentration of lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-8975	6-12-5-60-18F*	CONTROL	121	1.40	1.16
60A-8976	7-12-5-60-17F	CONTROL	151	1.10	0.73
60A-8979	14-12-5-60-11F	TML	158	1.50	0.95
60A-8980	15-12-5-60-11F	TML	228	2.40	1.05

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002707

Reported: 2-13-61

Material: Samples of urine collected from dogs used in a Lead Alkyl inhalation experiment

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 77th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 1-16-61.

Submitted: 1-17-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine.

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
61A-425	6-1-16-61-22U*	CONTROL	135	0.017	0.12
61A-426	7-1-16-61-22U	CONTROL	225	0.020	0.09
61A-427	14-1-16-61-16U	TML	185	0.330	1.78
61A-428	15-1-16-61-16U	TML	230	0.354	1.54

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

KE 0002798

Reported: 2-10-61

Material: Samples of urine collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 82nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 1-23-61.

Submitted: 1-23-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
61A-559	6-1-23-61-23-U*	CONTROL	180	0.03	0.16
61A-560	7-1-23-61-23U	CONTROL	195	0.02	0.12
61A-561	14-1-23-61-17U	TML	155	0.41	2.66
61A-562	15-1-23-61-17U	TML	340	0.41	1.21

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

KE 0002799

Reported: 2-14-61

Material: Samples of tissues from a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #10 received 29 periods of exposure (7 hr./period) to the vapors of TEL in air at a concentration of 0.012 mg. TEL per liter of air.

Submitted: 1-16-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-363	Liver	156	6.02	3.86
61A-364	Spleen	11	0.09	0.85
61A-365	Lung	48	0.06	0.14
61A-366	Heart	47	0.03	0.06
61A-367	Kidney	24	0.25	1.05
61A-368	Brain	84	0.15	0.18
61A-369	Bone	21.5	0.39	1.81

KE 0002800

Reported: 2-14-61

Material: Samples of urine collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample from dog #14 was collected following the 87th period of exposure (7 hr./period). Sample from dog #15 was removed from the bladder at sacrifice after 85 periods of exposure (1-24-61)

Each sample (except dog #15) was collected over a three day period ending 1-30-61.

Submitted: 1-30-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
61A-708	6-1-30-61-24U*	CONTROL	130	0.02	0.17
61A-709	7-1-30-61-24U	CONTROL	145	0.02	0.13
61A-710	14-1-30-61-18U	TML	295	0.62	2.10
61A-711	15-1-30-61-18U	TML	80	0.29	3.57

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material

KE 0002301

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 54th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 12-12-60.

Submitted: 12-13-60 by Dr. R. K. Davis

Required: Concentration of lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-9247	6-12-12-60-18F*	CONTROL	108	1.10	1.02
60A-9248	7-12-12-60-18F	CONTROL	133	1.30	0.98
60A-9251	14-12-12-60-12F	TML	68	2.50	3.68
60A-9252	15-12-12-60-12F	TML	161	4.50	2.80

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

KE 0002302

Material: Samples of tissues from a dog used in a Lead Alkyl inhalation experiment

Treatment: Dog #11 received 24 periods of exposure (7 hr./period) to the vapors of TEL in air at a concentration of 0.012 mg. TEL per liter of air.

Submitted: 1-16-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-370	Liver	448	9.54	2.13
61A-371	Spleen	26	0.15	0.59
61A-372	Lung	75	0.20	0.26
61A-373	Heart	77	0.13	0.17
61A-374	Kidney	57	0.31	0.55
61A-375	Brain	60	0.17	0.29
61A-376	Bone	34	0.52	1.54

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dogs #14 and #15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 59th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 12-19-60.

Submitted: 12-19-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
60A-9370	6-12-19-60-19F*	CONTROL	91	2.20	2.42
60A-9371	7-12-19-60-19F	CONTROL	89	1.10	1.24
60A-9374	14-12-19-60-13F	TML	108	2.40	2.22
60A-9375	15-12-19-60-13F	TML	235	7.80	3.32

*First number of code is dog number, next three numbers is the final date of collection of sample, and final numbers are the series of sample and material.

KE

0002504

Reported: 2-17-61

Material: Samples of tissues from a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #12 received 15 periods of exposure (7 hr./period) to the vapors of TML in air at a concentration of 0.012 mg. TML per liter of air.

Submitted: 1-16-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-380	Liver	128	2.03	1.59
61A-381	Spleen	11	0.05	0.51
61A-382	Lung	51	0.12	0.24
61A-383	Heart	44	0.18	0.41
61A-384	Kidney	24	0.18	0.76
61A-385	Brain	49.5	0.31	0.63

KE

0002805

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 72nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 1-9-61.

Submitted: 1-10-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
61A-211	6-1-9-61-21F*	CONTROL	122	3.10	2.54
61A-212	7-1-9-61-21F	CONTROL	165	4.20	2.54
61A-215	14-1-9-61-15F	TML	127	1.90	1.50
61A-216	15-1-9-61-15F	TML	217	2.60	1.20

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002806

Material: Samples of tissues from a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #3 received 7 periods of exposure (7 hr./period) to the vapors of TEL in air at a concentration of 0.042 mg. TEL per liter of air.

Submitted: 2-15-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Results</u>				
<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-1031	LIVER	337.	15.90	4.73
61A-1032	SPLEEN	23.8	0.11	0.46
61A-1033	LUNG	100.	0.21	0.21
61A-1034	HEART	84.	0.15	0.17
61A-1035	KIDNEY	58.	0.85	1.47
61A-1036	BRAIN	38.	0.10	0.25
61A-1037	FEMUR	36.	0.43	1.20

KE 0002807

Reported: 3-10-61

Material: Samples of urine collected from dogs used in a Lead Alkyl inhalation experiment

Treatment: Dogs #6 and 7 are Controls

Dogs #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 97th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 2-13-61.

Submitted: 2-13-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
61A-988	6-2-13-61-26U*	CONTROL	185	0.03	0.18
61A-989	7-2-13-61-26U	CONTROL	260	0.04	0.16
61A-990	14-2-13-61-20U	TML	395	0.87	2.21

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002808

Reported: 3-14-61

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 77th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 1-16-61

Submitted: 1-17-61 by Dr. R. K. Davis

Required: Concentration of lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 g.</u>
61A-431	6-1-16-61-22F*	CONTROL	82	0.82	1.00
61A-432	7-1-16-61-22F	CONTROL	125	1.90	1.52
61A-433	14-1-16-61-16F	TML	122	1.60	1.31
61A-434	15-1-16-61-16F	TML	113	1.40	1.24

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002809

Reported: 3-14-61

Material: Samples of urine collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 92nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 2-6-61.

Submitted: 2-8-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of urine.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
61A-888	6-2-6-61-25U*	CONTROL	170	0.03	0.18
61A-889	7-2-6-61-25U	CONTROL	170	0.03	0.19
61A-890	14-2-6-61-19U	TML	140	0.34	2.42

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002810

Material: Samples of tissues collected from a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #5 received 30 periods of exposure (7 hr./period) to the vapors of TEL in air at a concentration of 0.022 mg. TEL per liter of air.

Submitted: 1-16-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-357	Liver	387	9.14	2.36
61A-358	Spleen	30	1.68	5.60
61A-359	Lung	120	2.92	2.43
61A-360	Heart	95	1.92	2.02
61A-361	Kidney	65	1.55	2.39
61A-362	Brain*			

*No sample received.

KE 0002811

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and 7 are Controls.

Dogs #14 and 15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 64th period of exposure (7 hr./period).

Each sample was collected over a three day period ending 12-26-60.

Submitted: 12-27-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ 100 G.</u>
60A-9572	6-12-26-60-20F*	CONTROL	96	1.60	1.67
60A-9573	7-12-26-60-20F	CONTROL	122	2.10	1.72
60A-9576	14-12-26-60-14F	TML	120	2.10	1.75
60A-9577	15-12-26-60-14F	TML	241	5.00	2.08

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

Reported: 3-8-61

KE 0002812

Material: Samples of urine collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 102nd period of exposure (7 Hr./period).

Each sample was collected over a three day period ending 2-20-61.

Submitted: 2-20-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of urine.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
61A-1177	6-2-20-61-27U*	CONTROL	160	0.03	0.20
61A-1178	7-2-20-61-27U	CONTROL	185	0.10	0.54**
61A-1179	14-2-20-61-21U	TML	350	0.05	0.14**

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

**These results were checked by a repeat analysis of sample.

KE 0002813

Reported: 3-15-61

Material: Samples of urine collected from dogs used in an AP-Tl inhalation experiment

Treatment: Dogs #6 and 7 are Controls

Dogs #16 and 17 are being exposed to the vapors of AP-Tl in air at a concentration of 0.004 mg. AP-Tl per liter of air. Samples of urine were collected following the 30th period of exposure (7 hr./period).

Submitted: 2-20-61 by Dr. R. K. Davis

Required: Concentration of Nickel in samples of urine

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Volume ml.</u>	<u>Micrograms Ni/Sample</u>	<u>Micrograms Ni/Liter</u>
61A-1177	6-2-20-61-27U*	CONTROL	160**	-	-
61A-1178	7-2-20-61-27U	CONTROL	185	47	254
61A-1180	16-2-20-61-12U	AP-Tl	490	84	171***
61A-1181	17-2-21-61-12U	AP-Tl	320	740	2310

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

**Sample lost in process of analysis

***Result checked by repeat analyses of same sample

Reported: 3-15-61

RE 0002814

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dogs #14 and #15 are being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Samples were collected following the 82nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 1-23-61.

Submitted: 1-23-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-565	6-1-23-61-23F*	CONTROL	116	1.00	0.86
61A-566	7-1-23-61-23F	CONTROL	84	1.30	1.55
61A-567	14-1-23-61-17F	TML	90	1.70	1.89
61A-568	15-1-23-61-17F	TML	125	2.10	1.68

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002815

Reported: 3-15-61

Material: Samples of tissues of a dog used in a Lead Alkyl inhalation experiment.

Treatment: Dog #13 received 14 periods of exposure (7 hr./Period) to the vapors of TML in air at a concentration of 0.012 mg. TML per liter of air.

Submitted: 1-16-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues

<u>Analysis Number</u>	<u>Description</u>	<u>Weight Grams</u>	<u>Mg. Pb/ Sample</u>	<u>Mg.Pb/ 100 G.</u>
61A-388	Liver	270	3.60	1.34
61A-389	Spleen	15	0.06	0.41
61A-390	Lung	242	0.33	0.14
61A-391	Heart	77	0.29	0.38
61A-392	Kidney	48	0.51	1.08
61A-393	Brain	72	0.79	1.09
61A-394	Spinal Cord	14	0.05	0.39

KE 0002816

Reported: 2-24-61

Material: Samples of feces collected from dogs used in a Lead Alkyl inhalation experiment.

Treatment: Dogs #6 and #7 are controls.

Dog #14 is being exposed to the vapors of TML in air at a concentration of 0.004 mg. TML per liter of air. Sample was collected following the 92nd period of exposure (7 hr./period).

Each sample was collected over a three day period ending 2-6-61.

Submitted: 2-8-61 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Exposed To</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
61A-893	6-2-6-61-25F*	CONTROL	98	1.90	1.94
61A-894	7-2-6-61-25F	CONTROL	116	2.70	2.33
61A-895	14-2-6-61-19F	TML	56	1.30	2.32

*First number of code is dog number, next three numbers is the final date of collection of the sample, and final numbers are the series of sample and material.

KE 0002817

Reported: 3-29-61

Material: Samples of pooled tissues from four rats used in a Lead Alkyl inhalation experiment.

Treatment: These rats received 150 periods of exposure (7 hr./period) to the vapors of TEL in air at a concentration of 0.012 mg. TEL per liter of air. They were sacrificed 39 days after final exposure.

Submitted: 11-17-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of tissues.

Results

<u>Analysis Number</u>	<u>Description</u>	<u>Tissue</u>	<u>Weight Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
60A-8535	302-11-17-60	BRAIN	5.44	0.010	0.18
60A-8536	303-11-17-60	Heart	3.02	0.006	0.18
60A-8537	304-11-17-60	Kidney	7.53	0.041	0.54
60A-8538	305-11-17-60	Liver	49.80	0.300	0.60
60A-8539	306-11-17-60	Lung	4.76	0.006	0.13
60A-8540	307-11-17-60	Spleen	1.55	0.006	0.93

KE 0002818

Material: Samples of urine and blood from dogs used in the Lead Alky

Treatment: Exposure to room air with no added Lead was started 8-22-60

Exposure to TEL vapors at a concentration of 0.012 mg. TEL started 8-22-60 for dogs #10 and #11.

Pre-exposure samples were taken on dogs #14 and #15.

Urines were collected over a three day period ending 9-26-60

All days are exposed seven hours every day except Saturday

Submitted: 9-27-60 by Dr. R. K. Davis

Required: Concentration of Lead on samples from all dogs except #8 and #9
Manganese on samples from dogs #6, #7, #8 and #9.

<u>Analysis Number</u>	<u>Description</u>	<u>URINE</u>			<u>Weight Grams</u>
		<u>Volume Milliliters</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>	
60A-7246	6-9-26-60-7U*	322	0.035	0.11	
60A-7247	7-9-26-60-7U	413	0.050	0.12	
60A-7250	10-9-26-60-7U	74	0.228	3.07	
60A-7251	11-9-26-60-7U	513	0.995	1.94	
60A-7252	14-9-26-60-1U	336	0.031	0.09	
60A-7253	15-9-26-60-1U	220	0.024	0.11	
60A-7254	10-9-26-60-4B	-	-	-	1
60A-7255	11-9-26-60-4B	-	-	-	
60A-7256	14-9-26-60-1B	-	-	-	
60A-7257	15-9-26-60-1B	-	-	-	1

*First number of code is dog number, next three numbers is the date of final sample and final numbers are the series of sample and material.

Material: A sample of blood from a dog used in the Lead Alkyl Inhalation experiments.

Treatment: This dog was exposed 15 times (7 hr./exposure) to the vapors of TML at a concentration of 0.011 mg. TML/L. of air.

Submitted: 9-12-60 by Dr. R. K. Davis

Required: Concentration of Lead in blood.

<u>Analysis Number</u>	<u>Description</u>	<u>Weight of Sample Grams</u>	<u>Milligrams Pb/100 gms.</u>
60A-6871	12-9-12-60-4B*	8.9	0.085

*First number of code is dog number, next three numbers is the date of final sample collection, and final numbers are the series of sample and material.

Material: Samples of feces from rats used in the Lead Alkyl Inhalation experiments.

Treatment: TEL-rats were exposed 74 times (7 hr./exposure) to TEL vapors at a concentration of 0.012 mg. TEL/L. of air.

TML-rats were exposed 24 times (7 hr./exposure) to TML vapors at a concentration of 0.022 mg. TML/L. of air.

CONTROL-rats were exposed 74 times (7 hr./exposure) to room air plus 0.3% dry nitrogen, with no added lead.

Feces were collected on paper placed under the cages.

Submitted: 6-21-60 by Dr. R. K. Davis

Required: Concentration of lead in feces samples

<u>Analysis Number</u>	<u>Description</u>	<u>Weight of Sample Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
60A-5081	236-6-17-60-TEL	16.2	0.61	3.76
60A-5082	237-6-17-60-TML	16.5	0.34	2.06
60A-5083	238-6-17-60-CONTROL	16.3	0.11	0.68

KE 0002821

Reported: 11-8-60

Material: Samples of blood and urine collected from a dog used in the Lead Alkyl Inhalation experiments.

Treatment: This dog has received 15 periods of exposure (each of 7 hours duration) to the vapors of TML in air at a concentration of approximately 0.012 mg. TML per liter of air.

Submitted: 9-14-60 by Dr. R. K. Davis

Required: Concentration of Lead in blood and urine samples.

<u>Analysis Number</u>	<u>Description</u>	<u>Volume ml.</u>	<u>Mg. Pb/ Sample</u>	<u>Mg. Pb/ Liter</u>
60A-6916	12-9-13-60-6U	48	0.156	3.26

The sample of blood was lost (Analysis Number 60A-6915), (Description - 12-9-13-60-5B)

KE 0002822

Reported: 11-9-60

Material: Samples of urine collected from rats used in the Lead Alkyl Inhalation experiments.

Treatment: TML-rats are being exposed to the vapors of TML in air at a concentration of 0.012 mg. TML/L. of air. Urine was collected from the glass exposure chamber following the 43rd through 64th period of exposure (each period of 7 hr. duration).

CONTROL-rats are being exposed to room air with no added lead.

Submitted: 11-2-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of urine.

<u>Analysis Number</u>	<u>Description</u>	<u>Volume of Sample Milliliters</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
60A-8135	297-11-2-60-TML	105	0.204	1.95
60A-8136	298-11-2-60-CONTROL	115	0.028	0.24

KE 0002823

Reported: 11-9-60

Material: Samples of feces collected from rats used in the Lead Alkyl Inhalation experiments.

Treatment: TEL-rats received 139 periods of exposure (each of 7 hr. duration) to the vapors of TEL in air at a concentration of 0.012 mg. TEL/L. of air.

TML-rats have received 38 periods of exposure (each of 7 hr. duration) to the vapors of TML in air at a concentration of 0.012 mg. TML/L. of air.

CONTROL- rats have received 139 periods of exposure (each of 7 hr. duration) to room air plus dry nitrogen with no added lead.

Submitted: 10-3-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of feces.

<u>Analysis Number</u>	<u>Description</u>	<u>Weight of Sample Grams</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/100 gm.</u>
60A-7440	278-9-30-60-TEL	24.6	0.98	3.98
60A-7441	279-9-30-60-TML	20.5	0.35	1.71
60A-7442	280-9-30-60-CONTROL	23.0	0.21	0.91

KE

0002824

Material: Samples of urine collected from rats used in the Lead Alkyl Inhalation experiments.

Treatment: TEL-rats are being exposed to the vapors of TEL in air at a concentration of 0.012 mg. TEL/L. of air. Urine was collected from the glass exposure chamber following the 144th through 150th period of exposure (each period of 7 hr. duration).

CONTROL-rats are being exposed to 32 L./min. of room air plus 0.1 L./Min. of dry Nitrogen - no added lead.

Submitted: 11-2-60 by Dr. R. K. Davis

Required: Concentration of Lead in samples of urine.

<u>Analysis Number</u>	<u>Description</u>	<u>Volume of Sample Milliliters</u>	<u>Milligrams Pb/Sample</u>	<u>Milligrams Pb/Liter</u>
60A-8137	299-11-2-60-TEL	29	0.108	3.70
60A-8138	300-11-2-60-CONTROL	48	0.007	0.15

KE

0002825

Reported: 11-9-60