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FYI-0398-1331

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
National Institute of
Environmental Health Sciences
P.O. Box 12233
Research Triangle Park, N.C. 27709

FYI-98-001331

March 26, 1998

Attn: TSCA Section 8 (e)
Room G99 East Tower
Ofc of Pollution Prevention & Toxics
U.S. EPA
401 M St. SW
Washington, DC 20460-0001

Contains No CBI

RE:. Chronic Studies on EGMBE

In compliance with the National Toxicology Program's (NTP) mission to keep our colleagues informed of the current NTP findings during on-going studies, a copy of the Pathology Working Group (PWG) report and the Summary Pathology Tables for the chronic inhalation studies on Ethylene Glycol Monobutyl Ether (EGMBE) (CAS No. 111-76-2) are enclosed for your review.

The NTP assembles a Pathology Working Group to review every study and to resolve any differences between the study laboratory and quality assessment pathology evaluations. Please note that the PWG conclusion of the study results is based solely on the pathology for this study and may not reflect final NTP conclusions. In determining final conclusions, the NTP assesses a broad array of information that includes other results from this study and historical control data.

The Summary Pathology Tables contain the Incidence Rates of Neoplastic and Non-neoplastic Lesion data and the Statistical Analysis of Primary Tumors data pertaining to the laboratory animals. All study data are subject to an NTP retrospective audit and the interpretation may be modified based on the findings.

A wide variety of NTP information is also available in electronic format on the world-wide web, for example, the NTP Annual Plan, abstracts of NTP Reports, study data, and the status of all NTP studies. To view this information requires access to the internet and a Web browser such as Netscape Navigator or Internet Explorer. To access the NTP home page, use the URL http://ntp-server.niehs.nih.gov/. Comments on the usefulness of this site and suggestions for improvement are encouraged.

Please contact Central Data Management (CDM) at (919)541-3419 if you have any questions. You may also fax your requests for information to CDM at (919)541-3687 or send them via e-mail to cdm@niehs.nih.gov.

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Hard copies of documents such as NTP Technical Reports, short-term Toxicity Reports, and the Report on Carcinogens are available from the Environmental Health Information Service (EHIS). You can contact EHIS by phone at (919) 541-3841, by fax at (919)541-0273, or by e-mail at ehis@niehs.nih.gov.

Sincerely,

William Eastin

William Eastin, Ph.D.
Head, Information Systems & Central Files
Environmental Toxicology Program

Encls: Rats & Mice, PWG, Pathology Summary Tables
cc: Dr. J. Bucher
Dr. J. Roycroft
Central Data Management

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PAI

Pathology Associates International
A Company of Science Applications International Corporation

SAIC
An Employee-Owned Compan

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111-76-2

PATHOLOGY WORKING GROUP CHAIRPERSON'S REPORT

2-YEAR CHRONIC INHALATION STUDY OF **2-BUTOXYETHANOL (C62077D)** IN B6C3F1 MICE

Prepared by:

Micheal P. Jokinen, DVM
Pathology Working Group Chairperson

Pathology Associates, Inc.
4915-D Prospectus Drive
Durham, NC, 27713

Submitted to:

National Toxicology Program/NIEHS
Research Triangle Park, NC

September 25, 1997

The PWG Chairperson, Dr. Micheal P. Jokinen, has had no involvement with any laboratory or organization concerned with this study other than the NTP, and has not been involved in the origination or any previous review of data from this study.

PATHOLOGY WORKING GROUP CHAIRPERSON'S REPORT

2-Year Chronic Inhalation Study of **2-Butoxyethanol (C62077D)** in B6C3F1 Mice

PWG Participants: Drs. M. Jokinen (PAI-Chairperson), R. Garman (CMA - Observer), J. Heath (Southern Research), R. Herbert (NIEHS), J. Leininger (NIEHS), J. Mahler (NIEHS), R. Miller (Battelle Northwest), A. Radovsky (NIEHS), and C. Shackelford (EPL-QAP), and A. Singer (Battelle Columbus)

Date: September 4, 1997
Site: NIEHS, Research Triangle Park

The PWG convened to review selected slides from B6C3F1 mice exposed to 2-butoxyethanol by inhalation for two years. The doses and numbers of animals examined microscopically per group were as follows:

Dose	M	F
0 ppm	50	50
62.5 ppm	50	50
125 ppm	50	50
250 ppm	50	50

The study was conducted at Battelle Northwest Laboratories. The Study Pathologist (SP) was Dr. R. Miller and the Quality Assessment Pathologist (QAP) was Dr. C. Shackelford of EPL.

A number of organs were reviewed by the QAP for potential treatment-related effects; the QAP reviewed these organs in all animals for all diagnoses, both neoplastic and nonneoplastic. In addition, the QAP reviewed all tumor diagnoses in all animals. Organs reviewed for all diagnoses were as follows:

Male Mice	Female Mice
Bone Marrow	Bone Marrow
Kidney	Kidney
Liver	Liver
Lung	Lung
Nose	Nose
Spleen	Spleen
Stomach, Forestomach	Stomach, Forestomach

In addition, all male mice from all groups were reviewed for the following changes:

Preputial Gland -- Inflammation
Prostate Gland -- Inflammation
Skin, Prepuce -- Inflammation, Chronic/Active
Testes -- Degeneration
Urinary Bladder -- Inflammation

SUMMARY OF THE PWG FINDINGS

Forestomach

Incidences of **Papilloma, Squamous Cell** were greater in treated groups of females than in controls. Incidences of **Forestomach, Epithelium -- Hyperplasia** were markedly increased in treated groups of males and females as compared with controls, and incidences of **Forestomach -- Ulcer** were mildly to markedly increased in treated males and females as compared with controls.

Liver

The incidences of **Hemangiosarcoma** were increased in the treated groups of male mice as compared with controls. **Kupffer Cell -- Pigment, Hemosiderin** was observed in treated males and females but not in controls. Incidences in both treated males and females increased in a dose related manner.

Spleen

Incidences and/or average severities of **Hematopoietic Cell Proliferation** and **Pigmentation, Hemosiderin** were increased in treated males and females as compared with controls.

Nose

Respiratory Epithelium -- Degeneration, Hyaline and **Olfactory Epithelium -- Degeneration, Hyaline** occurred with greater incidences in treated females than in control females.

Urogenital System

Inflammation or **Inflammation, Chronic/Active** occurred with slightly greater incidences in the **Kidney, Prostate Gland, Preputial Gland, Urinary Bladder**, and **Skin, Prepuce** in treated groups of males than in control males.

Bone Marrow

Hyperplasia occurred with slightly greater incidences in 125 and 250 ppm males than in control and 62.5 ppm males.

CONDUCT OF THE PWG

Prior to the PWG, the PWG chairperson reviewed the pathology tables, the SP's narrative, the Pathology Data Review, the Quality Assessment Report, and microslides of tissues selected for QA review. The PWG chair then selected slides for review by the PWG, including representative examples of lesions, and lesions for which there was a difference in diagnosis among the SP, QAP, and PWG chair.

RESULTS OF THE PWG REVIEW

Forestomach

The SP had diagnosed greater incidences of **Squamous Cell Papilloma** in treated groups of females than in controls females; the incidences in treated females increased in a dose-wise manner. Incidences of Squamous Cell Papilloma in males were low (one or two per group) and were similar across groups. The SP had also diagnosed **Squamous Cell Carcinoma** in one 125 ppm male and one 250 ppm female, and increased incidences of **Ulcer** and **Epithelium -- Hyperplasia** in treated males and females as compared with controls; incidences of both ulcer and hyperplasia were considerably greater in treated females than in treated males. These findings were confirmed by the QA/PWG review. The PWG examined all lesions diagnosed as squamous cell papilloma or squamous cell carcinoma; the PWG confirmed the presence of the two squamous cell carcinomas and, with few exceptions, confirmed the presence of the squamous cell papillomas. The PWG also examined representative examples of ulcer and hyperplasia, and confirmed their presence, and examined a number of forestomachs in which minimal hyperplasia had been diagnosed to confirm that the change was present.

Microscopically, squamous cell papillomas had the typical morphology of these neoplasms in the forestomach of B6C3F1 mice and consisted of multiple branching papillary projections, composed of a thick layer of epithelium overlying a fibrous tissue core, radiating from a basal stalk. The two squamous cell carcinomas were characterized by cords and clusters of stratified squamous epithelial cells that had invaded through the forestomach wall. Hyperplasia consisted of increased thickness of the stratified squamous epithelium of the forestomach; this was accompanied in some cases by an increase in the thickness of the keratinized layer. Ulcer consisted of a defect in the forestomach wall which penetrated the full thickness of the forestomach epithelium; the ulcerated area frequently contained accumulations of inflammatory cells and debris. Ulcer nearly always occurred in areas of moderately to markedly hyperplastic epithelium; however, hyperplasia frequently occurred without any accompanying ulceration.

Liver

The SP had diagnosed greater incidences of **Hemangiosarcoma** in treated groups of males than in controls. The PWG examined all the hemangiosarcomas diagnosed in the liver by the SP and confirmed the SP's diagnoses. The SP had diagnosed minimal to mild **Liver -- Pigmentation, Hemosiderin** in males from the 125 and 250 ppm dose groups and in females from all treated groups, but not in any of the controls. The incidences increased in a dose-related manner. The pigmentation was a very minimal change, consisting of accumulations of yellow brown pigment within scattered Kupffer cells and occasionally within macrophages. Careful microscopic examination was usually required to detect the presence of the pigmentation. The QAP concurred with the SP's diagnoses but recommended use of the location terminology of **Liver, Kupffer Cell** since the pigment was seen primarily within Kupffer cells and also because this terminology was used in the subchronic study and use of the same terminology would make the chronic study consistent with the subchronic study. The PWG Chair concurred with the QAP's recommendation. The PWG examined some representative examples of hemosiderin pigment in the liver and confirmed its presence. The PWG noted that the

pigment was found primarily in Kupffer cells, although occasionally it was seen within scattered macrophages away from the sinusoids, generally near portal areas, and agreed with the QAP's recommendation to use the site terminology **Liver, Kupffer Cell**.

The SP had diagnosed lower incidences of **Hepatcellular Adenoma, Multiple** and greater incidences of **Hepatocellular Carcinoma** in treated groups of males than in control males. These findings were confirmed by the QA/PWG review. The PWG reviewed a number of livers containing proliferative lesions for which there was a difference of opinon among the SP, QAP, or PWG Chair.

Spleen

The SP had diagnosed greater incidences and/or severities of **Hematopoietic Cell Proliferation** and **Pigmentation, Hemosiderin** in treated groups of males and females. These findings were confirmed by the QA and PWG Chair. The PWG reviewed representative examples and was provided with normal spleens to use for reference; the PWG confirmed the presence of increased numbers of hematopoietic cells and increased amounts of hemosiderin pigment as compared with controls.

Nose

The SP had diagnosed greater incidences of **Respiratory Epithelium -- Degeneration, Hyaline** and **Olfactory Epithelium -- Degeneration, Hyaline** in treated groups of females as compared with controls. These findings were confirmed by the QA/PWG review. The PWG examined representative examples and confirmed the presence of the change. Microscopically, the change was typical of that seen in B6C3F1 mice and consisted of intracytoplasmic accumulation of homogeneous eosinophilic material.

Bone Marrow

The SP had diagnosed slightly increased incidences of **Hyperplasia** in 125 and 250 ppm males as compared with controls. These findings were confirmed by the QA and PWG Chair. The PWG examined representative examples and were provided with normal bone marrows to use as a reference. The PWG confirmed the presence of hyperplasia. One of the PWG members noted that the hyperplasia appeared to consist of myeloid cells.

Urogenital System

The SP had diagnosed slightly greater incidences of **Kidney -- Inflammation, Chronic/Active**; **Skin, Prepuce -- Inflammation, Chronic/Active**; **Urinary Bladder -- Inflammation**, and **Urinary Bladder, Transitional Epithelium -- Hyperplasia**; **Preputial Gland -- Inflammation**; and **Prostate Gland -- Inflammation** in treated groups of males as compared with controls. These findings were confirmed by the QAP and PWG Chair. The QAP added diagnoses of **Skin, Prepuce -- Ulcer** in most of the sections of preputial skin containing inflammation, **Skin, Prepuce -- Hyperplasia** in a few sections of preputial skin, and **Urinary Bladder, Transitional Epithelium -- Ulcer** in some of the bladders containing inflammation. The PWG Chair concurred with the QAP's additional diagnoses. The PWG examined representative examples and confirmed the presence of the lesions. Microscopically the inflammation consisted of infiltrates of small to moderate numbers of mixed inflammatory cells.

The PWG discussed the significance of these findings. The consensus was that these findings were indicative of an ascending urinary tract infection. It was unclear as to why this should occur slightly more commonly in the treated males but it was suggested it may be the result of irritation caused by the test compound. The PWG was of the opinion that this represented a secondary effect of the compound and was not a primary treatment effect.

Testis

The SP had diagnosed **Interstitial Cell -- Adenoma** in two 250 ppm males; this finding was confirmed by the QA/PWG review. No degeneration was observed. **Atrophy** was seen in a few animals from each of the groups, including controls, with no apparent compound related effect. Overall, there did not appear to be any compound related effects in the testis.

Lung

The SP did not observe any compound related effects in the lung of either males or females. This was confirmed by the QA/PWG review.

POST-PWG ACTION ITEMS

There were no post-PWG action items.

Micheal P. Jokinen, DVM 9/25/97
PWG Chairperson Date

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QUALITY ASSURANCE STATEMENT

The Path Working Group report has been audited by the Quality Assurance Unit of Pathology Associates International. PAI has a functioning and responsive Quality Assurance Unit which reports directly to management. The following is a record of audits and their resulting reports:

Date of Inspection	Phase Inspected	Date Findings Reported to Management and Study Director
9-15-97	Audit of Chairperson's Draft Report	9-15-97
9-25-97	Audit of Chairperson's Final Report	9-25-97

Deanna Croghan, B.S.
Quality Assurance Specialist

9-25-97
Date

Sponsor: National Toxicology Program

Title: Pathology Working Group Chairperson's Report
2-Year Chronic Inhalation Study of 2-Butoxyethanol (C62077D) in B6C3F1 Mice

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NTP PATHOLOGY WORKING GROUP
FOR

Chemical Name: 2-Butoxyethanol

C# 62077D TDMS# 05197 Test# 12 Species M3

Lab BN Study Chronic Route Inhalation

Males	Rats	Females	Males	Mice	Female
			Control		Control
			62.5ppm		62.5ppm
			125ppm		125ppm
			250ppm		250ppm

Chemical Manager: Dr. Joseph Boycroft

Project Officer: Dr. Joseph Boycroft

Principal Investigator: Dr. Billy Chou

Study Pathologist: Dr. Rodney A. Miller

Quality Assessment Pathologist: Dr. Cynthia Shackelford

Quality Assessment Laboratory: Experimental Pathology Laboratories

PWG Pathologist: Dr. James Hailey

Date of PWG: September 04, 1997 Date Received from QA: July 30,1997

PARTICIPANTS

Chairperson/Affiliation	Signature
Michael Jokinen, D.V.M.; PAI	Michael C. Jokinen

Members/Affiliation	Signature
Ann Radovsky, D.V.M.; Ph.D.; NIEHS	Ann Radovsky
Ronald Herbert, D.V.M.; Ph.D.; NIEHS	Ronald A. Herbert
Joel Leininger, D.V.M.; Ph.D. NIEHS	Joel R. Leininger
Joel Mahler, D.V.M.; Ph.D. NIEHS	Joel Mahler
Cynthia Shackelford, D.V.M.;M.S., Ph.D.; EPL	Cynthia Shackelford
Rodney Miller, D.V.M.; Ph.D. Battelle Northwest	Rodney A. Miller
Allen Singer, D.V.M.; Battelle Columbus	Allen Singer
James Heath, D.V.M.; Southern Research	James E. Heath
Robert Garman, D.V.M. CMA (Observer)	Robert A. Garman

Form No. 50

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PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
1	CONTROL 12	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
2	250 PPM 602	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
3	250 PPM 603	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
4	250 PPM 606	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
5	250 PPM 610	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
6	250 PPM 611	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MODERATE	AGREE	AGREE WITH STUDY PATHOLOGIST
7	250 PPM 612	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MODERATE	AGREE	AGREE WITH STUDY PATHOLOGIST
			STOM FORESTOM - ULCER, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
8	250 PPM 615	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
9	250 PPM 620	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST

Michael P. Johnson DVM
PWG Chairperson

9/25/97
Date

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PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dose No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
10	250 PPM 628	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MINIMAL	AGREE	NOT PRESENT IN SECTION (8)
11	250 PPM 635	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
12A	125 PPM 403	1			STOM FORESTOM-SQ CL PAPILLOM (8)
12B	125 PPM 403	1	STOM FORESTOM - SQUAM CEL CARC	AGREE	AGREE WITH STUDY PATHOLOGIST
13	125 PPM 410	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
14	125 PPM 412	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
			STOM FORESTOM - ULCER, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
					STOM FORESTOM-HYPERPLASIA, MILD (8)
15	125 PPM 429	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MARKED	AGREE	AGREE WITH STUDY PATHOLOGIST
					STOM FORESTOM-ULCER, MILD (8)

Michael C. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
16	125 PPM 449	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MINIMAL	AGREE	NOT PRESENT IN SECTION (8)
17	125 PPM 450	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
18	62.5 PP 212	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
19	62.5 PP 224	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MODERATE	AGREE STOM FORESTOM, EPITHELIUM - NECROSIS, MILD (08)	AGREE WITH STUDY PATHOLOGIST STOM FORESTOM-ULCER, MILD (8)
20	CONTROL 121	1	STOM FORESTOM - SQ CL PAPILLOM, MULTIPLE	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MODERATE (08)	STOM FORESTOM, EPITHELIUM-HYPERPLASIA, MARKED (8) STOM FORESTOM-ULCER, MODERATE (8)
21	250 PPM 703	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
22	250 PPM 713	1	STOM FORESTOM - SQ CL PAPILLOM	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MARKED (12)	AGREE WITH REVIEWING PATHOLOGIST

Michael P. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
23	250 PPM 721	1	STOM FORESTOM - SQUAM CEL CARC	AGREE	AGREE WITH STUDY PATHOLOGIST
24	250 PPM 726	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
25	250 PPM 731	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
26	250 PPM 733	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
27	250 PPM 734	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
28	250 PPM 741	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MARKED	AGREE	AGREE WITH STUDY PATHOLOGIST
					STOM FORESTOM-ULCER, MILD (8)
			UTERUS - POLYP STROMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
29	125 PPM 508	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
30	125 PPM 538	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	NOT PRESENT IN SECTION (8)

Michael P. Johnson DVM
PWG Chairperson

9/25/97
Date

Michael P. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
30	125 PPM 538 (cont.)	1	STOM FORESTOM, EPITHELIUM - HYPERPLASIA, MARKED	AGREE	AGREE WITH STUDY PATHOLOGIST
			STOM FORESTOM - ULCER, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
31	125 PPM 545	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST
32	62.5 PP 335	1	STOM FORESTOM - SQ CL PAPILLOM	AGREE	AGREE WITH STUDY PATHOLOGIST

Michael P. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: CS2077D

Species: MICE

Sex: MALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
1	250 PPM 621	1	KIDNEY - INFLAMMATION, CHRONIC ACTIVE, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
2	250 PPM 621	1	SKIN, PREPUCE - INFLAMMATION, CHRONIC ACTIVE, MARKED	AGREE	AGREE WITH STUDY PATHOLOGIST
				SKIN, PREPUCE - ULCER, MODERATE (?)	AGREE WITH REVIEWING PATHOLOGIST
3	250 PPM 645	1	KIDNEY - INFLAMMATION, CHRONIC ACTIVE, MARKED	AGREE	AGREE WITH STUDY PATHOLOGIST
4	250 PPM 645	1	PROSTATE - INFLAMMATION, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
			URIN BLADDER, TRANSIT EPITHE - HYPERPLASIA, MODERATE	AGREE	AGREE WITH STUDY PATHOLOGIST
			URIN BLADDER - INFLAMMATION, MODERATE	AGREE	AGREE WITH STUDY PATHOLOGIST
5	250 PPM 624		PREPUTIAL GL - INFLAMMATION, MODERATE	AGREE	AGREE WITH STUDY PATHOLOGIST

Martin C. Rinehart DVM
PWG Chairperson

9/25/97
Date

C 05

B 05

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
1A	CONTROL 14	1	LIVER - HEPATOCHOLCARC	AGREE	AGREE WITH STUDY PATHOLOGIST
1B	CONTROL 14	1	LUNG - HEPATOCHOLCARC, METASTATIC	AGREE	AGREE WITH STUDY PATHOLOGIST
2	CONTROL 25	1	LUNG - ALV BRON ADEN	AGREE	LUNG-ALV BRON CARC (3)
3	CONTROL 35	1	LIVER - EOSIN FOCUS	AGREE	AGREE WITH STUDY PATHOLOGIST
4	250 PPM 616	1	LIVER - EOSIN FOCUS	AGREE	LIVER-HEPATOCLR ADEN (10)
5	250 PPM 624	1	LIVER - HEMANGIOSARC	AGREE	AGREE WITH STUDY PATHOLOGIST [PWG CHAIRPERSON'S DIAGNOSIS OF HEPATOCELLULAR ADENOMA IS NOT PRESENT IN SECTION (4)]
6	250 PPM 629	1	LIVER - HEPATOCLR CARC, MULTIPLE	AGREE	LIVER-HEPATOCLR CARC (10)/LIVER-HEPATOCLR ADEN (11)
7	250 PPM 633	1	LIVER - HEPATOCLR CARC, MULTIPLE	AGREE	LIVER-HEPATOCLR CARC (10)/LIVER-HEPATOCLR ADEN (11)

Michael C. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
8	125 PPM 411	1	SKIN	AGREE	SKIN-GRANULOMA, MARKED (11)
9	125 PPM 417	1	LUNG - ALV BRON ADEN	AGREE	LUNG-ALV BRON CARC (3)
10	125 PPM 425	1	EPIDIDYMIS - LEIOMYOMA	AGREE	EPIDIDYMIS-GRANULOMA, MARKED (7)
11	125 PPM 438	1			LIVER-EOSIN FOCUS (4)
12	62.5 PP 208	1	LIVER - EOSIN FOCUS	AGREE	LIVER-HEPATOCLR ADEN (10)
13	62.5 PP 210	1	SPLEEN - LYMPH MAL	AGREE	SPLEEN-MAST CELL TUMOR (4)
14	62.5 PP 225	1			LIVER-EOSIN FOCUS (4)
15	62.5 PP 232	1	KIDNEY, RENAL TUBULE - HYPERPLASIA, MINIMAL	AGREE	NOT PRESENT IN SECTION (5)
16	CONTROL 103	1	LIVER - HEPATOCLR CARC, MULTIPLE	LIVER - HEPATOCLR ADEN (04) LIVER - INFARCT (10)	LIVER-HEPATOCLR ADEN, MULTIPLE (4,10) NOT PRESENT IN SECTION

Michael C. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

PWG Chairperson Date

B07

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL Chemical Number: C62077D

Species: MICE Sex: MALE/FEMALE Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
17	CONTROL 107	1	STOM FORESTOM - ANGIECTASIS, MARKED	AGREE	STOM FORESTOM-HEMANGIOMA (8)
18	125 PPM 506	1	MESENTERY - SARCOMA	AGREE	MESENTERY-OSTEOSARC (11)
19	125 PPM 512	1	UTERUS - LEIOMYOMA	UTERUS, ENDOMETRIUM - SARCOMA (08)	UTERUS-SARC STROMAL (8)
20	62.5 PP 342	1	LIVER - HEPATOCLR ADEN	AGREE	AGREE WITH STUDY PATHOLOGIST
21	250 PPM 636	2	LIVER - HEMANGIOSARC	AGREE	AGREE WITH STUDY PATHOLOGIST
22	250 PPM 639	1	LIVER - HEMANGIOSARC	LIVER - HEMORRHAGE, MARKED (10)	AGREE WITH STUDY PATHOLOGIST
23	250 PPM 649	1	LIVER - HEMANGIOSARC	AGREE	AGREE WITH STUDY PATHOLOGIST
24	125 PPM 402	1	LIVER - HEMANGIOSARC	AGREE	AGREE WITH STUDY PATHOLOGIST
25	125 PPM 450	2	LIVER - HEMANGIOSARC	AGREE	AGREE WITH STUDY PATHOLOGIST
26	62.5 PP 248	1	LIVER - HEMANGIOSARC	AGREE	AGREE WITH STUDY PATHOLOGIST

Michael C. Johnson DVM 9/25/97

PWG Chairperson Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
1	250 PPM 607	1	LIVER - PIGMENT, HEMOSIDERIN, MINIMAL	LIVER, KUPFFER CELL - PIGMENT, HEMOSIDERIN, MINIMAL (04)	AGREE WITH REVIEWING PATHOLOGIST
			SPLEEN - PIGMENT, HEMOSIDERIN, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
			SPLEEN - HEMA CELL PROL, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
2	250 PPM 609	1	LIVER - PIGMENT, HEMOSIDERIN, MODERATE	LIVER, KUPFFER CELL - PIGMENT, HEMOSIDERIN, MODERATE (04)	AGREE WITH REVIEWING PATHOLOGIST
3	250 PPM 616	1	BONE MARROW - HYPERPLASIA, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
4	250 PPM 625	1	BONE MARROW - HYPERPLASIA, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
5	250 PPM 608	1	NOSE, RESPIRAT EPITH - DEGEN, HYALINE, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
6	250 PPM 638	1	SPLEEN - PIGMENT, HEMOSIDERIN, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
					SPLEEN-HEMA CELL PROL, MILD (4)
7	125 PPM 405	1	NOSE - NORMAL	AGREE	NOSE, OLFACTORY EPI-DEGEN, HYALINE, MINIMAL (9)

Martel C. Johnson DVM
PWG Chairperson

9/25/97
Date

PWG CHAIRPERSON'S REPORT

PWG Chairperson Date

C 09

B 09

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL Chemical Number: C62077D

Species: MICE Sex: MALE/FEMALE Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
8	125 PPM 446	1	NOSE - NORMAL	AGREE	NOSE, OLFACTORY EPI-DEGEN, HYALINE, MINIMAL (9)
9	250 PPM 704	1	LIVER - PIGMENT, HEMOSIDERIN, MINIMAL	LIVER, KUPFFER CELL - PIGMENT, HEMOSIDERIN, MINIMAL (04)	AGREE WITH REVIEWING PATHOLOGIST
			SPLEEN - PIGMENT, HEMOSIDERIN, MINIMAL	AGREE	SPLEEN-PIGMENT, HEMOSIDERIN, MINIMAL (4)/SPLEEN-HEMA CELL PROL, MILD (4)
10	250 PPM 706	1	NOSE, OLFACTORY EPI - DEGEN, HYALINE, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST
			NOSE, RESPIRAT EPITH - DEGEN, HYALINE, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
11	250 PPM 709	1	LIVER - PIGMENT, HEMOSIDERIN, MINIMAL	LIVER, KUPFFER CELL - PIGMENT, HEMOSIDERIN, MINIMAL (04)	AGREE WITH REVIEWING PATHOLOGIST
12	125 PPM 538	1			NOSE, OLFACTORY EPI-DEGEN, HYALINE, MINIMAL (9)
			NOSE, RESPIRAT EPITH - DEGEN, HYALINE, MINIMAL	AGREE	AGREE WITH STUDY PATHOLOGIST
13	125 PPM 538	1	SPLEEN - PIGMENT, HEMOSIDERIN, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST

Michael P. Johnson DVM 9/25/97

PWG Chairperson Date

PWG CHAIRPERSON'S REPORT

Chemical Name: 2-BUTOXYETHANOL

Chemical Number: C62077D

Species: MICE

Sex: MALE/FEMALE

Date: 09/04/97

Dot No.	Group/ CID#	# of Slides	Study Pathologist's Diagnosis	Reviewing Pathologist's Diagnosis	PWG Consensus
13	125 PPM 538 (cont.)	1	SPLEEN - HEMA CELL PROL, MILD	AGREE	AGREE WITH STUDY PATHOLOGIST

Michael C. Johnson DVM
PWG Chairperson

9/25/97
Date

C10 B10 C11 B11

PATHOLOGY WORKING GROUP CHAIRPERSON'S REPORT

2-Year Chronic Inhalation Study of **2-Butoxyethanol (C62077D)** in F344 Rats

PWG Participants: Drs. M. Jokinen (PAI-Chairperson), T. Amanuma (NIEHS - Observer), R. Cattley (CIIT), E. Gaillard (EPL - QAP), R. Garman (CMA - Observer), R. Herbert (NIEHS), J. Leininger (NIEHS), A. Radovsky (NIEHS)

Date: October 14, 1997
Site: NIEHS, Research Triangle Park

The PWG convened to review selected slides from F344 rats exposed to 2-butoxyethanol by inhalation for two years. The doses and numbers of animals examined microscopically per group were as follows:

Dose	M	F
0 ppm	50	50
31.2 ppm	50	50
62.5 ppm	50	50
125 ppm	50	50

The study was conducted at Battelle Northwest Laboratories. The Study Pathologist (SP) was Dr. S. Grumbein and the Quality Assessment Pathologist (QAP) was Dr. E. Gaillard of EPL.

A number of organs were reviewed by the QAP for potential treatment-related effects; the QAP reviewed these organs in all animals for all diagnoses, both neoplastic and nonneoplastic. In addition, the QAP reviewed all tumor diagnoses in all animals. Organs reviewed for all diagnoses were as follows:

Male Rats	Female Rats
Bone Marrow	Bone Marrow
Kidney	Kidney
Liver	Liver
Lung	Lung
Nose	Nose
Spleen	Spleen
Stomach, Forestomach	Stomach, Forestomach

In addition, the following tissues were examined from all females from all groups for the following changes:

Adrenal Medulla - Hyperplasia
Adrenal Medulla - Pheochromocytoma, Benign
Adrenal Medulla - Pheochromocytoma, Malignant
Clitoral Gland - Hyperplasia

All neoplasms diagnosed in all organs (except Testis - Interstitial Cell Adenoma) were examined in all males and females.

Date 9/25/97

PWG Chairperson

SUMMARY OF THE PWG FINDINGS

Adrenal Medulla

The combined incidence of **Pheochromocytoma, Benign** and **Pheochromocytoma, malignant** in the 125 ppm female group was slightly greater than that in controls and in the other treated female groups and slightly exceeded the historical control range for this neoplasm in female F344 rats from inhalation studies.

Liver

Incidences and average severities of **Kupffer Cell -- Pigment** were increased in treated males and females as compared with those of controls.

Nose

Olfactory Epithelium -- Degeneration, Hyaline occurred with greater incidences in treated males and females than in controls.

CONDUCT OF THE PWG

Prior to the PWG, the PWG chairperson reviewed the pathology tables, the SP's narrative, the Pathology Data Review, the Quality Assessment Report, and microslides of tissues selected for QA review. The PWG chair then selected slides for review by the PWG, including representative examples of lesions, and lesions for which there was a difference in diagnosis among the SP, QAP, and PWG chair.

RESULTS OF THE PWG REVIEW

Adrenal Medulla

The SP had diagnosed somewhat greater incidences of **Pheochromocytoma** in the 31.2 and 125 ppm female groups than in the control and 62.5 ppm female groups. The PWG reviewed all diagnosed pheochromocytomas in females. Prior to beginning this review the PWG discussed the diagnostic criteria, as described in Pathology of the Fischer Rat, for differentiating pheochromocytoma from adrenal medullary hyperplasia; these criteria were used by the PWG during the review. The PWG first reviewed all of the pheochromocytomas in which the SP, QAP, and PWG Chair had agreed on the diagnosis; the PWG agreed with the diagnosis of pheochromocytoma in all of these cases. The PWG then reviewed the remaining lesions, all of which had a difference of opinion among the SP, QAP, or PWG Chair. As a result of this review, the PWG diagnosed similar incidences of pheochromocytoma in the control, 31.2, and 62.5 ppm females and a somewhat increased incidence of pheochromocytoma in the 125 ppm females. The incidence in the 125 ppm females slightly exceeded the historical control range for this neoplasm in control female F344 rats from inhalation studies.

The PWG members noted that most of the pheochromocytomas were small and not substantially larger than the more severe grades of adrenal medullary hyperplasia. The lesions were diagnosed as pheochromocytoma primarily due to the fact they were large enough to produce mild to moderate compression of adjacent tissue.

Liver

The SP had diagnosed **Liver, Kupffer Cell – Pigmentation**, primarily of minimal to mild severity, in males and females from all treated groups, including controls. However, the SP had diagnosed greater incidences and severities of pigmentation in treated groups of males and females as compared with controls. These findings were confirmed by the QA/PWG review. The PWG examined representative examples of the pigment and confirmed its presence. The PWG noted that the pigment was found primarily in Kupffer cells, although occasionally it was seen within scattered macrophages away from the sinusoids, generally near portal areas. Many of the control livers with pigmentation also contained mononuclear cell leukemia. The SP had diagnosed necrosis or centrilobular necrosis in a number of animals from each group; these livers generally also contained mononuclear cell leukemia and the necrosis appeared to be secondary to the leukemia.

Nose

The QAP noted the presence of **Olfactory Epithelium – Degeneration, Hyaline**, which had not been diagnosed previously by the SP, in control and treated males and females. The microscopic appearance was characteristic of that seen with the spontaneously occurring hyaline degeneration of the olfactory epithelium in F344 rats, and consisted of accumulation of homogeneous eosinophilic material within the cytoplasm of epithelial cells. In males, the incidences as diagnosed by the QAP were marginally greater in the low and mid dose groups and markedly greater in the high dose groups as compared with controls. In females, the incidences as diagnosed by the QAP were slightly greater in low and mid dose groups and markedly greater in the high dose group as compared with controls. The change usually was of minimal severity and was generally confined to the olfactory epithelium lining the dorsal meatus of Level II although, in more severe cases, it was also present in the olfactory epithelium of the ethmoid turbinates in Level III. The QAP had diagnosed this change when there was diffuse bilateral involvement of the olfactory epithelium in Level II. The PWG Chair agreed with all of the QAP's diagnoses. The PWG Chair also noted there were additional noses in each of the groups, including controls, in which there was diffuse unilateral involvement or bilateral involvement of approximately 50% of the olfactory epithelium of Level II, and considered the extent of involvement to be great enough to warrant diagnosis. Thus the PWG Chair added a number of additional diagnoses of hyaline degeneration of the olfactory epithelium. The PWG Chair showed the PWG two randomly selected examples from each dose group of these additional diagnosed cases of hyaline degeneration. In all cases the PWG consensus opinion was that the change was extensive enough to warrant diagnosis, and recommended the additional diagnoses made by the PWG Chair be added to the pathology results. As compared with the findings of the QAP, the incidences of hyaline degeneration as diagnosed by the PWG Chair confirmed the greatly increased incidences in the high dose males and females as compared with controls, and further increased the incidences in the low and mid dose groups of males and females as compared with controls. Two neoplasms of the nose were observed in this study, a chrondroma in a low dose male and an adenoma in a mid dose male. The PWG examined both of these neoplasms and confirmed their presence.

Lung

The SP did not observe any compound related effects in the lungs of either males or females. This was confirmed by the QA/PWG review. The SP noted that the incidences

of **Alveolar Epithelium -- Hyperplasia** were greater in the low and high dose male groups as compared with the control and mid dose groups, while the incidence of alveolar epithelial hyperplasia in the control female group was substantially greater than in each of the three treated female groups. These findings were confirmed by the QA/PWG review. Since there was good agreement among the SP, QAP, and PWG Chair concerning these lesions, none were shown to the PWG. The PWG members discussed this finding and, due to the fact there were no dose related increases in incidence and there were opposite findings in males and females, concluded the increased incidences in the low and high dose male groups was an incidental finding unrelated to treatment.

The SP had diagnosed low incidences of **Inflammation, Chronic Active** and **Inflammation, Granulomatous** in control and treated animals, primarily in females. Incidences were similar across groups and the inflammation was not considered to represent a treatment related effect. The QAP noted that many of the lesions diagnosed by the SP as granulomatous inflammation consisted of an infiltrate of macrophages mixed with small number of neutrophils, and preferred to diagnose these lesions as chronic active inflammation. The QAP reserved the diagnosis of granulomatous inflammation for lesions which contained multinucleated giant cells. The PWG Chair concurred with the QAP's diagnoses, and further noted that there were some lesions with this morphology which had been diagnosed by the SP as granulomatous inflammation and that the diagnosis had been agreed with by the QAP. The PWG Chair recommended these lesions also be diagnosed as chronic active inflammation in order to maintain consistency of diagnosis; two examples of these lesions were shown to the PWG which concurred with the PWG Chair's diagnoses of chronic active inflammation. Based on this it was recommended that these additional lesions identified by the PWG Chair be diagnosed as chronic active inflammation.

Spleen

The SP had not diagnosed any treatment related effects in the spleen. However, since treatment related effects were observed in the spleens in the 13-week study, the spleen was chosen for QA review in the 2-year study. The QAP added diagnoses of **Pigmentation, Hemosiderin** and **Hematopoietic Cell Proliferation** in each of the groups of males and females, including controls; these changes had not been diagnosed by the SP. The incidences and average severities of these changes were similar in control and treated males and females, thus confirming the SP's findings of no treatment effect in the spleen. The QAP's findings were confirmed by the PWG Chair. The PWG examined representative examples of pigmentation and hematopoietic cell proliferation and confirmed their presence. However, since there was no treatment effect the PWG was of the opinion that no useful purpose would be served by adding the QAP's diagnoses to the pathology findings and recommended they not be added.

Bone Marrow

The SP had not diagnosed any treatment related effects in the bone marrow. However, since treatment related effects were observed in the bone marrow in the 13-week study, and bone marrow changes had been observed during the clinical pathology evaluations during the 2-year study, the spleen was chosen for QA review in the 2-year study. The QAP added diagnoses of bone marrow hyperplasia in a few animals in each of the groups, including controls. The incidences diagnosed by the QAP were similar in control

and treated groups, indicating the absence of a treatment related effect. The PWG Chair agreed with many, but not all of the QAP's diagnoses. The PWG Chair noted during the evaluation that some of the cases of bone marrow hyperplasia occurred in animals with large cutaneous neoplasms, especially preputial or clitoral gland neoplasms. The PWG examined two examples of bone marrow hyperplasia and confirmed its presence. The PWG noted that the hyperplasia consisted of a proliferation of both myeloid and erythroid cells suggesting the hyperplasia was not related to treatment. The test compound is known to produce a regenerative anemia, thus proliferation of erythroid elements would be expected if the hyperplasia were due to the test compound.

Kidney

The SP had diagnosed slightly lower average severities of **Nephropathy** in treated groups of males and females as compared with controls. The SP's findings were confirmed by the QA/PWG review. This significance of these findings was unclear.

Forestomach

The SP had not diagnosed any treatment related effects in the forestomach. However, since treatment related effects were observed in the forestomachs in the 13-week study, the forestomach was chosen for QA review in the 2-year study. The QA/PWG review confirmed the absence of treatment related effects in the forestomach. The SP had used the term **Necrosis** to diagnose a number of focal defects which penetrated the thickness of the forestomach epithelium. The QAP preferred the term **Ulcer** to diagnose these lesions; the PWG Chair agreed with the QAP. In addition, the SP had used the terminology **Forestomach -- Hyperplasia, Squamous** to diagnose hyperplasia of the forestomach epithelium. The QAP suggested use of the terminology **Forestomach, Epithelium -- Hyperplasia** in order to make the terminology in this study consistent with that used in other NTP 2-butoxyethanol studies. In addition, the QAP added a few diagnoses of epithelial hyperplasia in each of the groups, including controls. The PWG Chair concurred with the QAP's findings. The PWG examined a representative example of ulcer and epithelial hyperplasia and concurred with the QAP's terminology.

Clitoral Gland

The SP had diagnosed slightly lower incidences of **Clitoral Gland -- Hyperplasia** and **Adenoma** in treated females as compared with control females. These findings were confirmed by the QA/PWG review. One slide of a disagreement between the PWG Chair and the SP and QAP was shown to the PWG. Otherwise, there was overall good agreement among the SP, QAP, and PWG Chair so no additional slides were shown to the PWG.

POST-PWG ACTION ITEMS

There were no post-PWG action items.

Micheal P. Jokinen, DVM
PWG Chairperson

12/1/92
Date

C-Cell, Hyperplasia	37 (74%)	41 (85%)	36 (73%)	29 (58%)

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

2 YEAR CHRONIC FINAL#1

Facility: Battelle Northwest

Chemical CAS #: 111-76-0002

Lock Date: 11/08/96

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	18	21	23	26
Natural Death	3	2	4	3
Survivors				
Terminal Sacrifice	29	27	23	21
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(49)	(50)	(50)	(49)
Necrosis				1 (2%)
Parasite Metazoan	4 (8%)	5 (10%)	2 (4%)	3 (6%)
Intestine Large, Rectum	(44)	(47)	(48)	(47)
Parasite Metazoan	1 (2%)	4 (9%)	3 (6%)	4 (9%)
Intestine Large, Cecum	(47)	(49)	(48)	(48)
Inflammation, Chronic				1 (2%)
Parasite Metazoan	8 (17%)	6 (12%)	4 (8%)	5 (10%)
Intestine Small, Ileum	(47)	(50)	(47)	(47)
Inflammation, Chronic Active		1 (2%)		1 (2%)
Liver	(50)	(50)	(50)	(50)
Angiectasis	2 (4%)	2 (4%)		1 (2%)
Basophilic Focus	39 (78%)	41 (82%)	41 (82%)	38 (76%)
Clear Cell Focus	12 (24%)	8 (16%)	5 (10%)	9 (18%)
Degeneration, Cystic				1 (2%)
Eosinophilic Focus	13 (26%)	10 (20%)	6 (12%)	5 (10%)
Fatty Change	11 (22%)	12 (24%)	12 (24%)	6 (12%)
Hematopoietic Cell Proliferation	4 (8%)	5 (10%)	1 (2%)	
Hepatodiaphragmatic Nodule	9 (18%)	6 (12%)	3 (6%)	1 (2%)
Inflammation, Granulomatous		1 (2%)		
Mixed Cell Focus	6 (12%)	2 (4%)	4 (8%)	4 (8%)

Necrosis	3 (6%)	4 (8%)	3 (6%)	3 (6%)
Regeneration	1 (2%)			3 (6%)
Vacuolization Cytoplasmic, Focal	1 (2%)			
Bile Duct, Hyperplasia	8 (16%)	8 (16%)	8 (16%)	5 (10%)
Centrilobular, Necrosis	2 (4%)	1 (2%)	1 (2%)	5 (10%)
Kupffer Cell, Pigmentation	15 (30%)	19 (38%)	36 (72%)	47 (94%)
Mesentery	(12)	(9)	(8)	(3)
Artery, Inflammation, Chronic Active			1 (13%)	
Fat, Necrosis	12 (100%)	9 (100%)	6 (75%)	3 (100%)
Oral Mucosa				(1)
Pharyngeal, Hyperplasia, Squamous				1 (100%)
Pancreas	(50)	(50)	(50)	(50)
Atrophy	17 (34%)	15 (30%)	13 (26%)	13 (26%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
ALIMENTARY SYSTEM - CONT				
Basophilic Focus	2 (4%)	5 (10%)	4 (8%)	
Hyperplasia	1 (2%)	1 (2%)		
Salivary Glands	(50)	(50)	(50)	(49)
Atrophy	1 (2%)	1 (2%)		1 (2%)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Mineralization				1 (2%)
Ulcer	2 (4%)	4 (8%)	7 (14%)	3 (6%)
Epithelium, Hyperplasia	3 (6%)	5 (10%)	6 (12%)	2 (4%)
Stomach, Glandular	(50)	(50)	(49)	(50)
Mineralization	3 (6%)	3 (6%)	2 (4%)	8 (16%)
Necrosis	2 (4%)	3 (6%)	4 (8%)	2 (4%)
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	34 (68%)	31 (62%)	34 (68%)	30 (60%)
Atrium, Thrombosis	1 (2%)	2 (4%)		
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Accessory Adrenal Cortical Nodule		1 (2%)		
Atrophy		1 (2%)	1 (2%)	
Degeneration, Cystic		1 (2%)		3 (6%)
Hyperplasia	28 (56%)	24 (48%)	19 (38%)	20 (40%)
Hypertrophy	18 (36%)	11 (22%)	9 (18%)	7 (14%)
Necrosis		3 (6%)	4 (8%)	3 (6%)
Vacuolization Cytoplasmic	7 (14%)	9 (18%)	1 (2%)	5 (10%)
Adrenal Medulla	(50)	(50)	(49)	(49)
Hyperplasia	11 (22%)	11 (22%)	8 (16%)	17 (35%)
Islets, Pancreatic	(50)	(50)	(49)	(50)
Hyperplasia	2 (4%)			
Parathyroid Gland	(46)	(48)	(42)	(43)
Hyperplasia			1 (2%)	
Pituitary Gland	(50)	(50)	(49)	(49)
Angiectasis	1 (2%)	1 (2%)	1 (2%)	
Pars Distalis, Hyperplasia	15 (30%)	14 (28%)	11 (22%)	23 (47%)
Pars Intermedia, Hyperplasia		1 (2%)		
Thyroid Gland	(50)	(48)	(49)	(50)
C-Cell, Hyperplasia	37 (74%)	41 (85%)	36 (73%)	29 (58%)

C 03

D 03

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a) Report: PEIRPT03 Date: 02/16/98

Cataract	5 (71%)	2 (67%)	1 (100%)
Degeneration		1 (33%)	
Hemorrhage	1 (14%)		
Follicular Cell, Hyperplasia	1 (2%)	1 (2%)	2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Clitoral Gland	(46)	(45)	(44)	(48)
Hyperplasia	7 (15%)	4 (9%)	2 (5%)	2 (4%)
Ovary	(50)	(50)	(50)	(50)
Cyst	9 (18%)	7 (14%)	3 (6%)	4 (8%)
Hyperplasia		1 (2%)		
Inflammation, Granulomatous	1 (2%)		1 (2%)	
Interstitial Cell, Hyperplasia			1 (2%)	
Uterus	(50)	(50)	(50)	(50)
Prolapse			1 (2%)	
Endometrium, Hyperplasia, Cystic	1 (2%)			
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Atrophy		1 (2%)		
Hyperplasia	5 (10%)	2 (4%)	2 (4%)	6 (12%)
Hyperplasia, Histiocytic		2 (4%)	1 (2%)	1 (2%)
Lymph Node	(5)	(3)	(6)	(2)
Renal, Infiltration Cellular, Plasma Cell			1 (17%)	
Spleen	(50)	(50)	(50)	(50)
Fibrosis	2 (4%)	6 (12%)	7 (14%)	7 (14%)
Hematopoietic Cell Proliferation	11 (22%)	17 (34%)	6 (12%)	4 (8%)
Hemorrhage	1 (2%)		1 (2%)	
Necrosis		1 (2%)		
Pigmentation, Hemosiderin	48 (96%)	48 (96%)	48 (96%)	49 (98%)
Thymus	(48)	(47)	(49)	(44)
Cyst			1 (2%)	
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(49)
Galactocele		2 (4%)		
Hyperplasia, Atypical	1 (2%)			
Skin	(49)	(50)	(50)	(50)
Cyst	1 (2%)			
Hyperkeratosis	1 (2%)	1 (2%)		
Inflammation, Chronic Active	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98

C 05 D 05 C 04 D 04

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Hyperostosis	9 (18%)	10 (20%)	8 (16%)	9 (18%)
Inflammation, Chronic	1 (2%)			
Skeletal Muscle			(1)	(2)
Hemorrhage				1 (50%)
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Hydrocephalus		1 (2%)		
Mineralization		1 (2%)		
Necrosis				1 (2%)
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(50)
Epiglottis, Metaplasia, Squamous	1 (2%)	4 (8%)	2 (4%)	1 (2%)
Lung	(50)	(50)	(50)	(49)
Foreign Body		1 (2%)		
Infiltration Cellular, Histiocyte		2 (4%)	1 (2%)	
Inflammation, Chronic Active	11 (32%)	11 (22%)	9 (18%)	13 (27%)
Inflammation, Granulomatous		1 (2%)		
Thrombosis				1 (2%)
Alveolar Epithelium, Hyperplasia	17 (34%)	7 (14%)	8 (16%)	5 (10%)
Artery, Infiltration Cellular, Histiocyte		1 (2%)		
Nose	(50)	(48)	(50)	(49)
Inflammation, Chronic	3 (6%)		1 (2%)	
Inflammation, Suppurative	9 (18%)	8 (17%)	5 (10%)	4 (8%)
Thrombosis	2 (4%)	4 (8%)	6 (12%)	5 (10%)
Olfactory Epithelium, Degeneration, Hyaline	13 (26%)	18 (38%)	28 (56%)	40 (82%)
Olfactory Epithelium, Metaplasia	3 (6%)	2 (4%)		3 (6%)
Olfactory Epithelium, Metaplasia, Squamous				1 (2%)
Respiratory Epithelium, Hyperplasia	2 (4%)		2 (4%)	1 (2%)
Respiratory Epithelium, Metaplasia, Squamous	1 (2%)	3 (6%)		1 (2%)
Trachea	(50)	(50)	(50)	(50)
Infiltration Cellular, Polymorphonuclear		1 (2%)		

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
SPECIAL SENSES SYSTEM				
Eye		(7)	(3)	(1)
Cataract		5 (71%)	2 (67%)	1 (100%)
Degeneration			1 (33%)	
Hemorrhage		1 (14%)		
Follicular Cell, Hyperplasia		1 (2%)	1 (2%)	2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

C 05

D 05

Hyperplasia	(49)	(49)	(48)	(47)
Pituitary Gland				
Cyst	1 (2%)			
Retina, Atrophy		5 (71%)	1 (33%)	1 (100%)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Infarct		1 (2%)	2 (4%)	3 (6%)
Inflammation, Suppurative		1 (2%)		
Nephropathy	47 (94%)	48 (96%)	43 (86%)	46 (92%)
Papilla, Necrosis				1 (2%)
Pelvis, Inflammation, Acute	1 (2%)			
Renal Tubule, Hyperplasia	1 (2%)	1 (2%)		
Renal Tubule, Necrosis				2 (4%)
Urinary Bladder	(50)	(50)	(49)	(50)
Inflammation, Granulomatous	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Natural Death	6	8	5	5
Moribund Sacrifice	25	31	24	21
Survivors				
Terminal Sacrifice	19	11	21	24
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(47)	(47)	(47)	(48)
Parasite Metazoan	4 (9%)	4 (9%)	4 (9%)	4 (8%)
Intestine Large, Rectum	(46)	(47)	(48)	(47)
Parasite Metazoan	1 (2%)	2 (4%)	6 (13%)	3 (6%)
Perforation			1 (2%)	
Intestine Large, Cecum	(46)	(47)	(47)	(46)
Necrosis				1 (2%)
Parasite Metazoan	6 (13%)	7 (15%)	4 (9%)	5 (11%)
Intestine Small, Duodenum	(46)	(47)	(49)	(49)
Necrosis		1 (2%)		
Intestine Small, Ileum	(45)	(45)	(46)	(47)
Inflammation, Acute				1 (2%)
Inflammation, Chronic Active				1 (2%)
Parasite Metazoan	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Liver	(50)	(50)	(50)	(50)
Angiectasis	1 (2%)	1 (2%)	2 (4%)	1 (2%)
Basophilic Focus	26 (52%)	21 (42%)	25 (50%)	27 (54%)
Clear Cell Focus	10 (20%)	7 (14%)	13 (26%)	9 (18%)
Cyst	1 (2%)			
Degeneration, Cystic	7 (14%)	6 (12%)	15 (30%)	6 (12%)
Eosinophilic Focus	6 (12%)	4 (8%)	3 (6%)	4 (8%)
Fatty Change	7 (14%)	10 (20%)	6 (12%)	3 (6%)
Hematopoietic Cell Proliferation	2 (4%)	3 (6%)		1 (2%)
Hepatodiaphragmatic Nodule	1 (2%)	2 (4%)		1 (2%)
Mixed Cell Focus		1 (2%)	1 (2%)	1 (2%)
Necrosis	7 (14%)	9 (18%)	4 (8%)	11 (22%)

Regeneration	1 (2%)		4 (8%)	
Thrombosis	1 (2%)		1 (2%)	1 (2%)
Bile Duct, Hyperplasia	26 (56%)	29 (58%)	30 (60%)	36 (72%)
Centrilobular, Necrosis	4 (8%)	9 (18%)	5 (10%)	4 (8%)
Kupffer Cell, Pigmentation	23 (46%)	30 (60%)	34 (68%)	42 (84%)
Mesentery	(8)	(6)	(15)	(8)
Fat, Necrosis	8 (100%)	6 (100%)	11 (73%)	8 (100%)
Oral Mucosa	(3)	(1)	(1)	

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
ALIMENTARY SYSTEM - CONT				
Pharyngeal, Hyperplasia, Squamous			1 (100%)	
Pancreas	(50)	(50)	(50)	(50)
Atrophy	25 (50%)	25 (50%)	26 (52%)	22 (44%)
Basophilic Focus	3 (6%)	2 (4%)	5 (10%)	2 (4%)
Hyperplasia	3 (6%)	5 (10%)	2 (4%)	2 (4%)
Salivary Glands	(50)	(50)	(50)	(50)
Artery, Mineralization		1 (2%)		
Stomach, Forestomach	(50)	(50)	(50)	(50)
Mineralization		2 (4%)		
Necrosis	1 (2%)			
Ulcer	7 (14%)	9 (18%)	3 (6%)	3 (6%)
Epithelium, Hyperplasia	5 (10%)	8 (16%)	4 (8%)	4 (8%)
Stomach, Glandular	(49)	(49)	(50)	(50)
Inflammation, Acute		1 (2%)		
Mineralization	1 (2%)	3 (6%)	2 (4%)	4 (8%)
Necrosis	4 (8%)	8 (16%)	4 (8%)	10 (20%)
Tooth	(3)	(1)		
Inflammation, Chronic Active	3 (100%)	1 (100%)		
Malformation	1 (33%)			
CARDIOVASCULAR SYSTEM				
Blood Vessel		(2)		
Aorta, Mineralization		2 (100%)		
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	42 (84%)	44 (88%)	39 (78%)	41 (82%)
Artery, Mineralization		2 (4%)		
Atrium, Thrombosis	1 (2%)	6 (12%)	4 (8%)	3 (6%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(49)	(50)
Atrophy	1 (2%)		3 (6%)	2 (4%)
Hyperplasia	23 (46%)	27 (54%)	25 (51%)	30 (60%)
Hypertrophy	7 (14%)	7 (14%)	8 (16%)	4 (8%)
Necrosis	1 (2%)		1 (2%)	1 (2%)
Vacuolization Cytoplasmic	2 (4%)	2 (4%)	4 (8%)	4 (8%)
Adrenal Medulla	(50)	(50)	(49)	(50)
Hyperplasia	24 (48%)	22 (44%)	31 (63%)	27 (54%)
Islets, Pancreatic	(50)	(50)	(50)	(50)
Hyperplasia		2 (4%)	4 (8%)	1 (2%)
Parathyroid Gland	(47)	(46)	(47)	(44)
Hyperplasia	4 (9%)	7 (15%)	2 (4%)	3 (7%)
Pituitary Gland	(49)	(49)	(48)	(47)
Cyst	1 (2%)			
Retina, Atrophy		5 (71%)	1 (33%)	1 (100%)

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RESPIRATORY SYSTEM - CONT				
Inflammation, Suppurative	7 (15%)	7 (14%)	10 (20%)	5 (10%)
Thrombosis	7 (15%)	13 (27%)	11 (22%)	10 (20%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
ENDOCRINE SYSTEM - CONT				
Mineralization		1 (2%)		
Pars Distalis, Hyperplasia	16 (33%)	12 (24%)	16 (33%)	14 (30%)
Pars Intermedia, Hyperplasia			1 (2%)	1 (2%)
Thyroid Gland	(50)	(46)	(48)	(48)
C-Cell, Hyperplasia	23 (46%)	31 (67%)	32 (67%)	17 (35%)
Follicular Cell, Hyperplasia			1 (2%)	1 (2%)
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(50)
Granuloma Sperm	1 (2%)	1 (2%)		1 (2%)
Preputial Gland	(46)	(47)	(50)	(43)
Hyperplasia		3 (6%)		4 (9%)
Inflammation, Chronic Active	1 (2%)	5 (11%)	2 (4%)	1 (2%)
Prostate	(49)	(49)	(50)	(50)
Hyperplasia	6 (12%)	9 (18%)	4 (8%)	8 (16%)
Inflammation, Chronic Active	4 (8%)	3 (6%)	2 (4%)	1 (2%)
Seminal Vesicle	(47)	(44)	(46)	(48)
Hyperplasia				1 (2%)
Mineralization		2 (5%)		
Testes	(50)	(50)	(50)	(50)
Atrophy	2 (4%)	2 (4%)	1 (2%)	2 (4%)
Artery, Inflammation, Chronic Active		1 (2%)		
Interstitial Cell, Hyperplasia	5 (10%)	2 (4%)	5 (10%)	8 (16%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(49)
Hyperplasia	5 (10%)	4 (8%)	4 (8%)	6 (12%)
Necrosis			1 (2%)	
Lymph Node, Mandibular	(44)	(47)	(47)	(46)
Infiltration Cellular, Plasma Cell		1 (2%)		
Lymph Node, Mediastinal	(44)	(44)	(45)	(44)
Infiltration Cellular, Plasma Cell		1 (2%)		
Spleen	(50)	(50)	(50)	(50)
Fibrosis	11 (22%)	14 (28%)	19 (38%)	20 (40%)
Hematopoietic Cell Proliferation	8 (16%)	8 (16%)	6 (12%)	5 (10%)
Hemorrhage			1 (2%)	1 (2%)
Hyperplasia, Focal, Lymphoid		1 (2%)		
Necrosis	2 (4%)	3 (6%)	3 (6%)	3 (6%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

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FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
HEMATOPOIETIC SYSTEM - CONT				
Pigmentation, Hemosiderin	45 (90%)	45 (90%)	40 (80%)	44 (88%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(44)	(40)	(44)	(45)
Galactocele			1 (2%)	1 (2%)
Hyperplasia			1 (2%)	
Skin	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion			1 (2%)	
Hyperkeratosis	1 (2%)	1 (2%)	3 (6%)	
Inflammation, Chronic Active	2 (4%)	1 (2%)	4 (8%)	
Subcutaneous Tissue, Thrombosis	1 (2%)			
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Fibrous Osteodystrophy	1 (2%)	3 (6%)		
Hyperostosis			2 (4%)	2 (4%)
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Compression				1 (2%)
Hemorrhage		1 (2%)		
Hydrocephalus				1 (2%)
Mineralization		1 (2%)		1 (2%)
Thrombosis			1 (2%)	
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Hemorrhage	1 (2%)			
Infiltration Cellular, Histiocyte	1 (2%)	1 (2%)	2 (4%)	
Inflammation, Chronic Active		1 (2%)	3 (6%)	3 (6%)
Inflammation, Suppurative			1 (2%)	
Mineralization		2 (4%)		
Necrosis	1 (2%)			
Thrombosis		1 (2%)		
Alveolar Epithelium, Hyperplasia	5 (10%)	13 (26%)	6 (12%)	14 (28%)
Artery, Infiltration Cellular, Histiocyte	2 (4%)			
Artery, Mediastinum, Mineralization		2 (4%)		
Mediastinum, Inflammation, Chronic	1 (2%)			
Nose	(48)	(49)	(49)	(50)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 02/16/98
Time: 13:13:42

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
RESPIRATORY SYSTEM - CONT				
Inflammation, Suppurative	7 (15%)	7 (14%)	10 (20%)	5 (10%)
Thrombosis	7 (15%)	13 (27%)	11 (22%)	10 (20%)

a Number of animals examined microscopically at site and number of animals with lesion

C 09

D 09

Salivary Glands	(50)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
Olfactory Epithelium, Degeneration, Hyaline	13 (27%)	21 (43%)	23 (47%)	40 (80%)
Olfactory Epithelium, Metaplasia	4 (8%)	5 (10%)	2 (4%)	3 (6%)
Respiratory Epithelium, Hyperplasia	4 (8%)	4 (8%)	6 (12%)	1 (2%)
Respiratory Epithelium, Metaplasia, Squamous			1 (2%)	
Trachea	(50)	(49)	(50)	(48)
Infiltration Cellular, Polymorphonuclear		1 (2%)		
SPECIAL SENSES SYSTEM				
Eye	(2)		(2)	(1)
Cataract	2 (100%)		2 (100%)	1 (100%)
Retina, Atrophy	2 (100%)		2 (100%)	1 (100%)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Hydronephrosis		1 (2%)		
Infarct	1 (2%)	2 (4%)	1 (2%)	6 (12%)
Mineralization		2 (4%)		
Nephropathy	48 (96%)	50 (100%)	49 (98%)	50 (100%)
Cortex, Cyst		1 (2%)	1 (2%)	
Pelvis, Inflammation, Acute	1 (2%)			
Renal Tubule, Hyperplasia	3 (6%)	1 (2%)		1 (2%)
Renal Tubule, Necrosis		2 (4%)		

a Number of animals examined microscopically at site and number of animals with lesion

END OF REPORT

2 YEAR CHRONIC FINAL#1

Facility: Battelle Northwest

Chemical CAS #: 111-76-0002

Lock Date: 11/08/96

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	18	21	23	26
Natural Death	3	2	4	3
Survivors				
Terminal Sacrifice	29	27	23	21
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(49)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
Intestine Large, Rectum	(44)	(47)	(48)	(47)
Intestine Large, Cecum	(47)	(49)	(48)	(48)
Intestine Small, Duodenum	(49)	(49)	(49)	(48)
Histiocytic Sarcoma			1 (2%)	
Intestine Small, Jejunum	(47)	(49)	(47)	(48)
Histiocytic Sarcoma			1 (2%)	
Intestine Small, Ileum	(47)	(50)	(47)	(47)
Histiocytic Sarcoma			1 (2%)	
Liver	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Mesentery	(12)	(9)	(8)	(3)
Hemangioma			1 (13%)	
Sex Cord Stromal Tumor, Malignant, Metastatic, Ovary	1 (8%)			
Pancreas	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Salivary Glands	(50)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	

C 11

D 11

Olfactory Epithelium, Degeneration, Hyaline	13 (27%)	21 (43%)	23 (47%)	40 (80%)
Olfactory Epithelium, Metaplasia	4 (8%)	5 (10%)	2 (4%)	3 (6%)
Respiratory Epithelium, Hyperplasia	4 (8%)	4 (8%)	6 (12%)	1 (2%)

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Stomach, Forestomach	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Stomach, Glandular	(50)	(50)	(49)	(50)
Histiocytic Sarcoma			1 (2%)	
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Adenoma	1 (2%)		2 (4%)	
Histiocytic Sarcoma			1 (2%)	
Osteosarcoma, Metastatic, Bone	1 (2%)			
Bilateral, Carcinoma			1 (2%)	
Adrenal Medulla	(50)	(50)	(49)	(49)
Osteosarcoma, Metastatic, Bone	1 (2%)			1 (2%)
Pheochromocytoma Malignant				6 (12%)
Pheochromocytoma Benign	3 (6%)	4 (8%)	1 (2%)	1 (2%)
Bilateral, Pheochromocytoma Benign				
Islets, Pancreatic	(50)	(50)	(49)	(50)
Adenoma	1 (2%)			1 (2%)
Carcinoma		1 (2%)		
Pituitary Gland	(50)	(50)	(49)	(49)
Histiocytic Sarcoma			1 (2%)	
Pars Distalis, Adenoma	33 (66%)	32 (64%)	30 (61%)	20 (41%)
Thyroid Gland	(50)	(48)	(49)	(50)
Histiocytic Sarcoma			1 (2%)	
C-Cell, Adenoma	6 (12%)	2 (4%)	5 (10%)	5 (10%)
C-Cell, Carcinoma			2 (4%)	2 (4%)
Follicular Cell, Adenoma	1 (2%)			1 (2%)
Follicular Cell, Carcinoma	1 (2%)			1 (2%)
GENERAL BODY SYSTEM				
Peritoneum				(1)
GENITAL SYSTEM				
Clitoral Gland	(46)	(45)	(44)	(48)
Adenoma	6 (13%)	3 (7%)	4 (9%)	4 (8%)
Carcinoma	3 (7%)	1 (2%)	3 (7%)	2 (4%)
Histiocytic Sarcoma			1 (2%)	
Ovary	(50)	(50)	(50)	(50)
Granulosa Cell Tumor Benign			1 (2%)	
Granulosa-Theca Tumor Malignant				1 (2%)
Histiocytic Sarcoma			1 (2%)	
Sex Cord Stromal Tumor, Malignant	1 (2%)			
Uterus	(50)	(50)	(50)	(50)
Carcinoma				1 (2%)
Deciduoma Benign	1 (2%)			
Deciduoma NOS	1 (2%)			

Hemangiosarcoma			1 (2%)	
Histiocytic Sarcoma			1 (2%)	

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

2-BUTOXYETHANOL

Report: PEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
GENITAL SYSTEM - cont				
Polyp Stromal	6 (12%)	3 (6%)	5 (10%)	2 (4%)
Polyp Stromal, Multiple			1 (2%)	
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Lymph Node	(5)	(3)	(6)	(2)
Histiocytic Sarcoma			1 (17%)	
Renal, Histiocytic Sarcoma			1 (17%)	
Renal, Osteosarcoma, Metastatic, Bone	1 (20%)			
Lymph Node, Bronchial	(33)	(36)	(34)	(26)
Histiocytic Sarcoma			1 (3%)	
Lymph Node, Mandibular	(49)	(43)	(46)	(46)
Histiocytic Sarcoma			1 (2%)	
Lymph Node, Mesenteric	(48)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
Lymph Node, Mediastinal	(38)	(43)	(39)	(28)
Histiocytic Sarcoma			1 (3%)	
Spleen	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Thymus	(48)	(47)	(49)	(44)
Histiocytic Sarcoma			1 (2%)	
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(49)
Carcinoma	3 (6%)	4 (8%)	4 (8%)	3 (6%)
Fibroadenoma	19 (38%)	16 (32%)	10 (20%)	12 (24%)
Fibroadenoma, Multiple	4 (8%)	8 (16%)	10 (20%)	3 (6%)
Histiocytic Sarcoma			1 (2%)	
Skin	(49)	(50)	(50)	(50)
Basal Cell Carcinoma	1 (2%)	1 (2%)		
Keratoacanthoma	2 (4%)			
Squamous Cell Papilloma				2 (4%)
Subcutaneous Tissue, Fibroma		1 (2%)		1 (2%)
Subcutaneous Tissue, Lipoma			1 (2%)	
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Chordoma				1 (2%)
Osteosarcoma, Multiple	1 (2%)			
Skeletal Muscle			(1)	(2)
Hemangioma			1 (100%)	

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

2-BUTOXYETHANOL

Report: PEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Stomach, Forestomach	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Stomach, Glandular	(50)	(50)	(49)	(50)
			1 (2%)	

C 13

D 13

MUSCULOSKELETAL SYSTEM - cont				
Sarcoma				1 (50%)
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Astrocytoma Malignant		1 (2%)		
Glioma Malignant			1 (2%)	
Histiocytic Sarcoma			1 (2%)	
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Lung	(50)	(50)	(50)	(49)
Carcinoma, Metastatic, Mammary Gland				1 (2%)
Carcinoma, Metastatic, Thyroid Gland			1 (2%)	1 (2%)
Chordoma, Metastatic, Bone				1 (2%)
Histiocytic Sarcoma			1 (2%)	
Osteosarcoma, Metastatic, Bone	1 (2%)			
Sarcoma, Metastatic, Skeletal Muscle				1 (2%)
Nose	(50)	(48)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
SPECIAL SENSES SYSTEM				
Zymbal's Gland		(1)		(1)
Carcinoma		1 (100%)		1 (100%)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Osteosarcoma, Metastatic, Bone	1 (2%)			
Sex Cord Stromal Tumor, Malignant, Metastatic, Ovary	1 (2%)			
Renal Tubule, Carcinoma				1 (2%)
Urinary Bladder	(50)	(50)	(49)	(50)
Histiocytic Sarcoma			1 (2%)	

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC 2-BUTOXYETHANOL Date: 02/16/98
Route: RESPIRATORY EXPOSURE WHOLE BODY Time: 13:13:51

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma			1 (2%)	
Leukemia Mononuclear	18 (36%)	21 (42%)	23 (46%)	24 (48%)
Mesothelioma Malignant				1 (2%)

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS FEMALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	47	48	50	48
Total Primary Neoplasms	112	99	108	98
Total Animals with Benign Neoplasms	42	43	40	37
Total Benign Neoplasms	83	69	72	58
Total Animals with Malignant Neoplasms	26	26	30	32
Total Malignant Neoplasms	28	30	36	40
Total Animals with Metastatic Neoplasms	2		1	4
Total Metastatic Neoplasm	7		1	4
Total Animals with Malignant Neoplasms Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant	1			
Total Uncertain Neoplasms	1			

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Natural Death	6	8	5	5
Moribund Sacrifice	25	31	24	21
Survivors				
Terminal Sacrifice	19	11	21	24
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(50)	(50)	(50)	(50)
Intestine Large, Colon	(47)	(47)	(47)	(48)
Intestine Large, Cecum	(46)	(47)	(47)	(46)
Intestine Small, Duodenum	(46)	(47)	(49)	(49)
Intestine Small, Ileum	(45)	(45)	(46)	(47)
Liver	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Islets, Pancreatic	1 (2%)			
Hemangiosarcoma, Metastatic, Spleen			1 (2%)	

D 01

E 01

Hepatocellular Carcinoma		1 (2%)		1 (2%)
Hepatocellular Adenoma	1 (2%)	2 (4%)		1 (2%)
Histiocytic Sarcoma			1 (2%)	
Sarcoma, Metastatic, Uncertain Primary Site	1 (2%)			
Mesentery	(8)	(6)	(15)	(8)
Hemangiosarcoma, Metastatic, Spleen			1 (7%)	
Sarcoma			1 (7%)	
Sarcoma, Metastatic, Spleen			1 (7%)	
Oral Mucosa	(3)	(1)	(1)	
Gingival, Fibrosarcoma		1 (100%)		
Pharyngeal, Squamous Cell Papilloma	3 (100%)			
Pancreas	(50)	(50)	(50)	(50)
Adenoma	1 (2%)		3 (6%)	
Salivary Glands	(50)	(50)	(50)	(50)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Stomach, Glandular	(49)	(49)	(50)	(50)
Tongue	(1)		(1)	
Squamous Cell Papilloma	1 (100%)		1 (100%)	

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(49)	(50)
Adenoma	2 (4%)		1 (2%)	
Carcinoma			1 (2%)	
Adrenal Medulla	(50)	(50)	(49)	(50)
Pheochromocytoma Malignant		2 (4%)	3 (6%)	
Pheochromocytoma Benign	12 (24%)	15 (30%)	9 (18%)	12 (24%)
Bilateral, Pheochromocytoma Benign	3 (6%)	5 (10%)	4 (8%)	4 (8%)
Islets, Pancreatic	(50)	(50)	(50)	(50)
Adenoma	5 (10%)	2 (4%)	3 (6%)	3 (6%)
Adenoma, Multiple			1 (2%)	1 (2%)
Carcinoma	4 (8%)	1 (2%)		3 (6%)
Pituitary Gland	(49)	(49)	(48)	(47)
Pars Distalis, Adenoma	24 (49%)	29 (59%)	24 (50%)	25 (53%)
Thyroid Gland	(50)	(46)	(48)	(48)
C-Cell, Adenoma	7 (14%)	3 (7%)	7 (15%)	10 (21%)
C-Cell, Carcinoma	1 (2%)		3 (6%)	2 (4%)
Follicular Cell, Adenoma	1 (2%)			3 (6%)
Follicular Cell, Carcinoma	1 (2%)		1 (2%)	
GENERAL BODY SYSTEM				
Peritoneum			(2)	(1)
Tissue NOS		(1)		
Sarcoma		1 (100%)		
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(50)
Preputial Gland	(46)	(47)	(50)	(43)

Adenoma	3 (7%)	1 (2%)	5 (10%)	5 (12%)
Carcinoma	5 (11%)	1 (2%)	2 (4%)	1 (2%)
Prostate	(49)	(49)	(50)	(50)
Adenoma	1 (2%)		4 (8%)	1 (2%)
Adenoma, Multiple				1 (2%)
Seminal Vesicle	(47)	(44)	(46)	(48)
Adenoma	1 (2%)			
Testes	(50)	(50)	(50)	(50)
Bilateral, Interstitial Cell, Adenoma	34 (68%)	38 (76%)	36 (72%)	31 (62%)
Interstitial Cell, Adenoma	7 (14%)	4 (8%)	8 (16%)	10 (20%)

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC 2-BUTOXYETHANOL Date: 02/16/98
Route: RESPIRATORY EXPOSURE WHOLE BODY Time: 13:13:51

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(49)
Lymph Node	(10)	(10)	(8)	(10)
Sarcoma, Metastatic, Skin				1 (10%)
Lymph Node, Bronchial	(36)	(38)	(41)	(34)
Lymph Node, Mandibular	(44)	(47)	(47)	(46)
Lymph Node, Mesenteric	(50)	(49)	(50)	(50)
Hemangiosarcoma, Metastatic, Spleen			1 (2%)	
Sarcoma, Metastatic, Spleen			1 (2%)	
Lymph Node, Mediastinal	(44)	(44)	(45)	(44)
Hemangiosarcoma, Metastatic, Spleen			1 (2%)	
Spleen	(50)	(50)	(50)	(50)
Fibroma			1 (2%)	1 (2%)
Hemangiosarcoma			1 (2%)	
Sarcoma			1 (2%)	1 (2%)
Thymus	(45)	(44)	(44)	(39)
Thymoma Malignant			1 (2%)	1 (3%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(44)	(40)	(44)	(45)
Carcinoma		1 (3%)		
Fibroadenoma	2 (5%)	1 (3%)	3 (7%)	1 (2%)
Fibroadenoma, Multiple	1 (2%)			
Skin	(50)	(50)	(50)	(50)
Basal Cell Adenoma	2 (4%)	1 (2%)		
Basal Cell Carcinoma	2 (4%)	1 (2%)		
Keratoacanthoma	3 (6%)	3 (6%)	4 (8%)	2 (4%)
Keratoacanthoma, Multiple				1 (2%)
Squamous Cell Papilloma	1 (2%)	1 (2%)	4 (8%)	1 (2%)
Sebaceous Gland, Adenoma			2 (4%)	
Subcutaneous Tissue, Fibroma	2 (4%)	2 (4%)	2 (4%)	3 (6%)
Subcutaneous Tissue, Fibroma, Multiple				1 (2%)
Subcutaneous Tissue, Fibrosarcoma			1 (2%)	
Subcutaneous Tissue, Fibrosarcoma, Multiple	1 (2%)			
Subcutaneous Tissue, Hemangiosarcoma	1 (2%)			
Subcutaneous Tissue, Lipoma	1 (2%)	1 (2%)	2 (4%)	
Subcutaneous Tissue, Sarcoma				2 (4%)

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC 2-BUTOXYETHANOL Date: 02/16/98

Hepatocellular Carcinoma		1 (2%)		1 (2%)
Hepatocellular Adenoma	1 (2%)	2 (4%)		1 (2%)

D 03

E 03

Route: RESPIRATORY EXPOSURE WHOLE BODY

Time: 13:13:51

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Osteosarcoma	1 (2%)			1 (2%)
Skeletal Muscle		(1)		
Sarcoma		1 (100%)		
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Astrocytoma Benign		1 (2%)		1 (2%)
Astrocytoma Malignant		1 (2%)		
Carcinoma, Metastatic, Zymbal's Gland	2 (4%)			
Glioma Malignant		1 (2%)		
Meningioma Malignant				
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	1 (2%)	2 (4%)	4 (8%)	
Alveolar/Bronchiolar Carcinoma		1 (2%)	1 (2%)	1 (2%)
Carcinoma, Metastatic, Islets, Pancreatic	1 (2%)			
Carcinoma, Metastatic, Preputial Gland				1 (2%)
Hemangiosarcoma, Metastatic, Spleen			1 (2%)	
Histiocytic Sarcoma	1 (2%)		1 (2%)	
Osteosarcoma, Metastatic, Uncertain Primary Site	1 (2%)	1 (2%)		
Pheochromocytoma Malignant, Metastatic, Adrenal Medulla		1 (2%)	1 (2%)	
Sarcoma, Metastatic, Skin				1 (2%)
Nose	(48)	(49)	(49)	(50)
Lateral Wall, Adenoma			1 (2%)	
Turbinate, Chondroma		1 (2%)		
Pleura			(1)	
Trachea	(50)	(49)	(50)	(48)
SPECIAL SENSES SYSTEM				
Zymbal's Gland	(1)	(1)	(2)	
Carcinoma	1 (100%)	1 (100%)	2 (100%)	

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
2-BUTOXYETHANOL
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PE1RPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Mesenchymal Tumor Malignant			1 (2%)	
Sarcoma		1 (2%)		

Renal Tubule, Adenoma	1 (2%)	2 (4%)		
Renal Tubule, Oncocytoma Benign			1 (2%)	
Transitional Epithelium, Carcinoma		1 (2%)		
Urinary Bladder	(49)	(50)	(50)	(50)
Transitional Epithelium, Papilloma	2 (4%)			
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	1 (2%)		1 (2%)	
Leukemia Mononuclear	29 (58%)	31 (62%)	33 (66%)	30 (60%)
Lymphoma Malignant	1 (2%)			
Mesothelioma Benign	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Mesothelioma Malignant			3 (6%)	1 (2%)

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 05197-11 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: IEIRPT05
Date: 02/16/98
Time: 13:13:51

FISCHER 344 RATS MALE	CONTROL	31.2 PPM	62.5 PPM	125 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	50	50	50	50
Total Primary Neoplasms	173	161	187	163
Total Animals with Benign Neoplasms	49	49	49	49
Total Benign Neoplasms	123	114	131	119
Total Animals with Malignant Neoplasms	40	40	41	38
Total Malignant Neoplasms	50	47	56	44
Total Animals with Metastatic Neoplasms	3	3	3	2
Total Metastatic Neoplasm	4	3	8	3
Total Animals with Malignant Neoplasms Uncertain Primary Site	2	1		
Total Animals with Neoplasms Uncertain-Benign or Malignant				
Total Uncertain Neoplasms				

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

---------- END OF REPORT ----------

D 05

E 05

POLY 1.5	P=0.447N	P=0.170	P=0.455N	P=0.509	P=0.050	P=0.493	P=0.372N	P=0.129
POLY 6	P=0.370N	P=0.097	P=0.427N	P=0.556	P=0.084	P=0.497	P=0.324N	P=0.158
LOGISTIC REGRESSION	P=0.334N	P=0.127	P=0.403N	P=0.570	P=0.103	P=0.500	P=0.316N	P=0.151
COCH-ARM / FISHERS	P=0.462N	P=0.201	P=0.437N	P=0.500	P=0.104	P=0.500		

NTP
LAB: Battelle Northwest

EXPERIMENT: 05197 TEST: 11
TEST TYPE: CHRONIC
CONT: NO1-ES-15318
PATHOLOGIST: GRUMBEIN, S.

STATISTICAL ANALYSIS OF PRIMARY TUMORS
2-BUTOXYETHANOL

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

REPORT: PEIRPT08
DATE: 02/23/98

TIME: 08:59:35
PAGE:
NTP C#: 62077D
CAS: 111-76-0002

Rats(FISCHER 344)

FOR ALL DOSES THE TUMOR RATES IN THE FOLLOWING TISSUES/ORGANS ARE BASED ON NUMBER OF TISSUES EXAMINED.
IN OTHER TISSUES/ORGANS, RATES ARE BASED ON NUMBER OF ANIMALS NECROPSIED.

Adrenal Gland
Adrenal Medulla
Bone Marrow
Brain
Clitoral Gland
Clitoral/Preputial Gland
Epididymis
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Nose
Ovary
Pancreas
Parathyroid Gland
Pituitary Gland
Preputial Gland
Prostate
Salivary Glands
Spleen
Testes
Thymus
Thyroid Gland
Urinary Bladder

NTP
LAB: Battelle Northwest
EXPERIMENT: 05197 TEST: 11
TEST TYPE: CHRONIC
CONT: NO1-ES-15318
PATHOLOGIST: GRUMBEIN, S.

STATISTICAL ANALYSIS OF PRIMARY TUMORS
2-BUTOXYETHANOL

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

REPORT: PEIRPT08
DATE: 02/23/98
TIME: 08:59:35
PAGE:
NTP C#: 62077D
CAS: 111-76-0002

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF 2-BUTOXYETHANOL

Male Rats

Organ	Morphology
Adrenal Medulla	Pheochromocytoma Benign
	Pheochromocytoma: Benign, Complex, Malignant, NOS
Clitoral/Preputial Gland	Carcinoma or Adenoma
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)	Papilloma Squamous or Papilloma
	Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma
Oral Mucosa	Squamous Cell Papilloma
Skin	Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma
	Sarcoma
Testes	Adenoma
All Organs	Malignant Tumors

Female Rats

Organ	Morphology
Adrenal Medulla	Pheochromocytoma: Benign, Complex, Malignant, NOS
Mammary Gland	Fibroadenoma
Pituitary Gland: Pars Distalis or Unspecified Site	Adenoma
Skin	Squamous Cell Papilloma
All Organs	Malignant Tumors
	Malignant and Benign Tumors

Date: 02/23/98 EXPERIMENT: 05197 TEST: 11 2-BUTOXYETHANOL

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Adrenal Cortex Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/50 (0%)	1/49 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.1%	0.0%	2.6%	0.0%	2.3%	0.0%	5.1%	0.0%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	1/29 (3%)	0/27 (0%)	2/23 (9%)	0/21 (0%)
FIRST INCIDENCE	597	---	542	---	730 (T)	---	730 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.173N	P=0.305N	P=0.497N	P=0.214N	P=0.547N	P=0.514N	P=0.419	P=0.564N
POLY 3	P=0.177N	P=0.251N	P=0.501N	P=0.230N	P=0.475N	P=0.501N	P=0.469	P=0.509N
POLY 1.5	P=0.183N	P=0.244N	P=0.506N	P=0.234N	P=0.468N	P=0.500N	P=0.480	P=0.504N
POLY 6	P=0.165N	P=0.265N	P=0.488N	P=0.223N	P=0.488N	P=0.503N	P=0.455	P=0.518N
LOGISTIC REGRESSION	P=0.193N	P=0.240N	P=0.496N	P=0.238N	P=0.547N	(e)	P=0.419	(e)
COCH-ARM / FISHERS	P=0.189N	P=0.247N	P=0.508N	P=0.247N	P=0.461N	P=0.500N	P=0.500	P=0.500N

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Adrenal Medulla Pheochromocytoma Benign								
TUMOR RATES								
OVERALL (a)	15/50 (30%)	20/50 (40%)	13/49 (27%)	16/50 (32%)	3/50 (6%)	4/50 (8%)	1/49 (2%)	7/49 (14%)
POLY-3 ADJUSTED (b)	36.5%	50.3%	32.8%	38.3%	6.9%	9.2%	2.6%	16.7%
TERMINAL (d)	7/19 (37%)	6/11 (55%)	6/21 (29%)	9/24 (38%)	1/29 (3%)	1/27 (4%)	1/22 (5%)	1/21 (5%)
FIRST INCIDENCE	558	533	658	611	554	584	730 (T)	638
STATISTICAL TESTS								
LIFE TABLE	P=0.136N	P=0.040 *	P=0.315N	P=0.431N	P=0.068	P=0.484	P=0.385N	P=0.119
POLY 3	P=0.424N	P=0.140	P=0.452N	P=0.522	P=0.090	P=0.499	P=0.353N	P=0.138
POLY 1.5	P=0.447N	P=0.170	P=0.455N	P=0.509	P=0.096	P=0.501	P=0.337N	P=0.144
POLY 6	P=0.370N	P=0.097	P=0.427N	P=0.556	P=0.084	P=0.493	P=0.372N	P=0.129
LOGISTIC REGRESSION	P=0.334N	P=0.127	P=0.403N	P=0.570	P=0.103	P=0.497	P=0.324N	P=0.158
COCH-ARM / FISHERS	P=0.462N	P=0.201	P=0.437N	P=0.500	P=0.104	P=0.500	P=0.316N	P=0.151

D 07

E 07

OVERALL (a)	3/46 (7%)	1/47 (2%)	5/50 (10%)	5/43 (12%)	6/40 (15%)	3/43 (7%)	5/43 (12%)	4/40 (10%)
POLY-3 ADJUSTED (b)	8.4%	2.9%	12.5%	14.4%	14.9%	7.8%	11.8%	10.1%
TERMINAL (d)	1/16 (6%)	1/11 (9%)	2/21 (10%)	2/19 (11%)	5/27 (19%)	1/23 (4%)	3/20 (15%)	3/20 (15%)
FIRST INCIDENCE	610	729 (T)	370	519	688	722	722	646

D 09

E 09

Date: 02/23/98 EXPERIMENT: 05197 TEST: 11 Page 2

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Adrenal Medulla Pheochromocytoma Malignant								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	2/50 (4%)	3/49 (6%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)	1/49 (2%)
POLY-3 ADJUSTED (b)	0.0%	5.4%	7.7%	0.0%	0.0%	0.0%	0.0%	2.5%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	1/21 (5%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	---	630	622	---	---	---	---	612
STATISTICAL TESTS								
LIFE TABLE	P=0.451N	P=0.190	P=0.142	(e)	P=0.202	(e)	(e)	P=0.500
POLY 3	P=0.506N	P=0.227	P=0.119	(e)	P=0.191	(e)	(e)	P=0.489
POLY 1.5	P=0.519N	P=0.232	P=0.116	(e)	P=0.194	(e)	(e)	P=0.493
POLY 6	P=0.481N	P=0.217	P=0.128	(e)	P=0.187	(e)	(e)	P=0.481
LOGISTIC REGRESSION	P=0.520N	P=0.225	P=0.117	(e)	P=0.196	(e)	(e)	P=0.499
COCH-ARM / FISHERS	P=0.531N	P=0.247	P=0.117	(e)	P=0.196	(e)	(e)	P=0.495

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Adrenal Medulla Pheochromocytoma: Benign, Complex, Malignant, NOS								
TUMOR RATES								
OVERALL (a)	15/50 (30%)	21/50 (42%)	15/49 (31%)	16/50 (32%)	3/50 (6%)	4/50 (8%)	1/49 (2%)	8/49 (16%)
POLY-3 ADJUSTED (b)	36.5%	52.4%	37.5%	38.3%	6.9%	9.2%	2.6%	18.9%
TERMINAL (d)	7/19 (37%)	6/11 (55%)	7/21 (33%)	9/24 (38%)	1/29 (3%)	1/27 (4%)	1/22 (5%)	1/21 (5%)
FIRST INCIDENCE	558	533	622	611	554	584	730 (T)	612
STATISTICAL TESTS								
LIFE TABLE	P=0.130N	P=0.028 *	P=0.467N	P=0.431N	P=0.034 *	P=0.484	P=0.385N	P=0.076
POLY 3	P=0.413N	P=0.100	P=0.557	P=0.522	P=0.044 *	P=0.499	P=0.353N	P=0.086
POLY 1.5	P=0.437N	P=0.123	P=0.548	P=0.509	P=0.047 *	P=0.501	P=0.337N	P=0.090
POLY 6	P=0.358N	P=0.069	P=0.595	P=0.556	P=0.041 *	P=0.493	P=0.372N	P=0.081
LOGISTIC REGRESSION	P=0.330N	P=0.091	P=0.587N	P=0.570	P=0.053	P=0.497	P=0.324N	P=0.101
COCH-ARM / FISHERS	P=0.453N	P=0.149	P=0.560	P=0.500	P=0.052	P=0.500	P=0.316N	P=0.094

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Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM

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Brain
Glioma Malignant

	Males				Females			
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	646	---	---	---	---	---	247	---
STATISTICAL TESTS								
LIFE TABLE	P=0.097N	P=0.307N	P=0.222N	P=0.202N	P=0.694	(e)	P=0.500	(e)
POLY 3	P=0.109N	P=0.250N	P=0.238N	P=0.229N	P=0.679	(e)	P=0.487	(e)
POLY 1.5	P=0.112N	P=0.243N	P=0.240N	P=0.233N	P=0.687	(e)	P=0.492	(e)
POLY 6	P=0.104N	P=0.264N	P=0.232N	P=0.221N	P=0.663	(e)	P=0.480	(e)
LOGISTIC REGRESSION	P=0.109N	P=0.255N	P=0.23[illegible]	P=0.228N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.115N	P=0.247N	P=0.247N	P=0.247N	P=0.694	(e)	P=0.500	(e)
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

Brain
Oligodendroglioma, Glioma, or Astrocytoma

	Males				Females			
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.1%	2.7%	0.0%	2.5%	0.0%	2.3%	2.5%	0.0%
TERMINAL (d)	1/19 (5%)	1/11 (9%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	646	729 (T)	---	647	---	652	247	---
STATISTICAL TESTS								
LIFE TABLE	P=0.293N	P=0.632N	P=0.222N	P=0.442N	P=0.599N	P=0.505	P=0.500	(e)
POLY 3	P=0.357N	P=0.521N	P=0.238N	P=0.486N	P=0.608N	P=0.501	P=0.487	(e)
POLY 1.5	P=0.363N	P=0.510N	P=0.240N	P=0.493N	P=0.601N	P=0.501	P=0.492	(e)
POLY 6	P=0.346N	P=0.542N	P=0.232N	P=0.472N	P=0.621N	P=0.499	P=0.480	(e)
LOGISTIC REGRESSION	P=0.346N	P=0.552N	P=0.235N	P=0.495N	P=0.576N	P=0.491	(e)	(e)
COCH-ARM / FISHERS	P=0.366N	P=0.500N	P=0.247N	P=0.500N	P=0.595N	P=0.500	P=0.500	(e)

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Clitoral/Preputial Gland Adenoma								
TUMOR RATES								
OVERALL (a)	3/46 (7%)	1/47 (2%)	5/50 (10%)	5/43 (12%)	6/46 (13%)	3/45 (7%)	4/44 (9%)	4/48 (8%)
POLY-3 ADJUSTED (b)	8.4%	2.9%	12.5%	14.4%	14.9%	7.8%	11.8%	10.1%
TERMINAL (d)	1/16 (6%)	1/11 (9%)	2/21 (10%)	2/19 (11%)	5/27 (19%)	1/23 (4%)	3/20 (15%)	3/20 (15%)
FIRST INCIDENCE	610	729 (T)	370	519	688	722	722	646

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TUMOR RATES

STATISTICAL TESTS								
LIFE TABLE	P=0.249	P=0.386N	P=0.439	P=0.427	P=0.558N	P=0.303N	P=0.549N	P=0.538N
POLY 3	P=0.141	P=0.314N	P=0.417	P=0.336	P=0.385N	P=0.262N	P=0.479N	P=0.374N
POLY 1.5	P=0.132	P=0.305N	P=0.408	P=0.328	P=0.371N	P=0.257N	P=0.448N	P=0.358N
POLY 6	P=0.164	P=0.333N	P=0.440	P=0.355	P=0.411N	P=0.275N	P=0.519N	P=0.405N
LOGISTIC REGRESSION	P=0.126	P=0.306N	P=0.404	P=0.322	P=0.491N	P=0.293N	P=0.567N	P=0.449N
COCH-ARM / FISHERS	P=0.124	P=0.300N	P=0.405	P=0.319	P=0.355N	P=0.254N	P=0.399N	P=0.343N

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Clitoral/Preputial Gland Carcinoma								
TUMOR RATES								
OVERALL (a)	5/46 (11%)	1/47 (2%)	2/50 (4%)	1/43 (2%)	3/46 (7%)	1/45 (2%)	3/44 (7%)	2/48 (4%)
POLY-3 ADJUSTED (b)	14.0%	2.9%	5.2%	3.0%	7.5%	2.6%	8.7%	5.0%
TERMINAL (d)	1/16 (6%)	1/11 (9%)	1/21 (5%)	1/19 (5%)	2/27 (7%)	1/23 (4%)	1/20 (5%)	1/20 (5%)
FIRST INCIDENCE	564	729 (T)	701	729 (T)	722	730 (T)	583	663
STATISTICAL TESTS								
LIFE TABLE	P=0.055N	P=0.190N	P=0.171N	P=0.076N	P=0.567	P=0.349N	P=0.560	P=0.611N
POLY 3	P=0.089N	P=0.104N	P=0.180N	P=0.112N	P=0.523N	P=0.320N	P=0.521	P=0.503N
POLY 1.5	P=0.094N	P=0.099N	P=0.185N	P=0.115N	P=0.513N	P=0.316N	P=0.611	P=0.492N
POLY 6	P=0.079N	P=0.115N	P=0.168N	P=0.105N	P=0.541N	P=0.329N	P=0.576	P=0.525N
LOGISTIC REGRESSION	P=0.078N	P=0.110N	P=0.168N	P=0.105N	P=0.529N	P=0.351N	P=0.603	P=0.549N
COCH-ARM / FISHERS	P=0.099N	P=0.097N	P=0.185N	P=0.118N	P=0.502N	P=0.317N	P=0.640	P=0.480N

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Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Clitoral/Preputial Gland Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	8/46 (17%)	2/47 (4%)	7/50 (14%)	6/43 (14%)	9/46 (20%)	3/45 (7%)	7/44 (16%)	6/48 (13%)
POLY-3 ADJUSTED (b)	21.9%	5.8%	17.5%	17.3%	22.4%	7.8%	20.2%	15.0%
TERMINAL (d)	2/16 (13%)	2/11 (18%)	3/21 (14%)	3/19 (16%)	7/27 (26%)	1/23 (4%)	4/20 (20%)	4/20 (20%)
FIRST INCIDENCE	564	729 (T)	370	519	688	722	583	646
STATISTICAL TESTS								
LIFE TABLE	P=0.364N	P=0.114N	P=0.389N	P=0.295N	P=0.518	P=0.093N	P=0.608N	P=0.488N
POLY 3	P=0.559N	P=0.049N*	P=0.421N	P=0.425N	P=0.395N	P=0.066N	P=0.521N	P=0.285N
POLY 1.5	P=0.546	P=0.044N*	P=0.430N	P=0.433N	P=0.381N	P=0.064N	P=0.487N	P=0.270N
POLY 6	P=0.516N	P=0.060N	P=0.399N	P=0.409N	P=0.421N	P=0.072N	P=0.559N	P=0.316N
LOGISTIC REGRESSION	P=0.549	P=0.049N*	P=0.429N	P=0.424N	P=0.468N	P=0.083N	P=0.589N	P=0.370N
COCH-ARM / FISHERS	P=0.527	P=0.042N*	P=0.429N	P=0.440N	P=0.366N	P=0.064N	P=0.430N	P=0.257N

Dose	Males CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females CONTROL	31.2 PPM	62.5 PPM	125 PPM
Islets, Pancreatic Adenoma								
TUMOR RATES								
OVERALL (a)	5/50 (10%)	2/50 (4%)	4/50 (8%)	4/50 (8%)	1/50 (2%)	0/50 (0%)	0/49 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	12.7%	5.4%	10.3%	9.9%	2.3%	0.0%	0.0%	2.4%
TERMINAL (d)	2/19 (11%)	0/11 (0%)	2/21 (10%)	3/24 (13%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	610	561	694	654	718	---	---	730 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.366N	P=0.349N	P=0.438N	P=0.379N	P=0.519	P=0.519N	P=0.555N	P=0.677
POLY 3	P=0.524N	P=0.234N	P=0.507N	P=0.480N	P=0.585	P=0.501N	P=0.522N	P=0.751
POLY 1.5	P=0.340N	P=0.225N	P=0.500N	P=0.490N	P=0.589	P=0.500N	P=0.515N	P=0.756
POLY 6	P=0.490N	P=0.256N	P=0.493N	P=0.460N	P=0.579	P=0.504N	P=0.529N	P=0.740
LOGISTIC REGRESSION	P=0.489N	P=0.234N	P=0.473N	P=0.451N	P=0.546	P=0.505N	P=0.533N	P=0.712
COCH-ARM / FISHERS	P=0.554N	P=0.218N	P=0.500N	P=0.500N	P=0.594	P=0.500N	P=0.505N	P=0.753N

Dose	Males CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females CONTROL	31.2 PPM	62.5 PPM	125 PPM
Islets, Pancreatic Carcinoma								
TUMOR RATES								
OVERALL (a)	4/50 (8%)	1/50 (2%)	0/50 (0%)	3/50 (6%)	0/50 (0%)	1/50 (2%)	0/49 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	10.3%	2.7%	0.0%	7.5%	0.0%	2.3%	0.0%	0.0%
TERMINAL (d)	2/19 (11%)	1/11 (9%)	0/21 (0%)	3/24 (13%)	0/29 (0%)	1/27 (4%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	673	729 (T)	---	729 (T)	---	730 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.347N	P=0.328N	P=0.053N	P=0.388N	P=0.617N	P=0.486	(e)	(e)
POLY 3	P=0.483N	P=0.195N	P=0.060N	P=0.483N	P=0.576N	P=0.499	(e)	(e)
POLY 1.5	P=0.493N	P=0.187N	P=0.061N	P=0.491N	P=0.572N	P=0.500	(e)	(e)
POLY 6	P=0.464N	P=0.215N	P=0.056N	P=0.466N	P=0.582N	P=0.497	(e)	(e)
LOGISTIC REGRESSION	P=0.355N	P=0.235N	P=0.056N	P=0.422N	(e)	P=0.486	(e)	(e)
COCH-ARM / FISHERS	P=0.500N	P=0.181N	P=0.059N	P=0.500N	P=0.567N	P=0.500	(e)	(e)

Dose	Males CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females CONTROL	31.2 PPM	62.5 PPM	125 PPM
Islets, Pancreatic Carcinoma or Adenoma								
TUMOR RATES								
STATISTICAL TESTS								
LIFE TABLE	P=0.348	P=0.386N	P=0.439	P=0.427	P=0.558N	P=0.303N	P=0.549N	P=0.538N

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E 11

Dose	Males: CONTROL	Males: 31.2 PPM	Males: 62.5 PPM	Males: 125 PPM	Females: CONTROL	Females: 31.2 PPM	Females: 62.5 PPM	Females: 125 PPM
OVERALL (a)	9/50 (18%)	3/50 (6%)	4/50 (8%)	7/50 (14%)	1/50 (2%)	1/50 (2%)	0/49 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	22.7%	8.0%	10.3%	17.3%	2.3%	2.3%	0.0%	2.4%
TERMINAL (d)	4/19 (21%)	1/11 (9%)	2/21 (10%)	6/24 (25%)	0/29 (0%)	1/27 (4%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	610	561	694	654	718	730 (T)	---	730 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.253N	P=0.185N	P=0.091N	P=0.240N	P=0.606	P=0.742	P=0.555N	P=0.677
POLY 3	P=0.452N	P=0.069N	P=0.117N	P=0.371N	P=0.626N	P=0.760	P=0.522N	P=0.751
POLY 1.5	P=0.470N	P=0.063N	P=0.120N	P=0.382N	P=0.622N	P=0.760N	P=0.515N	P=0.756
POLY 6	P=0.414N	P=0.082N	P=0.108N	P=0.350N	P=0.632N	P=0.757	P=0.529N	P=0.740
LOGISTIC REGRESSION	P=0.376N	P=0.081N	P=0.096N	P=0.306N	P=0.627	P=0.754	P=0.533N	P=0.712
COCH-ARM / FISHERS	P=0.485N	P=0.061N	P=0.117N	P=0.393N	P=0.616N	P=0.753N	P=0.505N	P=0.753N

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Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males: CONTROL	Males: 31.2 PPM	Males: 62.5 PPM	Males: 125 PPM	Females: CONTROL	Females: 31.2 PPM	Females: 62.5 PPM	Females: 125 PPM
Kidney: Renal Tubule Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	702	536	---	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.164N	P=0.441	P=0.476N	P=0.461N	(e)	(e)	(e)	(e)
POLY 3	P=0.184N	P=0.488	P=0.500N	P=0.492N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.186N	P=0.495	P=0.502N	P=0.496N	(e)	(e)	(e)	(e)
POLY 6	P=0.180N	P=0.473	P=0.494N	P=0.485N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.189N	P=0.504	P=0.492N	P=0.483N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.188N	P=0.500	P=0.500N	P=0.500N	(e)	(e)	(e)	(e)

Dose	Males: CONTROL	Males: 31.2 PPM	Males: 62.5 PPM	Males: 125 PPM	Females: CONTROL	Females: 31.2 PPM	Females: 62.5 PPM	Females: 125 PPM
Kidney: Renal Tubule Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.6%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	702	536	---	---	---	---	---	617
STATISTICAL TESTS								
LIFE TABLE	P=0.164N	P=0.441	P=0.476N	P=0.461N	P=0.199	(e)	(e)	P=0.495
POLY 3	P=0.184N	P=0.488	P=0.500N	P=0.492N	P=0.194	(e)	(e)	P=0.493
POLY 1.5	P=0.186N	P=0.495	P=0.502N	P=0.496N	P=0.197	(e)	(e)	P=0.497

POLY 6	P=0.180N	P=0.473	P=0.494N	P=0.485N	[illegible]	(e)	(e)	P=0.485
LOGISTIC REGRESSION	P=0.189N	P=0.504	P=0.492N	P=0.483N	P=0.[illegible]9	(e)	(e)	P=0.503
COCH-ARM / FISHERS	P=0.188N	P=0.500	P=0.500N	P=0.500N	P=0.198	(e)	(e)	P=0.500

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males: CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females: CONTROL	31.2 PPM	62.5 PPM	125 PPM
Liver								
Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	5.4%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	1/11 (9%)	0/21 (0%)	1/24 (4%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	708	617	---	729 (T)	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.410N	P=0.394	P=0.475N	P=0.711N	(e)	(e)	(e)	(e)
POLY 3	P=0.494N	P=0.485	P=0.500N	P=0.753N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.497N	P=0.493	P=0.502N	P=0.757N	(e)	(e)	(e)	(e)
POLY 6	P=0.486N	P=0.469	P=0.494N	P=0.744N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.467N	P=0.473	P=0.489N	P=0.728N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.500N	P=0.500	P=0.500N	P=0.753N	(e)	(e)	(e)	(e)

Dose	Males: CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females: CONTROL	31.2 PPM	62.5 PPM	125 PPM
Liver								
Hepatocellular Carcinoma or Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	3/50 (6%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	8.1%	0.0%	.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	1/11 (9%)	0/21 (0%)	1/24 (4%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	708	617	---	666	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.553N	P=0.212	P=0.475N	P=0.566	(e)	(e)	(e)	(e)
POLY 3	P=0.572	P=0.290	P=0.500N	P=0.516	(e)	(e)	(e)	(e)
POLY 1.5	P=0.563	P=0.298	P=0.502N	P=0.508	(e)	(e)	(e)	(e)
POLY 6	P=0.588	P=0.274	P=0.494N	P=0.531	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.586	P=0.273	P=0.489N	P=0.528	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.556	P=0.309	P=0.500N	P=0.500	(e)	(e)	(e)	(e)

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males: CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females: CONTROL	31.2 PPM	62.5 PPM	125 PPM
OVERALL (a)	9/50 (18%)	3/50 (6%)	4/50 (8%)	7/50 (14%)	1/50 (2%)	1/50 (2%)	0/49 (0%)	1/50 (2%)

D 13

E 13

Liver
Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma

TUMOR RATES								
OVERALL (a)	1/50 (2%)	3/50 (6%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	3.1%	0.0%	4.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	1/11 (9%)	0/21 (0%)	1/24 (4%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	708	617	---	666	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.553N	P=0.212	P=0.475N	P=0.566	(e)	(e)	(e)	(e)
POLY 3	P=0.572	P=0.290	P=0.500N	P=0.516	(e)	(e)	(e)	(e)
POLY 1.5	P=0.563	P=0.298	P=0.502N	P=0.508	(e)	(e)	(e)	(e)
POLY 6	P=0.588	P=0.274	P=0.494N	P=0.531	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.586	P=0.273	P=0.489N	P=0.528	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.556	P=0.309	P=0.500N	P=0.500	(e)	(e)	(e)	(e)
	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

Lung
Alveolar/Bronchiolar Adenoma

TUMOR RATES								
OVERALL (a)	1/50 (2%)	2/50 (4%)	4/50 (8%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)
POLY-3 ADJUSTED (b)	2.6%	5.5%	10.1%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/19 (5%)	2/11 (18%)	3/21 (14%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/20 (0%)
FIRST INCIDENCE	729 (T)	729 (T)	472	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.252N	P=0.310	P=0.199	P=0.453N	(e)	(e)	(e)	(e)
POLY 3	P=0.341N	P=0.482	P=0.163	P=0.492N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.357N	P=0.491	P=0.179	P=0.496N	(e)	(e)	(e)	(e)
POLY 6	P=0.331N	P=0.463	P=0.194	P=0.484N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.339N	P=0.310	P=0.179	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.373N	P=0.500	P=0.181	P=0.500N	(e)	(e)	(e)	(e)

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

Lung
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma

TUMOR RATES								
OVERALL (a)	1/50 (2%)	3/50 (6%)	5/50 (10%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)

POLY-3 ADJUSTED (b)	2.6%	8.2%	12.7%	2.5%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/19 (5%)	2/11 (18%)	4/21 (19%)	1/24 (4%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/20 (0%)
FIRST INCIDENCE	729 (T)	723	472	729 (T)	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.365N	P=0.146	P=0.117	P=0.710N	(e)	(e)	(e)	(e)
POLY 3	P=0.508N	P=0.285	P=0.104	P=0.752N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.526N	P=0.296	P=0.101	P=0.756N	(e)	(e)	(e)	(e)
POLY 6	P=0.472N	P=0.266	P=0.112	P=0.743N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.474N	P=0.169	P=0.104	P=0.710N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.544N	P=0.309	P=0.102	P=0.753N	(e)	(e)	(e)	(e)

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Mammary Gland Carc' oma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	3/50 (6%)	4/50 (8%)	4/50 (8%)	3/50 (6%)
POLY-3 ADJUSTED (b)	0.0%	2.7%	0.0%	0.0%	6.9%	9.1%	9.8%	7.2%
TERMINAL (d)	0/19 (0%)	1/11 (9%)	0/21 (0%)	0/24 (0%)	2/29 (7%)	0/27 (0%)	1/23 (4%)	1/21 (5%)
FIRST INCIDENCE	---	729 (T)	---	---	638	606	462	663
STATISTICAL TESTS								
LIFE TABLE	P=0.503N	P=0.391	(e)	(e)	P=0.499	P=0.484	P=0.405	P=0.551
POLY 3	P=0.571N	P=0.490	(e)	(e)	P=0.571N	P=0.507	P=0.464	P=0.642
POLY 1.5	P=0.569N	P=0.495	(e)	(e)	P=0.554N	P=0.505	P=0.477	P=0.653
POLY 6	P=0.574N	P=0.479	(e)	(e)	P=0.544	P=0.508	P=0.450	P=0.622
LOGISTIC REGRESSION	(e)	P=0.391	(e)	(e)	P=0.524N	P=0.496	P=0.535	P=0.644
COCH-ARM / FISHERS	P=0.567N	P=0.500	(e)	(e)	P=0.537N	P=0.500	P=0.500	P=0.661N

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Mammary Gland Fibroadenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	1/50 (2%)	3/50 (6%)	1/50 (2%)	23/50 (46%)	24/50 (48%)	20/50 (40%)	15/50 (30%)
POLY-3 ADJUSTED (b)	7.7%	2.7%	7.6%	2.5%	49.9%	53.5%	48.2%	33.9%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	1/21 (5%)	1/24 (4%)	14/29 (48%)	15/27 (56%)	12/23 (52%)	5/21 (24%)
FIRST INCIDENCE	641	677	565	729 (T)	508	584	462	462
STATISTICAL TESTS								
LIFE TABLE	P=0.225N	P=0.417N	P=0.622N	P=0.248N	P=0.259N	P=0.411	P=0.482	P=0.296N
POLY 3	P=0.289N	P=0.325N	P=0.661N	P=0.294N	P=0.043N*	P=0.445	P=0.522N	P=0.088N
POLY 1.5	P=0.302N	P=0.315N	P=0.660	P=0.300N	P=0.038N*	P=0.473	P=0.451N	P=0.079N
POLY 6	P=0.266N	P=0.347N	P=0.647N	P=0.283N	P=0.057N	P=0.401	P=0.570	P=0.110N
LOGISTIC REGRESSION	P=0.293N	P=0.330N	P=0.662	P=0.281N	P=0.048N*	P=0.501	P=0.455N	P=0.074N

E 01

F 01

COCH-ARM / FISHERS	P=0.313N	P=0.309N	P=0.661N	P=0.309N	P=0.036N*	P=0.500	P=0.243N	P=0.074N

Dose	Males CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females CONTROL	31.2 PPM	62.5 PPM	125 PPM
Mammary Gland Fibroma, Fibroadenoma, Carcinoma, or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	2/50 (4%)	3/50 (6%)	1/50 (2%)	25/50 (50%)	27/50 (54%)	23/50 (46%)	18/50 (36%)
POLY-3 ADJUSTED (b)	7.7%	5.4%	7.6%	2.5%	53.8%	58.9%	54.3%	40.4%
TERMINAL (d)	1/19 (5%)	1/11 (9%)	1/21 (5%)	1/24 (4%)	15/29 (52%)	15/27 (56%)	13/23 (57%)	6/21 (29%)
FIRST INCIDENCE	641	677	565	729 (T)	508	584	462	462
STATISTICAL TESTS								
LIFE TABLE	P=0.176N	P=0.652N	P=0.622N	P=0.248N	P=0.355N	P=0.352	P=0.383	P=0.403N
POLY 3	P=0.242N	P=0.527N	P=0.661N	P=0.294N	P=0.070N	P=0.386	P=0.568	P=0.137N
POLY 1.5	P=0.254N	P=0.513N	P=0.660	P=0.300N	P=0.060N	P=0.404	P=0.532N	P=0.122N
POLY 6	P=0.222N	P=0.555N	P=0.647N	P=0.283N	P=0.095N	P=0.360	P=0.481	P=0.169N
LOGISTIC REGRESSION	P=0.237N	P=0.549N	P=0.662	P=0.281N	P=0.068N	P=0.423	P=0.524N	P=0.114N
COCH-ARM / FISHERS	P=0.263N	P=0.500N	P=0.661N	P=0.309N	P=0.054N	P=0.421	P=0.421N	P=0.113N

Dose	Males CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females CONTROL	31.2 PPM	62.5 PPM	125 PPM
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Papilloma Squamous or Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	10.1%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	1/21 (5%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	609	---	729 (T)	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.030N*	P=0.088N	P=0.166N	P=0.054N	(e)	(e)	(e)	(e)
POLY 3	P=0.032N*	P=0.070N	P=0.185N	P=0.058N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.035N*	P=0.065N	P=0.185N	P=0.059N	(e)	(e)	(e)	(e)
POLY 6	P=0.028N*	P=0.081N	P=0.181N	P=0.055N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.038N*	P=0.061N	P=0.180N	P=0.065N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.039N*	P=0.059N	P=0.181N	P=0.059N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females CONTROL	31.2 PPM	62.5 PPM	125 PPM
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	10.1%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	1/21 (5%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	609	---	729 (T)	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.030N*	P=0.088N	P=0.166N	P=0.054N	(e)	(e)	(e)	(e)
POLY 3	P=0.032N*	P=0.070N	P=0.185N	P=0.058N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.035N*	P=0.065N	P=0.185N	P=0.059N	(e)	(e)	(e)	(e)
POLY 6	P=0.028N*	P=0.081N	P=0.181N	P=0.055N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.038N*	P=0.061N	P=0.180N	P=0.065N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.039N*	P=0.059N	P=0.181N	P=0.059N	(e)	(e)	(e)	(e)

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Oral Mucosa								
Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	609	---	---	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.045N*	P=0.130N	P=0.117N	P=0.113N	(e)	(e)	(e)	(e)
POLY 3	P=0.041N*	P=0.133N	P=0.123N	P=0.115N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.043N*	P=0.125N	P=0.122N	P=0.117N	(e)	(e)	(e)	(e)
POLY 6	P=0.037N*	P=0.148N	P=0.120N	P=0.112N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.047N*	P=0.115N	P=0.111N	P=0.127N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.047N*	P=0.121N	P=0.121N	P=0.121N	(e)	(e)	(e)	(e)
	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Pancreas								
Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/50 (0%)	3/50 (6%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	0.0%	7.8%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	2/21 (14%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	729 (T)	---	729 (T)	--	---	---	---	---
STATISTICAL TESTS								
COCH-ARM / FISHERS	P=0.313N	P=0.309N	P=0.661N	P=0.309N	P=0.036N*	P=0.500	P=0.303N	P=0.074N

E 03

F 03

Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma

LIFE TABLE	P=0.379N	P=0.609N	P=0.338	P=0.453N	(e)	(e)	(e)	(e)
POLY 3	P=0.470N	P=0.510N	P=0.304	P=0.492N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.486N	P=0.505N	P=0.302	P=0.496N	(e)	(e)	(e)	(e)
POLY 6	P=0.440N	P=0.521N	P=0.315	P=0.484N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.379N	(e)	P=0.338	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.500N	P=0.500N	P=0.309	P=0.500N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Pituitary Gland: Pars Distalis or Unspecified Site Adenoma								
TUMOR RATES								
OVERALL (a)	24/49 (49%)	29/49 (59%)	24/48 (50%)	25/47 (53%)	33/50 (66%)	32/50 (64%)	30/49 (61%)	20/49 (41%)
POLY-3 ADJUSTED (b)	55.2%	65.0%	55.8%	59.0%	72.8%	69.1%	69.5%	45.6%
TERMINAL (d)	6/18 (33%)	7/11 (64%)	10/20 (50%)	14/23 (61%)	22/29 (76%)	19/27 (70%)	16/23 (70%)	9/21 (43%)
FIRST INCIDENCE	520	479	340	495	575	584	496	462
STATISTICAL TESTS								
LIFE TABLE	P=0.164N	P=0.090	P=0.466N	P=0.405N	P=0.160N	P=0.510	P=0.340	P=0.181N
POLY 3	P=0.522	P=0.223	P=0.562	P=0.442	P=0.002N**	P=0.430N	P=0.452N	P=0.005N**
POLY 1.5	P=0.510	P=0.222	P=0.550	P=0.432	P=0.003N**	P=0.457N	P=0.426N	P=0.006N**
POLY 6	P=0.545	P=0.211	P=0.580	P=0.457	P=0.003N**	P=0.404N	P=0.480N	P=0.005N**
LOGISTIC REGRESSION	P=0.488	P=0.224	P=0.542	P=0.419	P=0.006N**	P=0.502N	P=0.586N	P=0.012N*
COCH-ARM / FISHERS	P=0.500	P=0.209	P=0.541	P=0.418	P=0.004N**	P=0.500N	P=0.388N	P=0.010N*

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Prostate Adenoma								
TUMOR RATES								
OVERALL (a)	1/49 (2%)	0/49 (0%)	4/50 (8%)	2/50 (4%)				
POLY-3 ADJUSTED (b)	2.7%	0.0%	10.3%	5.0%				
TERMINAL (d)	1/18 (6%)	0/11 (0%)	3/21 (14%)	2/24 (8%)				
FIRST INCIDENCE	729 (T)	---	708	729 (T)				
STATISTICAL TESTS								
LIFE TABLE	P=0.403	P=0.598N	P=0.225	P=0.601				
POLY 3	P=0.275	P=0.508N	P=0.186	P=0.524				
POLY 1.5	P=0.258	P=0.504N	P=0.183	P=0.515				
POLY 6	P=0.309	P=0.517N	P=0.197	P=0.540				
LOGISTIC REGRESSION	P=0.379	(e)	P=0.225	P=0.601				
COCH-ARM / FISHERS	P=0.244	P=0.500N	P=0.187	P=0.508				

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Skin Basal Cell Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.2%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	2/19 (11%)	1/11 (9%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	729 (T)	729 (T)	---	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.069N	P=0.690N	P=0.215N	P=0.187N	(e)	(e)	(e)	(e)
POLY 3	P=0.097N	P=0.518N	P=0.236N	P=0.227N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.099N	P=0.509N	P=0.239N	P=0.232N	(e)	(e)	(e)	(e)
POLY 6	P=0.092N	P=0.537N	P=0.228N	P=0.218N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.069N	P=0.690N	(e)	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.101N	P=0.500N	P=0.247N	P=0.247N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Skin Basal Cell Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.2%	2.7%	0.0%	0.0%	2.3%	2.3%	0.0%	0.0%
TERMINAL (d)	2/19 (11%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	1/29 (3%)	1/27 (4%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	729 (T)	638	---	---	730 (T)	730 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.078N	P=0.639N	P=0.215N	P=0.187N	P=0.287N	P=0.746	P=0.546N	P=0.564N
POLY 3	P=0.097N	P=0.515N	P=0.236N	P=0.227N	P=0.244N	P=0.760	P=0.518N	P=0.509N
POLY 1.5	P=0.099N	P=0.507N	P=0.239N	P=0.232N	P=0.241N	P=0.760N	P=0.511N	P=0.504N
POLY 6	P=0.093N	P=0.530N	P=0.228N	P=0.218N	P=0.248N	P=0.758	P=0.526N	P=0.518N
LOGISTIC REGRESSION	P=0.089N	P=0.547N	(e)	(e)	P=0.287N	P=0.746	(e)	(e)
COCH-ARM / FISHERS	P=0.101N	P=0.500N	P=0.247N	P=0.247N	P=0.235N	P=0.753N	P=0.500N	P=0.500N

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Skin Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
LIFE TABLE	P=0.379N	P=0.609N	P=0.338	P=0.453N	(e)	(e)	(e)	(e)
POLY 3	P=0.470N	P=0.510N	P=0.304	P=0.492N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.486N	P=0.505N	P=0.302	P=0.496N	(e)	(e)	(e)	(e)

F 05

F 05

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	10.4%	5.4%	0.0%	0.0%	2.3%	2.3%	0.0%	0.0%
TERMINAL (d)	4/19 (21%)	1/11 (9%)	0/21 (0%)	0/24 (0%)	1/29 (3%)	1/27 (4%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	729 (T)	638	---	---	730 (T)	730 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.009N**	P=0.570N	P=0.048N*	P=0.035N*	P=0.287N	P=0.746	P=0.546N	P=0.564N
POLY 3	P=0.015N*	P=0.355N	P=0.059N	P=0.054N	P=0.244N	P=0.760	P=0.518N	P=0.509N
POLY 1.5	P=0.016N*	P=0.346N	P=0.061N	P=0.057N	P=0.241N	P=0.760N	P=0.511N	P=0.504N
POLY 6	P=0.013N*	P=0.375N	P=0.054N	P=0.048N*	P=0.248N	P=0.758	P=0.526N	P=0.518N
LOGISTIC REGRESSION	P=0.011N*	P=0.440N	(e)	(e)	P=0.287N	P=0.746	(e)	(e)
COCH-ARM / FISHERS	P=0.018N*	P=0.339N	P=0.059N	P=0.059N	P=0.235N	P=0.753N	P=0.500N	P=0.500N

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

skin
Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor
(M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepitheliom

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	8/50 (16%)	6/50 (12%)	8/50 (16%)	4/50 (8%)	3/50 (6%)	1/50 (2%)	0/50 (0%)	2/50 (4%)
POLY-3 ADJUSTED (b)	20.3%	15.8%	19.8%	9.8%	6.9%	2.3%	0.0%	4.8%
TERMINAL (d)	6/19 (32%)	1/11 (9%)	5/21 (24%)	3/24 (13%)	2/29 (7%)	1/27 (4%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	529	579	340	617	710	730 (T)	---	695
STATISTICAL TESTS								
LIFE TABLE	P=0.070N	P=0.570	P=0.538N	P=0.097N	P=0.569N	P=0.337N	P=0.172N	P=0.645N
POLY 3	P=0.145N	P=0.410N	P=0.590N	P=0.156N	P=0.457N	P=0.307N	P=0.135N	P=0.520N
POLY 1.5	P=0.162N	P=0.398N	P=0.603N	P=0.167N	P=0.452N	P=0.305N	P=0.129N	P=0.509N
POLY 6	P=0.117N	P=0.431N	P=0.555N	P=0.136N	P=0.465N	P=0.311N	P=0.143N	P=0.540N
LOGISTIC REGRESSION	P=0.156N	P=0.447N	P=0.606	P=0.138N	P=0.516N	P=0.320N	P=0.153N	P=0.577N
COCH-ARM / FISHERS	P=0.178N	P=0.387N	P=0.607N	P=0.178N	P=0.444N	P=0.309N	P=0.121N	P=0.500N

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

skin
Fibroma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	2/50 (4%)	2/50 (4%)	4/50 (8%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	5.1%	5.4%	5.2%	9.9%	0.0%	2.3%	0.0%	2.4%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	2/21 (10%)	3/24 (13%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	646	617	729 (T)	638	---	708	---	730 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.353	P=0.620	P=0.662N	P=0.425	P=0.323	P=0.476	(e)	P=0.436
POLY 3	P=0.241	P=0.680	P=0.693	P=0.355	P=0.391	P=0.500	(e)	P=0.491

POLY 1.5	P=0.231	P=0.687	P=0.690	P=0.346	P=0.399	P=0.500	(e)	P=0.496
POLY 6	P=0.263	P=0.665	P=0.689N	P=0.374	P=0.378	P=0.498	(e)	P=0.482
LOGISTIC REGRESSION	P=0.260	P=0.689	P=0.676N	P=0.371	P=0.368	P=0.498	(e)	P=0.436
COCH-ARM / FISHERS	P=0.221	P=0.691N	P=0.691N	P=0.339	P=0.405	P=0.500	(e)	P=0.500

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Skin Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	2/50 (4%)	3/50 (6%)	5/50 (10%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	7.6%	5.4%	7.8%	12.2%	0.0%	2.3%	0.0%	2.4%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	3/21 (14%)	3/24 (13%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	609	617	729 (T)	576	---	708	---	730 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.338	P=0.573N	P=0.627N	P=0.441	P=0.323	P=0.476	(e)	P=0.436
POLY 3	P=0.229	P=0.525N	P=0.656	P=0.379	P=0.391	P=0.500	(e)	P=0.491
POLY 1.5	P=0.217	P=0.512N	P=0.655	P=0.368	P=0.399	P=0.500	(e)	P=0.496
POLY 6	P=0.256	P=0.549N	P=0.664	P=0.401	P=0.378	P=0.498	(e)	P=0.482
LOGISTIC REGRESSION	P=0.227	P=0.499N	P=0.655N	P=0.363	P=0.368	P=0.498	(e)	P=0.436
COCH-ARM / FISHERS	P=0.205	P=0.500N	P=0.661N	P=0.357	P=0.405	P=0.500	(e)	P=0.500

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Skin Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	0.0%	2.6%	4.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	1/21 (5%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	609	---	729 (T)	576	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.291	P=0.505N	P=0.749N	P=0.515	(e)	(e)	(e)	(e)
POLY 3	P=0.270	P=0.513N	P=0.759	P=0.518	(e)	(e)	(e)	(e)
POLY 1.5	P=0.258	P=0.506N	P=0.758	P=0.509	(e)	(e)	(e)	(e)
POLY 6	P=0.293	P=0.525N	P=0.759N	P=0.534	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.239	P=0.496N	P=0.762	P=0.480	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.247	P=0.500N	P=0.753N	P=0.500	(e)	(e)	(e)	(e)

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)

COCH-ARM / FISHERS	P=0.500	P=0.643N	P=0.178	P=0.643N	P=0.500	P=0.247N	P=0.247N	P=0.[illegible]

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Skin
Keratoacanthoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	3/50 (6%)	4/50 (8%)	3/50 (6%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	7.6%	8.0%	9.9%	7.4%	4.6%	0.0%	0.0%	0.0%
TERMINAL (d)	2/19 (11%)	0/11 (0%)	1/21 (5%)	2/24 (8%)	1/29 (3%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	529	579	340	617	710	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.477N	P=0.563	P=0.529	P=0.590N	P=0.153N	P=0.262N	P=0.301N	P=0.326N
POLY 3	P=0.567N	P=0.645	P=0.515	P=0.647N	P=0.115N	P=0.238N	P=0.258N	P=0.247N
POLY 1.5	P=0.573	P=0.654	P=0.504	P=0.655N	P=0.115N	P=0.237N	P=0.250N	P=0.242N
POLY 6	P=0.536N	P=0.630	P=0.539	P=0.630N	P=0.114N	P=0.241N	P=0.268N	P=0.258N
LOGISTIC REGRESSION	P=0.544	P=0.658N	P=0.530	P=0.654N	P=0.132N	P=0.243N	P=0.273N	P=0.275N
COCH-ARM / FISHERS	P=0.558	P=0.661N	P=0.500	P=0.661N	P=0.115N	P=0.247N	P=0.247N	P=0.247N

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Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL
Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

Skin
Lipoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.6%	2.7%	5.2%	0.0%	0.0%	0.0%	2.5%	0.0%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	2/21 (10%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	729 (T)	576	729 (T)	---	---	---	589	---
STATISTICAL TESTS								
LIFE TABLE	P=0.285N	P=0.704	P=0.535	P=0.453N	P=0.692	(e)	P=0.476	(e)
POLY 3	P=0.348N	P=0.753	P=0.500	P=0.492N	P=0.680	(e)	P=0.484	(e)
POLY 1.5	P=0.358N	P=0.757	P=0.497	P=0.496N	P=0.688	(e)	P=0.490	(e)
POLY 6	P=0.328N	P=0.744	P=0.512	P=0.484N	P=0.664	(e)	P=0.478	(e)
LOGISTIC REGRESSION	P=0.343N	P=0.762N	P=0.535	(e)	P=0.719	(e)	P=0.564	(e)
COCH-ARM / FISHERS	P=0.366N	P=0.753N	P=0.500	P=0.500N	P=0.694	(e)	P=0.500	(e)

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

Skin
Sarcoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	4.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	---	---	---	576	---	---	---	---

F 09

F 08

STATISTICAL TESTS								
LIFE TABLE	P=0.053	(e)	(e)	P=0.251	(e)	(e)	(e)	(e)
POLY 3	P=0.049 *	(e)	(e)	P=0.251	(e)	(e)	(e)	(e)
POLY 1.5	P=0.047 *	(e)	(e)	P=0.244	(e)	(e)	(e)	(e)
POLY 6	P=0.054	(e)	(e)	P=0.264	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.040 *	(e)	(e)	P=0.223	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.046 *	(e)	(e)	P=0.247	(e)	(e)	(e)	(e)

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL
Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Skin								
Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	4/50 (8%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)
POLY-3 ADJUSTED (b)	2.6%	2.7%	10.3%	2.5%	0.0%	0.0%	0.0%	4.8%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	4/21 (19%)	1/24 (4%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	708	723	729 (T)	729 (T)	---	---	---	695
STATISTICAL TESTS								
LIFE TABLE	P=0.513N	P=0.673	P=0.211	P=0.711N	P=0.031 *	(e)	(e)	P=0.179
POLY 3	P=0.563	P=0.749	P=0.176	P=0.753N	P=0.043 *	(e)	(e)	P=0.228
POLY 1.5	P=0.544	P=0.755	P=0.175	P=0.757N	P=0.044 *	(e)	(e)	P=0.233
POLY 6	P=0.599	P=0.738	P=0.184	P=0.744N	P=0.041 *	(e)	(e)	P=0.218
LOGISTIC REGRESSION	P=0.542N	P=0.713	P=0.210	P=0.728N	P=0.040 *	(e)	(e)	P=0.212
COCH-ARM / FISHERS	P=0.526	P=0.753N	P=0.181	P=0.753N	P=0.046 *	(e)	(e)	P=0.247

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Skin								
Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	4/50 (8%)	8/50 (16%)	4/50 (8%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	2/50 (4%)
POLY-3 ADJUSTED (b)	10.2%	10.6%	19.8%	9.8%	4.6%	0.0%	0.0%	4.8%
TERMINAL (d)	2/19 (11%)	0/11 (0%)	5/21 (24%)	3/24 (13%)	1/29 (3%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	529	579	340	617	710	---	---	695
STATISTICAL TESTS								
LIFE TABLE	P=0.430N	P=0.500	P=0.220	P=0.547N	P=0.398	P=0.262N	P=0.301N	P=0.569
POLY 3	P=0.544	P=0.622	P=0.184	P=0.627N	P=0.489	P=0.238N	P=0.258N	P=0.679
POLY 1.5	P=0.520	P=0.633	P=0.178	P=0.635N	P=0.494	P=0.237N	P=0.250N	P=0.687
POLY 6	P=0.545N	P=0.602	P=0.201	P=0.607N	P=0.482	P=0.241N	P=0.268N	P=0.663
LOGISTIC REGRESSION	P=0.513	P=0.634	P=0.177	P=0.622N	P=0.455	P=0.243N	P=0.273N	P=0.646
COCH-ARM / FISHERS	P=0.500	P=0.643N	P=0.178	P=0.643N	P=0.500	P=0.247N	P=0.247N	P=0.691N

Skin
Keratoacanthoma

E 09
F 09

TERMINAL (d)	1/19 (5%)	0/11 (0%)	2/21 (10%)	2/24 (8%)	0/29 (0%)	0/27 (0%)	1/23 (4%)	2/21 (10%)
FIRST INCIDENCE	729 (T)	---	703	729 (T)	---	---	649	730 (T)
STATISTICAL TESTS								

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL
Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Skin Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	4/50 (8%)	8/50 (16%)	4/50 (8%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	2/50 (4%)
POLY-3 ADJUSTED (b)	10.2%	10.6%	19.8%	9.8%	4.6%	0.0%	0.0%	4.8%
TERMINAL (d)	2/19 (11%)	0/11 (0%)	5/21 (24%)	3/24 (13%)	1/29 (3%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	529	579	340	617	710	---	---	695
STATISTICAL TESTS								
LIFE TABLE	P=0.430N	P=0.500	P=0.220	P=0.547N	P=0.398	P=0.262N	P=0.301N	P=0.569
POLY 3	P=0.544	P=0.622	P=0.184	P=0.627N	P=0.489	P=0.238N	P=0.258N	P=0.679
POLY 1.5	P=0.520	P=0.633	P=0.178	P=0.635N	P=0.494	P=0.237N	P=0.250N	P=0.687
POLY 6	P=0.545N	P=0.602	P=0.201	P=0.607N	P=0.482	P=0.241N	P=0.268N	P=0.663
LOGISTIC REGRESSION	P=0.513	P=0.634	P=0.177	P=0.622N	P=0.455	P=0.243N	P=0.273N	P=0.646
COCH-ARM / FISHERS	P=0.500	P=0.643N	P=0.178	P=0.643N	P=0.500	P=0.247N	P=0.247N	P=0.691N

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Skin: Sebaceous Gland Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	1/21 (5%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	---	---	708	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.664	(e)	P=0.265	(e)	(e)	(e)	(e)	(e)
POLY 3	P=0.626	(e)	P=0.237	(e)	(e)	(e)	(e)	(e)
POLY 1.5	P=0.611	(e)	P=0.235	(e)	(e)	(e)	(e)	(e)
POLY 6	P=0.655	(e)	P=0.245	(e)	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.645	(e)	P=0.257	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.595	(e)	P=0.247	(e)	(e)	(e)	(e)	(e)

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL
Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Testes Adenoma								

TUMOR RATES								
OVERALL (a)	41/50 (82%)	42/50 (84%)	44/50 (88%)	41/50 (82%)				
POLY-3 ADJUSTED (b)	89.9%	92.1%	93.4%	88.2%				
TERMINAL (d)	19/19 (100%)	11/11 (100%)	21/21 (100%)	22/24 (92%)				
FIRST INCIDENCE	529	533	370	481				
STATISTICAL TESTS								
LIFE TABLE	P=0.045N*	P=0.056	P=0.550N	P=0.183N				
POLY 3	P=0.399N	P=0.501	P=0.386	P=0.529N				
POLY 1.5	P=0.479N	P=0.502	P=0.321	P=0.567N				
POLY 6	P=0.251N	P=0.529	P=0.551	P=0.445N				
LOGISTIC REGRESSION	P=0.512N	P=0.367	P=0.167	P=0.573N				
COCH-ARM / FISHERS	P=0.552	P=0.500	P=0.288	P=0.602N				
	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Thyroid Gland: C-Cell Adenoma								
TUMOR RATES								
OVERALL (a)	7/50 (14%)	3/46 (7%)	7/48 (15%)	10/48 (21%)	6/50 (12%)	2/48 (4%)	5/49 (10%)	5/50 (10%)
POLY-3 ADJUSTED (b)	17.9%	8.7%	18.4%	25.5%	13.8%	4.8%	12.6%	11.9%
TERMINAL (d)	5/19 (26%)	1/11 (9%)	5/21 (24%)	9/24 (38%)	3/29 (10%)	0/27 (0%)	3/23 (13%)	2/21 (10%)
FIRST INCIDENCE	648	533	658	611	688	701	694	612
STATISTICAL TESTS								
LIFE TABLE	P=0.324	P=0.360N	P=0.525N	P=0.478	P=0.348	P=0.167N	P=0.591	P=0.567
POLY 3	P=0.120	P=0.204N	P=0.597	P=0.292	P=0.514	P=0.145N	P=0.564N	P=0.523N
POLY 1.5	P=0.110	P=0.198N	P=0.584	P=0.278	P=0.527	P=0.145N	P=0.543N	P=0.511N
POLY 6	P=0.144	P=0.221N	P=0.611N	P=0.323	P=0.490	P=0.146N	P=0.592N	P=0.549N
LOGISTIC REGRESSION	P=0.179	P=0.237N	P=0.585N	P=0.383	P=0.475	P=0.146N	P=0.608N	P=0.542N
COCH-ARM / FISHERS	P=0.104	P=0.195N	P=0.581	P=0.266	P=0.540	P=0.148N	P=0.514N	P=0.500N

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL
Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Thyroid Gland: C-Cell Carcinoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/46 (0%)	3/48 (6%)	2/48 (4%)	0/50 (0%)	0/48 (0%)	2/49 (4%)	2/50 (4%)
POLY-3 ADJUSTED (b)	2.6%	0.0%	8.0%	5.2%	0.0%	0.0%	5.0%	4.9%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	2/21 (10%)	2/24 (8%)	0/29 (0%)	0/27 (0%)	1/23 (4%)	2/21 (10%)
FIRST INCIDENCE	729 (T)	---	703	729 (T)	---	---	649	730 (T)
STATISTICAL TESTS								

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL
Terminal Sacrifice at 104 weeks

E 11
E 11

OVERALL (a)					6/50 (12%)	3/50 (6%)	6/50 (12%)	2/50 (4%)
LIFE TABLE	P=0.379	P=0.609N	P=0.348	P=0.582	P=0.057	(e)	P=0.203	P=0.170
POLY 3	P=0.263	P=0.525N	P=0.295	P=0.501	P=0.080	(e)	P=0.219	P=0.227
POLY 1.5	P=0.249	P=0.521N	P=0.291	P=0.493	P=0.084	(e)	P=0.224	P=0.232
POLY 6	P=0.292	P=0.534N	P=0.307	P=0.517	P=0.072	(e)	P=0.212	P=0.217
LOGISTIC REGRESSION	P=0.348	(e)	P=0.332	P=0.582	P=0.075	(e)	P=0.224	P=0.170
COCH-ARM / FISHERS	P=0.237	P=0.521N	P=0.293	P=0.485	P=0.089	(e)	P=0.242	P=0.247

Dose	Males: CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females: CONTROL	31.2 PPM	62.5 PPM	125 PPM
Thyroid Gland: C-Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	7/50 (14%)	3/46 (7%)	9/48 (19%)	11/48 (23%)	6/50 (12%)	2/48 (4%)	7/49 (14%)	6/50 (12%)
POLY-3 ADJUSTED (b)	17.9%	8.7%	23.6%	28.3%	13.8%	4.8%	17.5%	14.3%
TERMINAL (d)	5/19 (26%)	1/11 (9%)	6/21 (29%)	10/24 (42%)	3/29 (10%)	0/27 (0%)	4/23 (17%)	3/21 (14%)
FIRST INCIDENCE	648	533	658	611	688	701	649	612
STATISTICAL TESTS								
LIFE TABLE	P=0.237	P=0.360N	P=0.491	P=0.582	P=0.199	P=0.167N	P=0.340	P=0.427
POLY 3	P=0.066	P=0.204N	P=0.370	P=0.208	P=0.341	P=0.145N	P=0.435	P=0.598
POLY 1.5	P=0.060	P=0.198N	P=0.359	P=0.198	P=0.356	P=0.145N	P=0.455	P=0.610
POLY 6	P=0.084	P=0.221N	P=0.400	P=0.234	P=0.315	P=0.146N	P=0.409	P=0.573
LOGISTIC REGRESSION	P=0.113	P=0.237N	P=0.425	P=0.293	P=0.307	P=0.146N	P=0.396	P=0.572
COCH-ARM / FISHERS	P=0.057	P=0.195N	P=0.359	P=0.190	P=0.371	P=0.148N	P=0.484	P=0.620N

Dose	Males: CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females: CONTROL	31.2 PPM	62.5 PPM	125 PPM
Thyroid Gland: Follicular Cell Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/46 (0%)	0/48 (0%)	3/48 (6%)	1/50 (2%)	0/48 (0%)	0/49 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.6%	0.0%	0.0%	7.7%	2.3%	0.0%	0.0%	2.4%
TERMINAL (d)	1/19 (5%)	0/11 (0%)	0/21 (0%)	3/24 (13%)	1/29 (3%)	0/27 (0%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	729 (T)	---	---	729 (T)	730 (T)	---	---	730 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.159	P=0.609N	P=0.480N	P=0.390	P=0.527	P=0.514N	P=0.546N	P=0.689
POLY 3	P=0.089	P=0.525N	P=0.505N	P=0.305	P=0.587	P=0.507N	P=0.518N	P=0.751
POLY 1.5	P=0.086	P=0.521N	P=0.508N	P=0.298	P=0.591	P=0.507N	P=0.512N	P=0.756
POLY 6	P=0.095	P=0.534N	P=0.499N	P=0.321	P=0.579	P=0.508N	P=0.526N	P=0.741
LOGISTIC REGRESSION	P=0.159	(e)	(e)	P=0.390	P=0.527	(e)	(e)	P=0.689
COCH-ARM / FISHERS	P=0.085	P=0.521N	P=0.510N	P=0.293	P=0.597	P=0.510N	P=0.505N	P=0.753N

Dose	Males: CONTROL	31.2 PPM	62.5 PPM	125 PPM	Females: CONTROL	31.2 PPM	62.5 PPM	125 PPM

Thyroid Gland Follicular Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/46 (0%)	1/48 (2%)	3/48 (6%)	2/50 (4%)	0/48 (0%)	0/49 (0%)	2/50 (4%)
POLY-3 ADJUSTED (b)	5.2%	0.0%	2.7%	7.7%	4.6%	0.0%	0.0%	4.8%
TERMINAL (d)	2/19 (11%)	0/11 (0%)	1/21 (5%)	3/24 (13%)	2/29 (7%)	0/27 (0%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	729 (T)	---	729 (T)	729 (T)	730 (T)	---	---	662
STATISTICAL TESTS								
LIFE TABLE	P=0.385	P=0.364N	P=0.465N	P=0.608	P=0.425	P=0.254N	P=0.299N	P=0.605
POLY 3	P=0.255	P=0.265N	P=0.509N	P=0.501	P=0.492	P=0.245N	P=0.258N	P=0.680
POLY 1.5	P=0.245	P=0.260N	P=0.514N	P=0.491	P=0.497	P=0.245N	P=0.251N	P=0.687
POLY 6	P=0.275	P=0.275N	P=0.498N	P=0.522	P=0.485	P=0.246N	P=0.266N	P=0.666
LOGISTIC REGRESSION	P=0.385	(e)	P=0.465N	P=0.608	P=0.465	(e)	(e)	P=0.655
COCH-ARM / FISHERS	P=0.227	P=0.269N	P=0.515N	P=0.480	P=0.503	P=0.258N	P=0.253N	P=0.691N

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Urinary Bladder Papilloma								
TUMOR RATES								
OVERALL (a)	2/49 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/18 (6%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	687	---	---	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.090N	P=0.325N	P=0.211N	P=0.190N	(e)	(e)	(e)	(e)
POLY 3	P=0.108N	P=0.243N	P=0.231N	P=0.223N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.110N	P=0.237N	P=0.234N	P=0.228N	(e)	(e)	(e)	(e)
POLY 6	P=0.102N	P=0.255N	P=0.223N	P=0.213N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.098N	P=0.268N	P=0.216N	P=0.205N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.113N	P=0.242N	P=0.242N	P=0.242N	(e)	(e)	(e)	(e)

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
Uterus Polyp Stromal								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					6/50 (12%)	3/50 (6%)	6/50 (12%)	2/50 (4%)
LIFE TABLE	P=0.379	P=0.609N	P=0.348	P=0.582	P=0.057	(e)	P=0.203	P=0.170
POLY 3	P=0.263	P=0.525N	P=0.295	P=0.501	P=0.080	(e)	P=0.219	P=0.227
POLY 1.5	P=0.249	P=0.521N	P=0.291	P=0.493	P=0.084	(e)	P=0.224	P=0.232
POLY 6	P=0.292	P=0.534N	P=0.307	P=0.517	P=0.072	(e)	P=0.212	P=0.217
LOGISTIC REGRESSION	P=0.348	(e)	P=0.332	P=0.582	P=0.075	(e)	P=0.224	P=0.170

F 13

F 13

POLY-3 ADJUSTED (b)	13.7%	7.0%	12.2%	4.8%
TERMINAL (d)	5/29 (17%)	3/27 (11%)	5/23 (22%)	1/21 (5%)
FIRST INCIDENCE	564	730 (T)	705	662
STATISTICAL TESTS				
LIFE TABLE	P=0.298N	P=0.272N	P=0.158	P=0.226N
POLY 3	P=0.162N	P=0.240N	P=0.549	P=0.149N
POLY 1.5	P=0.173N	P=0.245N	P=0.5[illegible]	P=0.141N
POLY 6	P=0.202N	P=0.257N	P=0.517	P=0.164N
LOGISTIC REGRESSION	P=0.216N	P=0.247N	P=0.525	P=0.147N
COCH-ARM / FISHERS	P=0.162N	P=0.243N	P=0.620N	P=0.134N

Statistical Analysis of Primary Tumors in Rats (FISCHER 344) - 2-ETHOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
Zymbal's Gland Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.5%	2.7%	5.1%	0.0%	0.0%	2.3%	0.0%	2.4%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	0/21 (0%)	0/24 (0%)	0/[illegible] (0%)	0/27 (0%)	0/23 (0%)	1/21 (5%)
FIRST INCIDENCE	520	652	677	--	---	691	---	730 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.329N	P=0.758	P=0.502	P=0.521N	P=0.347	P=0.494	(e)	P=0.436
POLY 3	P=0.352N	P=0.7[illegible]9	P=0.499	P=0.495N	P=0.391	P=0.500	(e)	P=0.491
POLY 1.5	P=0.360N	P=0.754	P=0.496	P=0.498N	P=0.399	P=0.501	(e)	P=0.496
POLY 6	P=0.335N	P=0.736	P=0.510	P=0.489N	P=0.378	P=0.498	(e)	[illegible]92
LOGISTIC REGRESSION	P=0.374N	P=0.764	P=0.518	P=0.545N	P=0.382	P=0.500	(e)	P=0.[illegible]36
COCH-ARM / FISHERS	P=0.366N	P=0.753N	P=0.500	P=0.500N	P=0.405	P=0.500	(e)	P=0.500

Dose	Males CONTROL	Males 31.2 PPM	Males 62.5 PPM	Males 125 PPM	Females CONTROL	Females 31.2 PPM	Females 62.5 PPM	Females 125 PPM
All Organs Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	29/50 (58%)	31/50 (62%)	33/50 (66%)	30/50 (60%)	18/50 (36%)	21/50 (42%)	23/50 (46%)	24/50 (48%)
POLY-3 ADJUSTED (b)	63.6%	69.4%	73.5%	64.6%	38.5%	44.3%	51.5%	51.2%
TERMINAL (d)	11/19 (58%)	6/11 (55%)	14/21 (67%)	11/24 (46%)	9/29 (31%)	7/27 (26%)	8/23 (35%)	5/21 (24%)
FIRST INCIDENCE	354	533	387	444	400	495	390	533
STATISTICAL TESTS								
LIFE TABLE	P=0.174N	P=0.136	P=0.446	P=0.366N	P=0.059	P=0.320	P=0.107	P=0.086
POLY 3	P=0.541	P=0.352	P=0.204	P=0.547	P=0.117	P=0.358	P=0.145	P=0.149
POLY 1.5	P=0.499	P=0.378	P=0.213	P=0.518	P=0.122	P=0.352	P=0.162	P=0.150
POLY 6	P=0.459N	P=0.328	P=0.232	P=0.571N	P=0.116	P=0.364	P=0.136	P=0.150
LOGISTIC REGRESSION	P=0.486	P=0.420	P=0.258	P=0.489	P=0.165	P=0.333	P=0.256	P=0.191

COCH-ARM / FISHERS	P=0.471	P=0.419	P=0.268	P=0.500	P=0.133	P=0.341	P=0.208	P=0.156

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
All Organs Mesothelioma: Benign, Malignant, NOS								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	4/50 (8%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.6%	2.7%	10.1%	4.9%	0.0%	0.0%	0.0%	2.4%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	2/21 (10%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	597	652	461	589	---	---	---	685
STATISTICAL TESTS								
LIFE TABLE	P=0.403	P=0.755	P=0.202	P=0.532	P=0.183	(e)	(e)	P=0.471
POLY 3	P=0.349	P=0.749	P=0.181	P=0.516	P=0.193	(e)	(e)	P=0.492
POLY 1.5	P=0.330	P=0.755	P=0.178	P=0.508	P=0.196	(e)	(e)	P=0.496
POLY 6	P=0.387	P=0.737	P=0.192	P=0.531	P=0.188	(e)	(e)	P=0.483
LOGISTIC REGRESSION	P=0.302	P=0.757N	P=0.185	P=0.4[illegible]6	P=0.197	(e)	(e)	P=0.499
COCH-ARM / FISHERS	P=0.313	P=0.753N	P=0.181	P=0.[illegible]0	P=0.198	(e)	(e)	P=0.500

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM
All Organs Mesothelioma: Malignant								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	3/50 (6%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	7.6%	2.5%	0.0%	0.0%	0.0%	2.4%
TERMINAL (d)	0/19 (0%)	0/11 (0%)	1/21 (5%)	0/24 (0%)	0/29 (0%)	0/27 (0%)	0/23 (0%)	0/21 (0%)
FIRST INCIDENCE	---	---	461	589	---	---	---	685
STATISTICAL TESTS								
LIFE TABLE	P=0.294	(e)	P=0.137	P=0.505	P=0.183	(e)	(e)	P=0.471
POLY 3	P=0.279	(e)	P=0.122	P=0.511	P=0.193	(e)	(e)	P=0.492
POLY 1.5	P=0.262	(e)	P=0.119	P=0.505	P=0.196	(e)	(e)	P=0.496
POLY 6	P=0.314	(e)	P=0.130	P=0.520	P=0.188	(e)	(e)	P=0.483
LOGISTIC REGRESSION	P=0.232	(e)	P=0.128	P=0.484	P=0.197	(e)	(e)	P=0.499
COCH-ARM / FISHERS	P=0.247	(e)	P=0.121	P=0.500	P=0.198	(e)	(e)	P=0.500

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

F 01

G 01

All Organs
Benign Tumors

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	49/50 (98%)	49/50 (98%)	49/50 (98%)	49/50 (98%)	42/50 (84%)	43/50 (86%)	40/50 (80%)	37/50 (74%)
POLY-3 ADJUSTED (b)	99.8%	99.5%	98.7%	99.5%	88.1%	91.3%	88.9%	78.9%
TERMINAL (d)	19/19 (100%)	11/11 (100%)	21/21 (100%)	24/24 (100%)	25/29 (86%)	25/27 (93%)	21/23 (91%)	17/21 (81%)
FIRST INCIDENCE	520	479	340	481	508	584	462	462
STATISTICAL TESTS								
LIFE TABLE	P=0.055N	P=0.095	P=0.384N	P=0.193N	P=0.271	P=0.361	P=0.217	P=0.323
POLY 3	P= 748N	P=0.999N	P=0.771N	P=1.000N	P=0.059N	P=0.418	P=0.588	P=0.163N
POLY 1.5	P=0.666N	P=0.910N	P=0.734N	P=0.928N	P=0.063N	P=0.462	P=0.581N	P=0.156N
POLY 6	P=0.918N	P=1.000N	P=0.933N	P=1.000N	P=0.068N	P=0.361	P=0.494	P=0.191N
LOGISTIC REGRESSION	P=0.651N	(e)	P=0.674	(e)	P=0.107N	P=0.543	P=0.545	P=0.187N
COCH-ARM / FISHERS	P=0.634	P=0.753N	P=0.753N	P=0.753N	P=0.080N	P=0.500	P=0.398N	P=0.163N
	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

All Organs
Malignant Tumors

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	41/50 (82%)	40/50 (80%)	41/50 (82%)	38/50 (76%)	26/50 (52%)	26/50 (52%)	30/50 (60%)	32/50 (64%)
POLY-3 ADJUSTED (b)	85.5%	84.9%	88.4%	80.1%	54.7%	54.1%	63.2%	67.1%
TERMINAL (d)	16/19 (84%)	8/11 (73%)	17/21 (81%)	8/24 (67%)	14/29 (48%)	9/27 (33%)	9/23 (39%)	9/21 (43%)
FIRST INCIDENCE	354	465	387	444	400	495	247	533
STATISTICAL TESTS								
LIFE TABLE	P=0.046N*	P=0.166	P=0.403N	P=0.121N	P=0.038 *	P=0.496	P=0.127	P=0.063
POLY 3	P=0.270N	P=0.588N	P=0.455	P=0.328N	P=0.085	P=0.555N	P=0.261	P=0.148
POLY 1.5	P=0.282N	P=0.548N	P=0.490	P=0.328N	P=0.086	P=0.566N	P=0.260	P=0.147
POLY 6	P=0.222N	P=0.628	P=0.477	P=0.300N	P=0.090	P=0.539N	P=0.278	P=0.158
LOGISTIC REGRESSION	P=0.248N	P=0.505N	P=0.567	P=0.306N	P=0.130	P=0.579N	P=0.379	P=0.180
COCH-ARM / FISHERS	P=0.275N	P=0.500N	P=0.602N	P=0.312N	P=0.096	P=0.579N	P=0.273	P=0.156

	Males				Females			
Dose	CONTROL	31.2 PPM	62.5 PPM	125 PPM	CONTROL	31.2 PPM	62.5 PPM	125 PPM

All Organs
Malignant and Benign Tumors

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	50/50 (100%)	50/50 (100%)	50/50 (100%)	50/50 (100%)	47/50 (94%)	48/50 (96%)	50/50 (100%)	48/50 (96%)
POLY-3 ADJUSTED (b)	100.0%	100.0%	100.0%	100.0%	94.0%	96.0%	100.0%	97.4%
TERMINAL (d)	19/19 (100%)	11/11 (100%)	21/21 (100%)	24/24 (100%)	26/29 (90%)	25/27 (93%)	23/23 (100%)	20/21 (95%)

FIRST INCIDENCE	354	465	340	444	400	495	247	462
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.049 *	P=0.375	P=0.064	P=0.078
POLY 3	(e)	(e)	(e)	(e)	P=0.212	P=0.500	P=0.119	P=0.363
POLY 1.5	(e)	(e)	(e)	(e)	P=0.263	P=0.500	P=0.119	P=0.411
POLY 6	(e)	(e)	(e)	(e)	P=0.177	P=0.500	P=0.119	P=0.326
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.386	(e)	(e)	P=0.496
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.373	P=0.500	P=0.121	P=0.500

(a) Number of tumor-bearing animals / number of animals examined at site.
(b) Poly-3 adjusted lifetime tumor incidence.
(d) Observed incidence at terminal kill.
(f) Beneath the control incidence are the P-values associated with the trend test. Beneath the dosed group incidence are the P-values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death.
Logistic regression is an alternative method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage and Fishers exact tests compare directly the overall incidence rates
For all tests a negative trend is indicated by N
(e) Value of Statistic cannot be computed.
(I) Interim sacrifice
(T) Terminal sacrifice
Tumor rates based on number of animals necropsied.
* To the right of any statistical result, indicates significance at (P<=0.05).
** To the right of any statistical result, indicates significance at (P<=0.01).

F 03

G 03

All Organs
Benign Tumors

Hypertrophy	3 (6%)	2 (4%)	6 (12%)	5 (10%)

CORE STUDY FINAL #1

Facility: Battelle Northwest

Chemical CAS #: 111-76-0002

Lock Date: 11/08/96

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Natural Death	6	3	5	4
Moribund Sacrifice	14	16	12	10
Accidently Killed	1			
Survivors				
Terminal Sacrifice	29	31	33	36
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(50)	(49)	(50)	(50)
Epithelium, Hyperplasia	1 (2%)			
Intestine Large, Colon	(49)	(50)	(48)	(50)
Inflammation			1 (2%)	
Epithelium, Hyperplasia			1 (2%)	
Intestine Large, Cecum	(49)	(50)	(47)	(48)
Epithelium, Hyperplasia	1 (2%)			
Intestine Small, Duodenum	(45)	(49)	(47)	(47)
Inflammation		2 (4%)		
Necrosis		1 (2%)		
Epithelium, Hyperplasia	1 (2%)	2 (4%)		2 (4%)
Intestine Small, Jejunum	(46)	(49)	(47)	(48)
Inflammation				1 (2%)
Necrosis				1 (2%)
Intestine Small, Ileum	(46)	(50)	(47)	(48)
Peyer's Patch, Hyperplasia				1 (2%)
Liver	(50)	(50)	(49)	(50)
Angiectasis		1 (2%)		2 (4%)
Basophilic Focus	1 (2%)			1 (2%)
Clear Cell Focus	2 (4%)	1 (2%)		1 (2%)

Degeneration, Fatty	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Eosinophilic Focus	10 (20%)	6 (12%)	10 (20%)	5 (10%)
Hematopoietic Cell Proliferation	5 (10%)	7 (14%)	1 (2%)	1 (2%)
Hyperplasia, Lymphoid		1 (2%)		
Infarct			1 (2%)	
Inflammation	3 (6%)	5 (10%)	4 (8%)	4 (8%)
Necrosis	2 (4%)	8 (16%)	7 (14%)	3 (6%)
Thrombosis			1 (2%)	
Bile Duct, Cyst	1 (2%)			
Endothelial Cell, Hyperplasia			1 (2%)	
Kupffer Cell, Pigmentation, Hemosiderin		5 (10%)	25 (51%)	44 (88%)
Mesentery	(10)	(4)	(5)	(9)
Fat, Necrosis	7 (70%)	3 (75%)	4 (80%)	9 (100%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
ALIMENTARY SYSTEM - CONT				
Pancreas	(49)	(50)	(49)	(50)
Atrophy	6 (12%)	4 (8%)	2 (4%)	8 (16%)
Cytoplasmic Alteration	1 (2%)	2 (4%)		2 (4%)
Hyperplasia, Lymphoid			1 (2%)	
Inflammation			3 (6%)	
Duct, Cyst		1 (2%)		1 (2%)
Duct, Inflammation		1 (2%)		
Stomach, Forestomach	(50)	(50)	(49)	(50)
Cyst Epithelial Inclusion				1 (2%)
Erosion	1 (2%)			
Ulcer	1 (2%)	7 (14%)	13 (27%)	22 (44%)
Epithelium, Hyperplasia	6 (12%)	27 (54%)	42 (86%)	44 (88%)
Stomach, Glandular	(48)	(50)	(49)	(49)
Inflammation, Suppurative		1 (2%)		
Mineralization		1 (2%)		
Ulcer	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Epithelium, Hyperplasia	1 (2%)		1 (2%)	1 (2%)
Tongue	(1)			(1)
Epithelium, Hyperplasia				1 (100%)
Tooth		(1)		
Inflammation		1 (100%)		
CARDIOVASCULAR SYSTEM				
Blood Vessel		(1)		(2)
Inflammation				1 (50%)
Mineralization		1 (100%)		
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	46 (92%)	45 (90%)	44 (88%)	45 (90%)
Mineralization		1 (2%)		
Artery, Inflammation				1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Amyloid Deposition	1 (2%)			
Degeneration, Cystic				2 (4%)
Hematopoietic Cell Proliferation	1 (2%)	2 (4%)		
Hyperplasia	1 (2%)			
Hypertrophy	3 (6%)	2 (4%)	6 (12%)	5 (10%)

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

NERVOUS SYSTEM

Capsule, Hyperplasia			1 (2%)	
Adrenal Medulla	(50)	(50)	(49)	(50)
Hyperplasia	1 (2%)	3 (6%)	3 (6%)	2 (4%)
Islets, Pancreatic	(50)	(50)	(49)	(50)
Hyperplasia	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
ENDOCRINE SYSTEM - CONT				
Pituitary Gland	(50)	(49)	(48)	(49)
Pars Distalis, Angiectasis	1 (2%)	4 (8%)		
Pars Distalis, Hyperplasia	15 (30%)	15 (31%)	16 (33%)	20 (41%)
Pars Intermedia, Hyperplasia	1 (2%)	2 (4%)	1 (2%)	1 (2%)
Thyroid Gland	(50)	(50)	(50)	(49)
Inflammation		1 (2%)		
Follicle, Cyst				1 (2%)
Follicular Cell, Hyperplasia	11 (22%)	8 (16%)	11 (22%)	11 (22%)
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Ovary	(50)	(49)	(49)	(49)
Angiectasis	2 (4%)		2 (4%)	1 (2%)
Atrophy	1 (2%)	2 (4%)	2 (4%)	1 (2%)
Cyst	11 (22%)	12 (24%)	19 (39%)	16 (33%)
Degeneration, Fatty				1 (2%)
Infiltration Cellular, Mast Cell				1 (2%)
Inflammation	1 (2%)		1 (2%)	
Thrombosis	1 (2%)		2 (4%)	
Corpus Luteum, Hyperplasia				1 (2%)
Germinal Epithelium, Hyperplasia		1 (2%)	1 (2%)	
Interstitial Cell, Hyperplasia			1 (2%)	
Uterus	(50)	(50)	(49)	(50)
Adenomyosis				1 (2%)
Angiectasis	2 (4%)	3 (6%)	1 (2%)	
Hydrometra	2 (4%)	2 (4%)	1 (2%)	3 (6%)
Hyperplasia, Cystic	2 (4%)		2 (4%)	6 (12%)
Inflammation	1 (2%)			
Lymphangiectasis			1 (2%)	
Thrombosis	1 (2%)			
Arteriole, Hyperplasia				1 (2%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Fibrosis				1 (2%)
Hyperplasia	2 (4%)	4 (8%)	2 (4%)	3 (6%)
Hyperplasia, Megakaryocyte				1 (2%)
Lymph Node	(4)	(7)	(6)	(1)
Angiectasis	1 (25%)	1 (14%)		

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
HEMATOPOIETIC SYSTEM - CONT				
Hyperplasia	1 (25%)			
Iliac, Hyperplasia	1 (25%)			
Pancreatic, Hyperplasia		1 (14%)		
Lymph Node, Bronchial	(41)	(39)	(41)	(37)
Hematopoietic Cell Proliferation	1 (2%)			
Hyperplasia	1 (2%)	6 (15%)	4 (10%)	
Hyperplasia, Histiocytic				1 (3%)
Lymph Node, Mandibular	(37)	(38)	(40)	(38)
Hyperplasia	1 (3%)	2 (5%)	2 (5%)	1 (3%)
Lymph Node, Mesenteric	(47)	(48)	(49)	(50)
Hematopoietic Cell Proliferation		1 (2%)	1 (2%)	1 (2%)
Hyperplasia	1 (2%)	2 (4%)	3 (6%)	3 (6%)
Lymph Node, Mediastinal	(31)	(40)	(38)	(34)
Hyperplasia	2 (6%)	2 (5%)	5 (13%)	
Hyperplasia, Lymphoid			1 (3%)	
Spleen	(50)	(50)	(49)	(50)
Hematopoietic Cell Proliferation	24 (48%)	29 (58%)	32 (65%)	35 (70%)
Hyperplasia, Lymphoid	6 (12%)	15 (30%)	12 (24%)	10 (20%)
Pigmentation, Hemosiderin	39 (78%)	44 (88%)	46 (94%)	48 (96%)
Thymus	(46)	(41)	(46)	(48)
Atrophy	1 (2%)	2 (5%)		
Hyperplasia, Lymphoid	1 (2%)	2 (5%)	1 (2%)	
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Hyperplasia	2 (4%)	2 (4%)	1 (2%)	2 (4%)
Skin	(50)	(50)	(50)	(50)
Atrophy		1 (2%)		
Inflammation, Chronic Active	1 (2%)			
Necrosis		1 (2%)		
Pinna, Inflammation, Chronic	1 (2%)			
Subcutaneous Tissue, Edema	1 (2%)			
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Arthrosis				1 (2%)
Fibrous Osteodystrophy	22 (44%)	28 (56%)	25 (50%)	21 (42%)
Maxilla, Fracture	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
NERVOUS SYSTEM				
Capsule, Hyperplasia			1 (2%)	
Adrenal Medulla	(50)	(50)	(49)	(50)
Hyperplasia	1 (2%)	3 (6%)	3 (6%)	2 (4%)
Islets, Pancreatic	(50)	(50)	(49)	(50)

Brain	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion				1 (2%)
Hemorrhage	1 (2%)		1 (2%)	1 (2%)
Inflammation, Chronic		1 (2%)		
Necrosis	1 (2%)			
Meninges, Infiltration Cellular, Mononuclear Cell	2 (4%)			2 (4%)
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(49)
Inflammation, Suppurative	1 (2%)	3 (6%)		1 (2%)
Squamous Epithelium, Hyperplasia	2 (4%)	8 (16%)	3 (6%)	5 (10%)
Lung	(50)	(50)	(50)	(50)
Hemorrhage	10 (20%)	2 (4%)	6 (12%)	6 (12%)
Infiltration Cellular, Histiocyte	3 (6%)	2 (4%)	3 (6%)	2 (4%)
Inflammation		1 (2%)		
Metaplasia, Osseous	1 (2%)			
Pigmentation, Hemosiderin	1 (2%)			
Alveolar Epithelium, Hyperplasia	2 (4%)	2 (4%)		2 (4%)
Mediastinum, Inflammation		1 (2%)		
Perivascular, Inflammation	2 (4%)			
Nose	(50)	(50)	(49)	(50)
Inflammation, Chronic Active	1 (2%)	1 (2%)		
Inflammation, Suppurative	2 (4%)	3 (6%)	1 (2%)	
Olfactory Epithelium, Atrophy	2 (4%)	4 (8%)	2 (4%)	4 (8%)
Olfactory Epithelium, Degeneration, Hyaline	6 (12%)	14 (28%)	11 (22%)	12 (24%)
Olfactory Epithelium, Metaplasia	1 (2%)	1 (2%)		
Respiratory Epithelium, Degeneration, Hyaline	17 (34%)	35 (70%)	26 (53%)	23 (46%)
SPECIAL SENSES SYSTEM				
Eye	(1)			(4)
Degeneration				1 (25%)
Cornea, Inflammation, Chronic	1 (100%)			3 (75%)
URINARY SYSTEM				
Kidney	(50)	(50)	(49)	(50)
Glomerulosclerosis	7 (14%)	2 (4%)	8 (16%)	8 (16%)
Inflammation, Chronic Active		1 (2%)		
Metaplasia, Osseous	1 (2%)	1 (2%)	3 (6%)	4 (8%)
Nephropathy	34 (68%)	39 (78%)	38 (78%)	33 (66%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
URINARY SYSTEM - CONT				
Pigmentation, Hemosiderin	1 (2%)	1 (2%)		
Renal Tubule, Degeneration			1 (2%)	
Renal Tubule, Hyperplasia		1 (2%)		
Renal Tubule, Mineralization		1 (2%)		
Urinary Bladder	(47)	(49)	(48)	(50)
Inflammation	1 (2%)	1 (2%)		

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	7	8	13	9
Natural Death	4	3	10	14
Accidently Killed				1
Survivors				
Terminal Sacrifice	39	39	27	26
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Gallbladder	(42)	(45)	(40)	(35)
Degeneration, Hyaline		1 (2%)		
Inflammation		1 (2%)		
Intestine Small, Duodenum	(49)	(48)	(44)	(41)
Inflammation				1 (2%)
Epithelium, Hyperplasia				1 (2%)
Peyer's Patch, Hyperplasia	1 (2%)			
Intestine Small, Jejunum	(48)	(47)	(43)	(38)
Peyer's Patch, Hyperplasia	1 (2%)			1 (3%)
Intestine Small, Ileum	(48)	(47)	(43)	(39)
Inflammation	1 (2%)			
Peyer's Patch, Hyperplasia	1 (2%)	1 (2%)		
Liver	(50)	(50)	(49)	(49)
Angiectasis			1 (2%)	
Basophilic Focus			1 (2%)	3 (6%)
Clear Cell Focus	4 (8%)		5 (10%)	3 (6%)
Degeneration, Fatty	1 (2%)	2 (4%)	4 (8%)	
Eosinophilic Focus	14 (28%)	10 (20%)	18 (37%)	12 (24%)
Hematopoietic Cell Proliferation	1 (2%)	1 (2%)	2 (4%)	2 (4%)
Hepatodiaphragmatic Nodule			1 (2%)	
Infarct		1 (2%)		
Inflammation	6 (12%)	3 (6%)	6 (12%)	6 (12%)
Karyomegaly	2 (4%)			1 (2%)
Necrosis	6 (12%)	2 (4%)	7 (14%)	9 (18%)
Bile Duct, Cyst			1 (2%)	1 (2%)
Kupffer Cell, Pigmentation, Hemosiderin			8 (16%)	30 (61%)
Oval Cell, Hyperplasia	1 (2%)	1 (2%)	2 (4%)	3 (6%)
Mesentery	(5)	(3)	(3)	(1)
Angiectasis		1 (33%)		
Fat, Necrosis	5 (100%)	2 (67%)	2 (67%)	
Pancreas	(50)	(50)	(47)	(47)
Atrophy	10 (20%)	4 (8%)	2 (4%)	4 (9%)
Cytoplasmic Alteration	1 (2%)			1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

Brain	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion				1 (2%)
Hemorrhage	1 (2%)		1 (2%)	1 (2%)
Inflammation, Chronic		1 (2%)		

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B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
ALIMENTARY SYSTEM - CONT				
Degeneration, Hyaline		1 (2%)		
Inflammation		1 (2%)		
Duct, Cyst		1 (2%)		
Salivary Glands	(50)	(50)	(48)	(50)
Inflammation		1 (2%)	1 (2%)	1 (2%)
Stomach, Forestomach	(50)	(50)	(49)	(48)
Cyst	1 (2%)			
Hyperplasia			1 (2%)	
Mineralization				1 (2%)
Ulcer	1 (2%)	2 (4%)	9 (18%)	3 (6%)
Epithelium, Hyperplasia	1 (2%)	7 (14%)	16 (33%)	21 (44%)
Stomach, Glandular	(50)	(50)	(46)	(47)
Degeneration, Hyaline			1 (2%)	
Inflammation, Suppurative	1 (2%)			
Mineralization	1 (2%)	1 (2%)	1 (2%)	2 (4%)
Ulcer		1 (2%)	2 (4%)	
Epithelium, Hyperplasia			4 (9%)	1 (2%)
Tooth		(4)		
Malformation		4 (100%)		
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	47 (94%)	48 (96%)	47 (94%)	47 (94%)
Artery, Inflammation	1 (2%)			
Atrium, Thrombosis	1 (2%)			1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(49)	(50)
Degeneration, Cystic	1 (2%)			
Hematopoietic Cell Proliferation	1 (2%)		1 (2%)	
Hyperplasia	5 (10%)	9 (18%)	9 (18%)	9 (18%)
Hypertrophy	38 (76%)	28 (56%)	27 (55%)	27 (54%)
Capsule, Hyperplasia	2 (4%)			3 (6%)
Adrenal Medulla	(49)	(50)	(49)	(49)
Hyperplasia	1 (2%)	2 (4%)		3 (6%)
Islets, Pancreatic	(50)	(50)	(47)	(46)
Hyperplasia	6 (12%)	3 (6%)	2 (4%)	
Inflammation	1 (2%)			
Parathyroid Gland	(26)	(29)	(26)	(31)
Cyst		1 (3%)		
Pituitary Gland	(49)	(49)	(46)	(48)
Hemorrhage			1 (2%)	
Pars Distalis, Cyst	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
ENDOCRINE SYSTEM - CONT				
Pars Distalis, Hyperplasia	5 (10%)	1 (2%)	2 (4%)	1 (2%)
Thyroid Gland	(50)	(48)	(49)	(50)
Follicular Cell, Hyperplasia	5 (10%)	8 (17%)	6 (12%)	5 (10%)

GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Epididymis	(50)	(50)	(49)	(50)
Granuloma Sperm		1 (2%)		
Hyperplasia				1 (2%)
Inflammation	4 (8%)	4 (8%)	1 (2%)	4 (8%)
Inflammation, Granulomatous			1 (2%)	
Penis			(1)	
Inflammation			1 (100%)	
Preputial Gland	(49)	(49)	(49)	(49)
Ectasia	1 (2%)	1 (2%)		1 (2%)
Inflammation	2 (4%)	7 (14%)	6 (12%)	8 (16%)
Prostate	(49)	(49)	(48)	(45)
Inflammation		2 (4%)	3 (6%)	4 (9%)
Epithelium, Hyperplasia			1 (2%)	1 (2%)
Seminal Vesicle	(50)	(49)	(46)	(46)
Inflammation	1 (2%)		2 (4%)	3 (7%)
Testes	(50)	(50)	(49)	(50)
Atrophy	5 (10%)	4 (8%)	6 (12%)	4 (8%)
Mineralization			3 (6%)	
Interstitial Cell, Hyperplasia		1 (2%)		
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(49)	(50)
Fibrosis			1 (2%)	
Hyperplasia		1 (2%)	9 (18%)	5 (10%)
Thrombosis				1 (2%)
Lymph Node	(2)	(1)		(1)
Renal, Hyperplasia				1 (100%)
Lymph Node, Bronchial	(38)	(35)	(33)	(35)
Hyperplasia	2 (5%)		1 (3%)	
Lymph Node, Mandibular	(24)	(26)	(32)	(25)
Hyperplasia		1 (4%)	1 (3%)	1 (4%)
Lymph Node, Mesenteric	(50)	(50)	(47)	(43)
Amyloid Deposition	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
HEMATOPOIETIC SYSTEM - CONT				
Angiectasis	2 (4%)	2 (4%)		1 (2%)
Hematopoietic Cell Proliferation	1 (2%)	3 (6%)	1 (2%)	
Hyperplasia	7 (14%)	7 (14%)	4 (9%)	4 (9%)
Spleen	(50)	(50)	(48)	(49)
Hematopoietic Cell Proliferation	12 (24%)	11 (22%)	26 (54%)	42 (86%)
Hyperplasia, Lymphoid	5 (10%)	8 (16%)	3 (6%)	1 (2%)
Pigmentation, Hemosiderin		6 (12%)	45 (94%)	44 (90%)
Thymus	(43)	(43)	(36)	(37)
Atrophy	1 (2%)	1 (2%)	1 (3%)	1 (3%)

B6C3F1 MICE MALE CONTROL 62.5 PPM 125 PPM 250 PPM

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INTEGUMENTARY SYSTEM				
Skin	(50)	(50)	(49)	(50)
Granuloma			1 (2%)	
Inflammation		1 (2%)		
Pigmentation, Melanin			1 (2%)	
Prepuce, Hyperplasia			1 (2%)	2 (4%)
Prepuce, Inflammation, Chronic Active	2 (4%)	3 (6%)	13 (27%)	8 (16%)
Prepuce, Ulcer		3 (6%)	11 (22%)	8 (16%)
Subcutaneous Tissue, Inflammation, Granulomatous			1 (2%)	
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Fibrous Osteodystrophy	1 (2%)	4 (8%)		1 (2%)
NERVOUS SYSTEM				
Brain	(50)	(50)	(49)	(50)
Inflammation, Chronic	1 (2%)			
Necrosis	1 (2%)			
Vacuolization Cytoplasmic			1 (2%)	1 (2%)
Meninges, Infiltration Cellular, Mononuclear Cell	1 (2%)	1 (2%)		
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(48)	(49)
Inflammation, Suppurative				1 (2%)
Squamous Epithelium, Hyperplasia		3 (6%)		
Lung	(50)	(50)	(49)	(50)
Hematopoietic Cell Proliferation			1 (2%)	1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
RESPIRATORY SYSTEM - CONT				
Hemorrhage	5 (10%)	5 (10%)	5 (10%)	3 (6%)
Infiltration Cellular, Histiocyte	6 (12%)	1 (2%)	4 (8%)	4 (8%)
Inflammation, Chronic	1 (2%)		1 (2%)	
Pigmentation, Hemosiderin	1 (2%)			
Alveolar Epithelium, Hyperplasia	6 (12%)	1 (2%)	2 (4%)	4 (8%)
Artery, Inflammation				1 (2%)
Nose	(50)	(50)	(48)	(48)
Inflammation, Suppurative	2 (4%)	6 (12%)	2 (4%)	2 (4%)
Polyp, Inflammatory		1 (2%)	1 (2%)	
Glands, Hyperplasia				1 (2%)
Olfactory Epithelium, Atrophy	4 (8%)	4 (8%)	3 (6%)	
Olfactory Epithelium, Degeneration, Hyaline	1 (2%)	2 (4%)	3 (6%)	1 (2%)
Respiratory Epithelium, Degeneration, Hyaline	4 (8%)	10 (20%)	5 (10%)	5 (10%)
Respiratory Epithelium, Metaplasia, Squamous		1 (2%)		
SPECIAL SENSES SYSTEM				
Ear	(1)			

Inflammation, Granulomatous	1 (100%)			
Eye	(1)		(1)	
Cornea, Inflammation, Chronic			1 (100%)	
URINARY SYSTEM				
Kidney	(50)	(50)	(47)	(50)
Glomerulosclerosis	4 (8%)	4 (8%)	11 (23%)	9 (18%)
Hydronephrosis	1 (2%)		6 (13%)	5 (10%)
Inflammation				1 (2%)
Inflammation, Chronic Active		1 (2%)	2 (4%)	4 (8%)
Metaplasia, Osseous		2 (4%)		
Mineralization	1 (2%)			2 (4%)
Nephropathy	48 (96%)	45 (90%)	40 (85%)	37 (74%)
Capsule, Inflammation				1 (2%)
Cortex, Cyst	4 (8%)	1 (2%)		6 (12%)
Pelvis, Inflammation, Chronic Active		1 (2%)	1 (2%)	
Renal Tubule, Hyperplasia	2 (4%)	2 (4%)	1 (2%)	
Renal Tubule, Mineralization	4 (8%)	2 (4%)	3 (6%)	2 (4%)
Renal Tubule, Necrosis	1 (2%)		1 (2%)	
Renal Tubule, Pigmentation				3 (6%)
Urinary Bladder	(50)	(50)	(46)	(45)
Inflammation		2 (4%)	5 (11%)	4 (9%)
Transitional Epithelium, Hyperplasia		2 (4%)	1 (2%)	1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
2-BUTOXYETHANOL

Report: PEIRPT03
Date: 01/21/98
Time: 10:43:56

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
URINARY SYSTEM - CONT				
Transitional Epithelium, Ulcer		1 (2%)	4 (9%)	2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

---------- END OF REPORT ----------

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G 13

INTEGUMENTARY SYSTEM				
Skin	(50)	(50)	(49)	(50)

NTP
LAB: Battelle Northwest

STATISTICAL ANALYSIS OF PRIMARY TUMORS
2 BUTOXYETHANOL

REPORT: PEIRPT08
DATE: 02/18/98

EXPERIMENT: 05197 TEST: 12
TEST TYPE: CHRONIC
CONT: NO1-ES-15318
PATHOLOGIST. MILLER, RODNEY

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

TIME: 09:11:28
PAGE:
NTP C#: 62077D
CAS: 111-76-0002

Mice(B6C3F1)

FOR ALL DOSES THE TUMOR RATES IN THE FOLLOWING TISSUES/ORGANS ARE BASED ON NUMBER OF TISSUES EXAMINED.
IN OTHER TISSUES/ORGANS, RATES ARE BASED ON NUMBER OF ANIMALS NECROPSIED.

Adrenal Gland
Adrenal Medulla
Bone Marrow
Brain
Clitoral Gland
Clitoral/Preputial Gland
Epididymis
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Nose
Ovary
Pancreas
Parathyroid Gland
Pituitary Gland
Preputial Gland
Prostate
Salivary Glands
Spleen
Testes
Thymus
Thyroid Gland
Urinary Bladder

NTP
LAB: Battelle Northwest
EXPERIMENT: 05197 TEST: 12
TEST TYPE: CHRONIC
CONT: NO1-ES-15318
PATHOLOGIST: MILLER, RODNEY

STATISTICAL ANALYSIS OF PRIMARY TUMORS
2-BUTOXYETHANOL

REPORT: PEIRPT08
DATE: 02/18/98
TIME: 09:11:28
PAGE:
NTP C#: 62077D
CAS: 111-76-0002

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF 2-BUTOXYETHANOL

Male Mice

Organ	Morphology
Liver	Hemangiosarcoma
	Hepatocellular Carcinoma
	Hepatocellular Carcinoma or Hepatocellular Adenoma
	Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma
Testes	Adenoma
All Organs	Hemangiosarcoma
	Hemangiosarcoma or Hemangioma
	Benign Tumors
	Malignant Tumors
	Malignant and Benign Tumors

Female Mice

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G 4

Organ	Morphology
Liver	Hepatocellular Adenoma
Lung	Alveolar/Bronchiolar Adenoma
	Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma
Mammary Gland	Carcinoma
Skin	Sarcoma
Stomach, Forestomach	Squamous Cell Carcinoma or Papilloma Squamous
	Squamous Cell Papilloma
All Organs	Benign Tumors
	Malignant and Benign Tumors

Date: 02/18/98 EXPERIMENT: 05197 TEST: 12

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Adrenal Cortex Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	2/50 (4%)	2/49 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	4.4%	4.2%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	2/39 (5%)	1/39 (3%)	1/27 (4%)	0/26 (0%)	0/29 (0%)	0/31 (0%)	0/33 (0%)	0/36 (0%)
FIRST INCIDENCE	729 (T)	670	583	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.251N	P=0.681N	P=0.583	P=0.331N	(e)	(e)	(e)	(e)
POLY 3	P=0.207N	P=0.675N	P=0.653	P=0.267N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.192N	P=0.681N	P=0.668	P=0.257N	(e)	(e)	(e)	(e)
POLY 6	P=0.225N	P=0.669N	P=0.631	P=0.279N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.177N	P=0.681N	P=0.675	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.164N	P=0.691N	P=0.684	P=0.247N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Adrenal Medulla Pheochromocytoma Benign								
TUMOR RATES								
OVERALL (a)	0/49 (0%)	0/50 (0%)	0/49 (0%)	0/49 (0%)	3/50 (6%)	1/50 (2%)	1/49 (2%)	1/50 (2%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	7.0%	2.4%	2.4%	2.3%
TERMINAL (d)	0/38 (0%)	0/39 (0%)	0/27 (0%)	0/25 (0%)	2/29 (7%)	0/31 (0%)	1/33 (3%)	1/36 (3%)
FIRST INCIDENCE	---	---	---	---	713	592	731 (T)	731 (T)
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.203N	P=0.299N	P=0.268N	P=0.248N
POLY 3	(e)	(e)	(e)	(e)	P=0.238N	P=0.311N	P=0.321N	P=0.297N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.240N	P=0.312N	P=0.324N	P=0.301N
POLY 6	(e)	(e)	(e)	(e)	P=0.236N	P=0.304N	P=0.310N	P=0.291N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.237N	P=0.310N	P=0.292N	P=0.280N
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.243N	P=0.309N	P=0.316N	P=0.309N

G 01

FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	729 (T)	731 (T)	731 (T)	731 (T)	656

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Adrenal Medulla								
Pheochromocytoma: Benign, Complex, Malignant, NOS								
TUMOR RATES								
OVERALL (a)	0/49 (0%)	1/50 (2%)	0/49 (0%)	0/49 (0%)	3/50 (6%)	1/50 (2%)	1/49 (2%)	1/50 (2%)
POLY-3 ADJUSTED (b)	0.0%	2.1%	0.0%	0.0%	7.0%	2.4%	2.4%	2.3%
TERMINAL (d)	0/38 (0%)	0/39 (0%)	0/27 (0%)	0/25 (0%)	2/29 (7%)	0/31 (0%)	1/33 (3%)	1/36 (3%)
FIRST INCIDENCE	---	549	---	---	713	592	731 (T)	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.588N	P=0.508	(e)	(e)	P=0.203N	P=0.299N	P=0.268N	P=0.248N
POLY 3	P=0.578N	P=0.517	(e)	(e)	P=0.238N	P=0.311N	P=0.321N	P=0.297N
POLY 1.5	P=0.573N	P=0.512	(e)	(e)	P=0.240N	P=0.312N	P=0.324N	P=0.301N
POLY 6	P=0.587N	P=0.520	(e)	(e)	P=0.236N	P=0.304N	P=0.310N	P=0.291N
LOGISTIC REGRESSION	P=0.430N	P=0.263	(e)	(e)	P=0.237N	P=0.310N	P=0.292N	P=0.280N
COCH-ARM / FISHERS	P=0.568N	P=0.505	(e)	(e)	P=0.243N	P=0.309N	P=0.316N	P=0.309N

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Bone Marrow								
Hemangiosarcoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/49 (0%)	2/50 (4%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	1/50 (2%)
POLY-3 ADJUSTED (b)	0.0%	2.1%	0.0%	5.0%	2.3%	0.0%	2.4%	2.3%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	0/27 (0%)	1/36 (4%)	0/29 (0%)	0/31 (0%)	1/33 (3%)	1/36 (3%)
FIRST INCIDENCE	---	670	---	454	689	---	731 (T)	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.102	P=0.529	(e)	P=0.185	P=0.576	P=0.505N	P=0.743N	P=0.737N
POLY 3	P=0.121	P=0.511	(e)	P=0.213	P=0.551	P=0.506N	P=0.755	P=0.756N
POLY 1.5	P=0.127	P=0.507	(e)	P=0.221	P=0.547	P=0.505N	P=0.753	P=0.758N
POLY 6	P=0.114	P=0.514	(e)	P=0.204	P=0.554	P=0.504N	P=0.760	P=0.753N
LOGISTIC REGRESSION	P=0.200	P=0.460	(e)	P=0.292	P=0.550	P=0.502N	P=0.759	P=0.757N
COCH-ARM / FISHERS	P=0.140	P=0.500	(e)	P=0.247	P=0.539	P=0.500N	P=0.753N	P=0.753N

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM

Harderian Gland
Adenoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	3/50 (6%)	2/50 (4%)	2/50 (4%)	4/50 (8%)	3/50 (6%)	2/50 (4%)	3/50 (6%)
POLY-3 ADJUSTED (b)	6.7%	6.4%	5.0%	5.1%	9.3%	7.2%	4.8%	6.8%
TERMINAL (d)	3/39 (8%)	3/39 (8%)	2/27 (7%)	2/26 (8%)	4/29 (14%)	2/31 (10%)	2/33 (6%)	2/36 (6%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	729 (T)	731 (T)	731 (T)	731 (T)	656
STATISTICAL TESTS								
LIFE TABLE	P=0.587N	P=0.664	P=0.665N	P=0.681	P=0.319N	P=0.463N	P=0.277N	P=0.392N
POLY 3	P=0.440N	P=0.640N	P=0.555N	P=0.559N	P=0.405N	P=0.514N	P=0.348N	P=0.484N
POLY 1.5	P=0.416N	P=0.647N	P=0.531N	P=0.540N	P=0.412N	P=0.514N	P=0.352N	P=0.492N
POLY 6	P=0.470N	P=0.634N	P=0.586N	P=0.582N	P=0.396N	P=0.508N	P=0.335N	P=0.471N
LOGISTIC REGRESSION	P=0.587N	P=0.664	P=0.665N	P=0.681	P=0.387N	P=0.463N	P=0.277N	P=0.474N
COCH-ARM / FISHERS	P=0.371N	P=0.661N	P=0.500N	P=0.500N	P=0.420N	P=0.500N	P=0.339N	P=0.500N

	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM

Harderian Gland
Carcinoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	1/50 (2%)	2/50 (4%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	2.3%	2.4%	2.4%	4.5%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	0/27 (0%)	0/26 (0%)	1/29 (3%)	1/31 (3%)	1/33 (3%)	0/36 (0%)
FIRST INCIDENCE	---	--	---	---	731 (T)	731 (T)	731 (T)	656
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.406	P=0.747N	P=0.733N	P=0.549
POLY 3	(e)	(e)	(e)	(e)	P=0.366	P=0.755	P=0.755	P=0.512
POLY 1.5	(e)	(e)	(e)	(e)	P=0.360	P=0.755	P=0.753	P=0.506
POLY 6	(e)	(e)	(e)	(e)	P=0.376	P=0.758	P=0.761N	P=0.522
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.358	P=0.747N	P=0.733N	P=0.497
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.351	P=0.753N	P=0.753N	P=0.500

	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM

Harderian Gland
Carcinoma or Adenoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	3/50 (6%)	2/50 (4%)	2/50 (4%)	5/50 (10%)	4/50 (8%)	3/50 (6%)	4/50 (8%)
POLY-3 ADJUSTED (b)	6.7%	6.4%	5.0%	5.1%	11.6%	9.5%	7.1%	9.0%
TERMINAL (d)	3/39 (8%)	3/39 (8%)	2/27 (7%)	2/26 (8%)	5/29 (17%)	4/31 (13%)	3/33 (9%)	2/36 (6%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	729 (T)	731 (T)	731 (T)	731 (T)	656

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TUMOR RATES								
STATISTICAL TESTS								
LIFE TABLE	P=0.587N	P=0.664	P=0.665N	P=0.681	P=0.314N	P=0.457N	P=0.284N	P=0.383N
POLY 3	P=0.440N	P=0.640N	P=0.555N	P=0.559N	P=0.408N	P=0.516N	P=0.369N	P=0.478N
POLY 1.5	P=0.416N	P=0.647N	P=0.531N	P=0.540N	P=0.418N	P=0.516N	P=0.374N	P=0.488N
POLY 6	P=0.470N	P=0.634N	P=0.586N	P=0.582N	P=0.393N	P=0.509N	P=0.354N	P=0.460N
LOGISTIC REGRESSION	P=0.587N	P=0.664	P=0.665N	P=0.681	P=0.397N	P=0.457N	P=0.284N	P=0.479N
COCH-ARM / FISHERS	P=0.371N	P=0.661N	P=0.500N	P=0.500N	P=0.430N	P=0.500N	P=0.357N	P=0.500N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Islets, Pancreatic Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/47 (0%)	0/46 (0%)	2/50 (4%)	1/50 (2%)	0/49 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	4.4%	0.0%	0.0%	0.0%	4.6%	2.4%	0.0%	0.0%
TERMINAL (d)	1/39 (3%)	0/39 (0%)	0/27 (0%)	0/25 (0%)	2/29 (7%)	1/31 (3%)	0/33 (0%)	0/36 (0%)
FIRST INCIDENCE	669	---	---	---	731 (T)	731 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.150N	P=0.227N	P=0.307N	P=0.308N	P=0.080N	P=0.477N	P=0.210N	P=0.192N
POLY 3	P=0.124N	P=0.228N	P=0.270N	P=0.284N	P=0.100N	P=0.509N	P=0.242N	P=0.232N
POLY 1.5	P=0.123N	P=0.231N	P=0.261N	P=0.275N	P=0.100N	P=0.509N	P=0.245N	P=0.234N
POLY 6	P=0.127N	P=0.226N	P=0.285N	P=0.295N	P=0.099N	P=0.505N	P=0.236N	P=0.228N
LOGISTIC REGRESSION	P=0.126N	P=0.241N	P=0.259N	P=0.272N	P=0.080N	P=0.477N	(e)	(e)
COCH-ARM / FISHERS	P=0.123N	P=0.247N	P=0.263N	P=0.269N	P=0.101N	P=0.500N	P=0.253N	P=0.247

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Islets, Pancreatic Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/47 (0%)	1/46 (2%)	2/50 (4%)	1/50 (2%)	0/49 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	4.4%	0.0%	0.0%	2.7%	4.6%	2.4%	0.0%	0.0%
TERMINAL (d)	1/39 (3%)	0/39 (0%)	0/27 (0%)	1/25 (4%)	2/29 (7%)	1/31 (3%)	0/33 (0%)	0/36 (0%)
FIRST INCIDENCE	669	---	---	729 (T)	731 (T)	731 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.566N	P=0.227N	P=0.307N	P=0.620N	P=0.080N	P=0.477N	P=0.210N	P=0.192N
POLY 3	P=0.495N	P=0.228N	P=0.270N	P=0.570N	P=0.100N	P=0.509N	P=0.242N	P=0.232N
POLY 1.5	P=0.490N	P=0.231N	P=0.261N	P=0.567N	P=0.100N	P=0.509N	P=0.245N	P=0.234N
POLY 6	P=0.501N	P=0.226N	P=0.285N	P=0.585N	P=0.099N	P=0.505N	P=0.236N	P=0.228N
LOGISTIC REGRESSION	P=0.521N	P=0.241N	P=0.259N	P=0.571N	P=0.080N	P=0.477N	(e)	(e)
COCH-ARM / FISHERS	P=0.484N	P=0.247N	P=0.263N	P=0.572N	P=0.101N	P=0.500N	P=0.253N	P=0.247N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Liver								
Hemangiosarcoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	1/50 (2%)	2/49 (4%)	4/49 (8%)	0/50 (0%)	1/50 (2%)	0/49 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	2.1%	5.0%	10.0%	0.0%	2.4%	0.0%	0.0%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	1/27 (4%)	2/26 (8%)	0/29 (0%)	1/31 (3%)	0/33 (0%)	0/36 (0%)
FIRST INCIDENCE	---	670	704	454	-	731 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.009 **	P=0.529	P=0.170	P=0.037 *	P=0.535N	P=0.513	(e)	(e)
POLY 3	P=0.014 *	P=0.511	P=0.211	P=0.046 *	P=0.569N	P=0.495	(e)	(e)
POLY 1.5	P=0.016 *	P=0.507	P=0.220	P=0.049 *	P=0.570N	P=0.495	(e)	(e)
POLY 6	P=0.012 *	P=0.514	P=0.198	P=0.043 *	P=0.566N	P=0.497	(e)	(e)
LOGISTIC REGRESSION	P=0.022 *	P=0.460	P=0.191	P=0.067	(e)	P=0.513	(e)	(e)
COCH-ARM / FISHERS	P=0.021 *	P=0.500	P=0.242	P=0.056	P=0.567N	P=0.500	(e)	(e)

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Liver								
Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	22/50 (44%)	18/50 (36%)	18/49 (37%)	17/49 (35%)	16/50 (32%)	8/50 (16%)	7/49 (14%)	8/50 (16%)
POLY-3 ADJUSTED (b)	48.6%	37.2%	43.8%	40.3%	35.8%	18.7%	16.7%	18.0%
TERMINAL (d)	21/39 (54%)	13/39 (33%)	14/27 (52%)	10/26 (39%)	9/29 (31%)	5/31 (16%)	6/33 (18%)	7/36 (19%)
FIRST INCIDENCE	642	549	582	368	586	456	715	582
STATISTICAL TESTS								
LIFE TABLE	P=0.280	P=0.262N	P=0.347	P=0.446	P=0.026N*	P=0.053N	P=0.020N*	P=0.023N*
POLY 3	P=0.345N	P=0.180N	P=0.407N	P=0.283N	P=0.048N*	P=0.057N	P=0.035N*	P=0.045N*
POLY 1.5	P=0.313N	P=0.212N	P=0.355N	P=0.275N	P=0.050N	P=0.055N	P=0.035N*	P=0.047N*
POLY 6	P=0.382N	P=0.152N	P=0.485N	P=0.292N	P=0.046N*	P=0.057N	P=0.033N*	P=0.044N*
LOGISTIC REGRESSION	P=0.410N	P=0.196N	P=0.586N	P=0.342N	P=0.048N*	P=0.056N	P=0.031N*	P=0.045N*
COCH-ARM / FISHERS	P=0.235N	P=0.270N	P=0.298N	P=0.229N	P=0.056N	P=0.050N	P=0.031N*	P=0.050N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Liver								
Hepatocellular Carcinoma								
TUMOR RATES								
STATISTICAL TESTS								
LIFE TABLE	P=0.587N	P=0.664	P=0.665N	P=0.681	P=0.314N	P=0.457N	P=0.284N	P=0.383N

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Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM
OVERALL (a)	10/50 (20%)	11/50 (22%)	16/49 (33%)	21/49 (43%)	10/50 (20%)	12/50 (24%)	13/49 (27%)	10/50 (20%)
POLY-3 ADJUSTED (b)	20.8%	22.9%	35.9%	45.9%	22.3%	27.5%	29.8%	21.9%
TERMINAL (d)	3/39 (8%)	7/39 (18%)	5/27 (19%)	7/26 (27%)	5/29 (17%)	5/31 (16%)	10/33 (30%)	5/36 (14%)
FIRST INCIDENCE	374	621	430	312	376	592	537	582
STATISTICAL TESTS								
LIFE TABLE	P<0.001 **	P=0.534	P=0.060	P=0.007 **	P=0.364N	P=0.435	P=0.402	P=0.460N
POLY 3	P=0.002 **	P=0.500	P=0.080	P=0.007 **	P=0.483N	P=0.375	P=0.288	P=0.583N
POLY 1.5	P=0.002 **	P=0.502	P=0.094	P=0.008 *	P=0.498N	P=0.375	P=0.279	P=0.593N
POLY 6	P=0.002 **	P=0.492	P=0.063	P=0.006 **	P=0.468N	P=0.395	P=0.312	P=0.561N
LOGISTIC REGRESSION	P=0.031 *	P=0.301	P=0.280	P=0.0[illegible] *	P=0.511N	P=0.30[illegible]	P=0.298	P=0.588
COCH-ARM / FISHERS	P=0.004 **	P=0.500	P=0.115	P=0.012 *	P=0.534N	P=0.405	P=0.298	P=0.598N

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Liver Hepatocellular Carcinoma or Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	30/50 (60%)	24/50 (48%)	31/49 (63%)	30/49 (61%)	22/50 (44%)	16/50 (32%)	18/49 (37%)	18/50 (36%)
POLY-3 ADJUSTED (b)	61.[illegible]%	48.9%	67.5%	64.8%	47.8%	36.1%	41.2%	39.1%
TERMINAL (d)	22/39 (56%)	17/39 (44%)	16/27 (59%)	14/26 (54%)	13/29 (45%)	8/31 (26%)	14/33 (42%)	12/36 (33%)
FIRST INCIDENCE	374	549	430	312	376	456	537	582
STATISTICAL TESTS								
LIFE TABLE	P=0.024 *	P=0.174N	P=0.082	P=0.110	P=0.170N	P=0.158N	P=0.188N	P=0.134N
POLY 3	P=0.225	P=0.137N	P=0.362	P=0.469	P=0.307N	P=0.175N	P=0.336N	P=0.260N
POLY 1.5	P=0.242	P=0.143N	P=0.401	P=0.478	P=0.318N	P=0.175N	P=0.339N	P=0.269N
POLY 6	P=0.203	P=0.135N	P=0.369	P=0.450	P=0.291N	P=0.163N	P=0.[illegible]N	P=0.[illegible]N
LOGISTIC REGRESSION	P=0.422	P=0.198N	P=0.503	P=0.567N	P=0.317N	P=0.158N	P=0.331N	P=0.267N
COCH-ARM / FISHERS	P=0.306	P=0.158N	P=0.449	P=0.532	P=0.331N	P=0.151N	P=0.298N	P=0.270N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Liver Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma								
TUMOR RATES								
OVERALL (a)	30/50 (60%)	24/50 (48%)	31/49 (63%)	30/49 (61%)	22/50 (44%)	16/50 (32%)	18/49 (37%)	18/50 (36%)
POLY-3 ADJUSTED (b)	61.9%	48.9%	67.5%	64.8%	47.8%	36.1%	41.2%	39.1%
TERMINAL (d)	22/39 (56%)	17/39 (44%)	16/27 (59%)	14/26 (54%)	13/29 (45%)	8/31 (26%)	14/33 (42%)	12/36 (33%)
FIRST INCIDENCE	374	549	430	312	376	456	537	582
STATISTICAL TESTS								
LIFE TABLE	P=0.024 *	P=0.174N	P=0.082	P=0.110	P=0.170N	P=0.158N	P=0.188N	P=0.134N
POLY 3	P=0.225	P=0.137N	P=0.362	P=0.469	P=0.307N	P=0.175N	P=0.336N	P=0.260N
POLY 1.5	P=0.242	P=0.143N	P=0.401	P=0.478	P=0.318N	P=0.175N	P=0.339N	P=0.269N

POLY 6	P=0.203	P=0.135N	P=0.309	P=0.450	P=0.291N	P=0.163N	P=0.317N	P=0.241N
LOGISTIC REGRESSION	P=0.422	P=0.198N	P=0.503	P=0.567N	P=0.317N	P=0.158N	P=0.311N	P=0.267N
COCH-ARM / FISHERS	P=0.306	P=0.158N	P=0.449	P=0.532	P=0.331N	P=0.151N	P=0.298N	P=0.270N

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Liver								
Hepatocholangiocarcinoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/49 (0%)	0/49 (0%)	2/50 (4%)	0/50 (0%)	0/49 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.2%	0.0%	0.0%	0.0%	4.6%	0.0%	0.0%	2.2%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	0/27 (0%)	0/26 (0%)	1/29 (3%)	0/31 (0%)	0/33 (0%)	0/36 (0%)
FIRST INCIDENCE	459	---	---	---	577	---	---	489
STATISTICAL TESTS								
LIFE TABLE	P=0.322N	P=0.496N	P=0.508N	P=0.526N	P=0.442N	P=0.237N	P=0.235N	P=0.475N
POLY 3	P=0.306N	P=0.494N	P=0.528N	P=0.532N	P=0.456N	P=0.245N	P=0.245N	P=0.491N
POLY 1.5	P=0.305N	P=0.496N	P=0.518N	P=0.523N	P=0.458N	P=0.244N	P=0.247N	P=0.495N
POLY 6	P=0.307N	P=0.492N	P=0.542N	P=0.542N	P=0.456N	P=0.244N	P=0.241N	P=0.485N
LOGISTIC REGRESSION	P=0.106N	P=0.933N	P=0.531N	P=0.328N	P=0.474N	P=0.223N	P=0.229N	P=0.524N
COCH-ARM / FISHERS	P=0.308N	P=0.500N	P=0.505N	P=0.505N	P=0.462N	P=0.247N	P=0.253N	P=0.500N

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Lung								
Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	9/50 (18%)	7/50 (14%)	10/49 (20%)	8/50 (16%)	7/50 (14%)	2/50 (4%)	4/50 (8%)	1/50 (2%)
POLY-3 ADJUSTED (b)	19.9%	14.7%	24.2%	19.5%	16.3%	4.8%	9.5%	2.3%
TERMINAL (d)	8/39 (21%)	5/39 (15%)	5/27 (19%)	4/26 (15%)	7/29 (24%)	2/31 (7%)	2/33 (6%)	1/36 (3%)
FIRST INCIDENCE	642	649	537	402	731 (T)	731 (T)	715	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.246	P=0.383N	P=0.236	P=0.417	P=0.020N*	P=0.061N	P=0.194N	P=0.014N*
POLY 3	P=0.445	P=0.353N	P=0.413	P=0.591N	P=0.032N*	P=0.083N	P=0.272N	P=0.027N*
POLY 1.5	P=0.485	P=0.366N	P=0.443	P=0.564N	P=0.033N*	P=0.084N	P=0.279N	P=0.029N*
POLY 6	P=0.400	P=0.343N	P=0.373	P=0.590	P=0.030N*	P=0.079N	P=0.254N	P=0.025N*
LOGISTIC REGRESSION	P=0.500	P=0.347N	P=0.415	P=0.574N	P=0.026N*	P=0.061N	P=0.221N	P=0.014N*
COCH-ARM / FISHERS	P=0.527N	P=0.393N	P=0.480	P=0.500N	P=0.038N*	P=0.080N	P=0.262N	P=0.030N*

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
OVERALL (a)	10/50 (20%)	11/50 (22%)	16/49 (33%)	21/49 (43%)	10/50 (20%)	12/50 (24%)	13/49 (27%)	10/50 (20%)
POLY-3 ADJUSTED (b)	20.8%	22.9%	35.9%	45.9%	22.3%	27.5%	29.8%	21.9%

G 07

POLY 1.5					P=0.602	(e)	P=0.237	(e)
POLY 6					P=0.612	(e)	P=0.237	(e)
LOGISTIC REGRESSION					P=0.604	(e)	P=0.372	(e)

G 09

Lung
Alveolar/Bronchiolar Carcinoma

TUMOR RATES								
OVERALL (a)	5/50 (10%)	2/50 (4%)	3/49 (6%)	3/50 (6%)	0/50 (0%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	11.1%	4.2%	7.6%	7.6%	0.0%	4.7%	2.4%	0.0%
TERMINAL (d)	5/39 (13%)	1/39 (3%)	3/27 (11%)	3/26 (12%)	0/29 (0%)	1/31 (3%)	1/33 (3%)	0/36 (0%)
FIRST INCIDENCE	729 (T)	649	729 (T)	729 (T)	---	676	731 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.554	P=0.212N	P=0.569N	P=0.591N	P=0.423N	P=0.247	P=0.526	(e)
POLY 3	P=0.446N	P=0.195N	P=0.427N	P=0.429N	P=0.455N	P=0.232	P=0.495	(e)
POLY 1.5	P=0.419N	P=0.202N	P=0.400N	P=0.406N	P=0.459N	P=0.232	P=0.494	(e)
POLY 6	P=0.477N	P=0.188N	P=0.466N	P=0.459N	P=0.447N	P=0.236	P=0.500	(e)
LOGISTIC REGRESSION	P=0.532N	P=0.196N	P=0.569N	P=0.591N	P=0.452N	P=0.233	P=0.526	(e)
COCH-ARM / FISHERS	P=0.369N	P=0.218N	P=0.369N	P=0.357N	P=0.461N	P=0.247	P=0.500	(e)

	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM

Lung
Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma

TUMOR RATES								
OVERALL (a)	14/50 (28%)	8/50 (16%)	12/49 (24%)	11/50 (22%)	7/50 (14%)	4/50 (8%)	5/50 (10%)	1/50 (2%)
POLY-3 ADJUSTED (b)	30.9%	16.9%	29.0%	26.9%	16.3%	9.5%	11.9%	2.3%
TERMINAL (d)	13/39 (33%)	7/39 (18%)	7/27 (26%)	7/26 (27%)	7/29 (24%)	3/31 (10%)	3/33 (9%)	1/36 (3%)
FIRST INCIDENCE	642	649	537	402	731 (T)	676	715	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.248	P=0.108N	P=0.397	P=0.463	P=0.017N*	P=0.224N	P=0.293N	P=0.014N*
POLY 3	P=0.524	P=0.087N	P=0.515N	P=0.430N	P=0.027N*	P=0.271N	P=0.394N	P=0.027N*
POLY 1.5	P=0.520N	P=0.095N	P=0.478N	P=0.397N	P=0.029N*	P=0.273N	P=0.401N	P=0.029N*
POLY 6	P=0.472	P=0.081N	P=0.566N	P=0.472N	P=0.026N*	P=0.261N	P=0.373N	P=0.025N*
LOGISTIC REGRESSION	P=0.520	P=0.083N	P=0.567N	P=0.459N	P=0.024N*	P=0.256N	P=0.330N	P=0.014N*
COCH-ARM / FISHERS	P=0.423N	P=0.114N	P=0.433N	P=0.322N	P=0.033N*	P=0.262N	P=0.380N	P=0.020N*

	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM

Mammary Gland
Carcinoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	3/50 (6%)

G 08

POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	6.7%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	0/27 (0%)	0/26 (0%)	0/29 (0%)	0/31 (0%)	0/33 (0%)	1/26 (3%)
FIRST INCIDENCE	---	---	---	---	---	694	---	621
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.054	P=0.500	(e)	P=0.145
POLY 3	(e)	(e)	(e)	(e)	P=0.045 *	P=0.495	(e)	P=0.125
POLY 1.5	(e)	(e)	(e)	(e)	P=0.044 *	P=0.495	(e)	P=0.122
POLY 6	(e)	(e)	(e)	(e)	P=0.046 *	P=0.498	(e)	P=0.129
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.045 *	P=0.497	(e)	P=0.120
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.044 *	P=0.500	(e)	P=0.121

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Ovary								
Cystadenoma								
TUMOR RATES								
OVERALL (a)					2/50 (4%)	1/49 (2%)	3/49 (6%)	0/49 (0%)
POLY-3 ADJUSTED (b)					4.6%	2.4%	7.3%	0.0%
TERMINAL (d)					1/29 (3%)	1/31 (3%)	3/32 (9%)	0/35 (0%)
FIRST INCIDENCE					721	731 (T)	731 (T)	---
STATISTICAL TESTS								
LIFE TABLE					P=0.197N	P=0.485N	P=0.546	P=0.207N
POLY 3					P=0.236N	P=0.514N	P=0.477	P=0.237N
POLY 1.5					P=0.240N	P=0.515N	P=0.475	P=0.239N
POLY 6					P=0.232N	P=0.508N	P=0.488	P=0.233N
LOGISTIC REGRESSION					P=0.223N	P=0.499N	P=0.518	P=0.228N
COCH-ARM / FISHERS					P=0.247N	P=0.508N	P=0.490	P=0.253N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Ovary								
Teratoma Benign								
TUMOR RATES								
OVERALL (a)					0/50 (0%)	0/49 (0%)	2/49 (4%)	0/49 (0%)
POLY-3 ADJUSTED (b)					0.0%	0.0%	4.8%	0.0%
TERMINAL (d)					0/29 (0%)	0/31 (0%)	1/32 (3%)	0/35 (0%)
FIRST INCIDENCE					---	---	196	---
STATISTICAL TESTS								
LIFE TABLE					P=0.612	(e)	P=0.248	(e)
POLY 3					P=0.607	(e)	P=0.231	(e)
POLY 1.5					P=0.602	(e)	P=0.229	(e)
POLY 6					P=0.612	(e)	P=0.237	(e)
LOGISTIC REGRESSION					P=0.604	(e)	P=0.372	(e)

Lung
Alveolar/Bronchiolar Carcinoma

G 09

COCH-ARM / FISHERS					P=0.592	(e)	P=0.242	(e)
	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM
Pituitary Gland: Pars Distalis or Unspecified Site								
Adenoma								
TUMOR RATES								
OVERALL (a)	0/49 (0%)	0/49 (0%)	0/46 (0%)	0/48 (0%)	5/50 (10%)	8/49 (16%)	8/48 (17%)	4/49 (8%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	11.5%	19.6%	18.9%	9.2%
TERMINAL (d)	0/38 (0%)	0/39 (0%)	0/27 (0%)	0/25 (0%)	3/29 (10%)	8/30 (27%)	7/33 (21%)	2/35 (6%)
FIRST INCIDENCE	---	---	---	---	565	731 (T)	570	660
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.236N	P=0.289	P=0.343	P=0.425N
POLY 3	(e)	(e)	(e)	(e)	P=0.334N	P=0.233	P=0.255	P=0.502N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.345N	P=0.240	P=0.246	P=0.507N
POLY 6	(e)	(e)	(e)	(e)	P=0.316N	P=0.232	P=0.271	P=0.491N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.332N	P=0.248	P=0.252	P=0.508N
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.359N	P=0.264	P=0.250	P=0.513N

	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM
Pituitary Gland: Pars Distalis or Unspecified Site								
Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	0/49 (0%)	0/49 (0%)	0/46 (0%)	0/48 (0%)	6/50 (12%)	8/49 (16%)	8/48 (17%)	4/49 (8%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	13.7%	19.6%	18.9%	9.2%
TERMINAL (d)	0/38 (0%)	0/39 (0%)	0/27 (0%)	0/25 (0%)	3/29 (10%)	8/30 (27%)	7/33 (21%)	2/35 (6%)
FIRST INCIDENCE	---	---	---	---	565	731 (T)	570	660
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.170N	P=0.399	P=0.461	P=0.406N
POLY 3	(e)	(e)	(e)	(e)	P=0.251N	P=0.335	P=0.361	P=0.372N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.260N	P=0.343	P=0.351	P=0.377N
POLY 6	(e)	(e)	(e)	(e)	P=0.236N	P=0.334	P=0.381	P=0.361N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.249N	P=0.354	P=0.359	P=0.376N
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.274N	P=0.371	P=0.355	P=0.383N
	Males				Females			
Dose	CONTROL	62.5 PPM	125 PPM	250 PPM	CONTROL	62.5 PPM	125 PPM	250 PPM
Skin								
Sarcoma								

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	3/50 (6%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	6.8%	4.6%	0.0%	0.0%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	0/27 (0%)	0/26 (0%)	0/29 (0%)	0/31 (0%)	0/33 (0%)	0/36 (0%)
FIRST INCIDENCE	---	---	---	---	521	369	---	---
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.039N*	P=0.505N	P=0.124N	P=0.119N
POLY 3	(e)	(e)	(e)	(e)	P=0.039N*	P=0.510N	P=0.127N	P=0.118N
POLY 1.5	(e)	(e)	(e)	(e)	P=0.039N*	P=0.509N	P=0.127N	P=0.119N
POLY 6	(e)	(e)	(e)	(e)	P=0.038N*	P=0.507N	P=0.125N	P=0.117N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.032N*	P=0.373N	P=0.095N	P=0.126N
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.039N*	P=0.500N	P=0.121N	P=0.121N

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - 2-BUTOXYETHANOL

Terminal Sacrifice at 104 weeks

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Stomach, Forestomach								
Squamous Cell Carcinoma or Papilloma Squamous								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	6/50 (12%)
POLY-3 ADJUSTED (b)	2.2%	2.1%	5.0%	5.0%	0.0%	2.4%	4.8%	13.4%
TERMINAL (d)	1/39 (3%)	1/39 (3%)	2/27 (7%)	1/26 (4%)	0/29 (0%)	1/31 (3%)	2/33 (6%)	4/36 (11%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	402	---	731 (T)	731 (T)	582
STATISTI TESTS								
LIFE TABLE	P=0.212	P=0.762	P=0.372	P=0.400	P=0.005 **	P=0.513	P=0.267	P=0.030 *
POLY 3	P=0.285	P=0.750N	P=0.458	P=0.462	P=0.002 **	P=0.495	P=0.231	P=0.017 *
POLY 1.5	P=0.302	P=0.753N	P=0.477	P=0.474	P=0.002 **	P=0.495	P=0.230	P=0.016 *
POLY 6	P=0.266	P=0.747N	P=0.434	P=0.447	P=0.003 **	P=0.497	P=0.237	P=0.019 *
LOGISTIC REGRESSION	P=0.348	P=0.762	P=0.372	P=0.570	P=0.003 **	P=0.513	P=0.267	P=0.018 *
COCH-ARM / FISHERS	P=0.337	P=0.753N	P=0.500	P=0.500	P=0.002 **	P=0.500	P=0.247	P=0.013 *

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Stomach, Forestomach								
Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	5/50 (10%)
POLY-3 ADJUSTED (b)	2.2%	2.1%	5.0%	5.0%	0.0%	2.4%	4.8%	11.2%
TERMINAL (d)	1/39 (3%)	1/39 (3%)	2/27 (7%)	1/26 (4%)	0/29 (0%)	1/31 (3%)	2/33 (6%)	3/36 (8%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	402	---	731 (T)	731 (T)	582
STATISTICAL TESTS								
COCH-ARM / FISHERS					P=0.592 (e)		P=0.242 (e)	

G 13

LIFE TABLE	P=0.212	P=0.762	P=0.372	P=0.400	P=0.013 *	P=0.513	P=0.267	P=0.049 *
POLY 3	P=0.285	P=0.750N	P=0.458	P=0.462	P=0.008 **	P=0.495	P=0.231	P=0.034 *
POLY 1.5	P=0.302	P=0.753N	P=0.477	P=0.474	P=0.007 **	P=0.495	P=0.230	P=0.032 *
POLY 6	P=0.266	P=0.747N	P=0.434	P=0.447	P=0.008 **	P=0.497	P=0.237	P=0.036 *
LOGISTIC REGRESSION	P=0.348	P=0.762	P=0.372	P=0.570	P=0.008 **	P=0.513	P=0.267	P=0.033 *
COCH-ARM / FISHERS	P=0.337	P=0.753N	P=0.500	P=0.500	P=0.007 **	P=0.500	P=0.247	P=0.028 *

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Testes Adenoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/49 (0%)	2/50 (4%)				
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	5.1%				
TERMINAL (d)	0/39 (0%)	0/39 (0%)	0/27 (0%)	2/26 (8%)				
FIRST INCIDENCE	---	---	---	729 (T)				
STATISTICAL TESTS								
LIFE TABLE	P=0.024 *	(e)	(e)	P=0.154				
POLY 3	P=0.039 *	(e)	(e)	P=0.209				
POLY 1.5	P=0.041 *	(e)	(e)	P=0.218				
POLY 6	P=0.037 *	(e)	(e)	P=0.199				
LOGISTIC REGRESSION	(e)	(e)	(e)	P=0.154				
COCH-ARM / FISHERS	P=0.047 *	(e)	(e)	P=0.247				

Dose	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
Thyroid Gland: Follicular Cell Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/48 (2%)	1/49 (2%)	1/50 (2%)	1/50 (2%)	2/50 (4%)	5/50 (10%)	1/49 (2%)
POLY-3 ADJUSTED (b)	4.4%	2.2%	2.5%	2.5%	2.3%	4.8%	11.9%	2.3%
TERMINAL (d)	2/39 (5%)	1/38 (3%)	1/27 (4%)	0/26 (0%)	1/29 (3%)	1/31 (3%)	5/33 (15%)	1/35 (3%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	604	731 (T)	712	731 (T)	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.536N	P=0.509N	P=0.628N	P=0.601N	P=0.538N	P=0.515	P=0.132	P=0.720N
POLY 3	P=0.446N	P=0.497N	P=0.543N	P=0.541N	P=0.581	P=0.492	P=0.095	P=0.761N
POLY 1.5	P=0.432N	P=0.503N	P=0.527N	P=0.529N	P=0.573	P=0.492	P=0.094	P=0.758
POLY 6	P=0.462N	P=0.492N	P=0.567N	P=0.556N	P=0.591	P=0.496	P=0.100	P=0.757N
LOGISTIC REGRESSION	P=0.451N	P=0.509N	P=0.628N	P=0.518N	P=0.587N	P=0.500	P=0.132	P=0.720N
COCH-ARM / FISHERS	P=0.406N	P=0.515N	P=0.508N	P=0.500N	P=0.560	P=0.500	P=0.102	P=0.747

G 12

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Thyroid Gland: Follicular Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/48 (2%)	1/49 (2%)	1/50 (2%)	1/50 (2%)	3/50 (6%)	5/50 (10%)	1/49 (2%)
POLY-3 ADJUSTED (b)	4.4%	2.2%	2.5%	2.5%	2.3%	7.1%	11.9%	2.3%
TERMINAL (d)	2/39 (5%)	1/38 (3%)	1/27 (4%)	0/26 (0%)	1/29 (3%)	2/31 (7%)	5/33 (15%)	1/35 (3%)
FIRST INCIDENCE	729 (T)	729 (T)	729 (T)	604	731 (T)	712	731 (T)	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.536N	P=0.509N	P=0.628N	P=0.601N	P=0.462N	P=0.324	P=0.132	P=0.720N
POLY 3	P=0.446N	P=0.497N	P=0.543N	P=0.541N	P=0.537N	P=0.296	P=0.095	P=0.761N
POLY 1.5	P=0.432N	P=0.503N	P=0.527N	P=0.529N	P=0.544N	P=0.297	P=0.094	P=0.758
POLY 6	P=0.462N	P=0.492N	P=0.567N	P=0.556N	P=0.526N	P=0.301	P=0.100	P=0.757N
LOGISTIC REGRESSION	P=0.451N	P=0.509N	P=0.628N	P=0.518N	P=0.513N	P=0.305	P=0.132	P=0.720N
COCH-ARM / FISHERS	P=0.406N	P=0.515N	P=0.508N	P=0.500N	P=0.554N	P=0.309	P=0.102	P=0.747

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Uterus Hemangiosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY-3 ADJUSTED (b)					0.0%	0.0%	4.8%	0.0%
TERMINAL (d)					0/29 (0%)	0/31 (0%)	2/33 (6%)	0/36 (0%)
FIRST INCIDENCE					---	---	731 (T)	---
STATISTICAL TESTS								
LIFE TABLE					P=0.637	(e)	P=0.267	(e)
POLY 3					P=0.614	(e)	P=0.231	(e)
POLY 1.5					P=0.608	(e)	P=0.230	(e)
POLY 6					P=0.621	(e)	P=0.237	(e)
LOGISTIC REGRESSION					(e)	(e)	P=0.267	(e)
COCH-ARM / FISHERS					P=0.595	(e)	P=0.247	(e)

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Uterus Polyp Stromal								
LIFE TABLE	P=0.212	P=0.762	P=0.372	P=0.400	P=0.013 *	P=0.513	P=0.267	P=0.049 *
POLY 3	P=0.285	P=0.750N	P=0.458	P=0.462	P=0.008 **	P=0.495	P=0.231	P=0.034 *
POLY 1.5	P=0.302	P=0.753N	P=0.477	P=0.474	P=0.002 **	P=0.495	P=0.230	P=0.037 *

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TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					1/50 (2%)	2/50 (4%)	4/50 (8%)	2/50 (4%)
POLY-3 ADJUSTED (b)					2.3%	4.8%	9.5%	4.5%
TERMINAL (d)					1/29 (3%)	2/31 (7%)	3/33 (9%)	2/36 (6%)
FIRST INCIDENCE					731 (T)	731 (T)	723	731 (T)
STATISTICAL TESTS								
LIFE TABLE					P=0.480	P=0.523	P=0.223	P=0.576
POLY 3					P=0.406	P=0.491	P=0.171	P=0.508
POLY 1.5					P=0.399	P=0.491	P=0.169	P=0.504
POLY 6					P=0.416	P=0.495	P=0.178	P=0.514
LOGISTIC REGRESSION					P=0.438	P=0.523	P=0.199	P=0.576
COCH-ARM / FISHERS					P=0.387	P=0.500	P=0.181	P=0.500

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
Uterus								
Sarcoma Stromal or Polyp Stromal								

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					1/50 (2%)	2/50 (4%)	4/50 (8%)	2/50 (4%)
POLY-3 ADJUSTED (b)					2.3%	4.8%	9.5%	4.5%
TERMINAL (d)					1/29 (3%)	2/31 (7%)	3/33 (9%)	2/36 (6%)
FIRST INCIDENCE					731 (T)	731 (T)	723	731 (T)
STATISTICAL TESTS								
LIFE TABLE					P=0.480	P=0.523	P=0.223	P=0.576
POLY 3					P=0.406	P=0.491	P=0.171	P=0.508
POLY 1.5					P=0.399	P=0.491	P=0.169	P=0.504
POLY 6					P=0.416	P=0.495	P=0.178	P=0.514
LOGISTIC REGRESSION					P=0.438	P=0.523	P=0.199	P=0.576
COCH-ARM / FISHERS					P=0.387	P=0.500	P=0.181	P=0.500

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
All Organs								
Hemangioma								

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	3/50 (6%)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	5.0%	0.0%	6.9%	0.0%	4.7%	0.0%
TERMINAL (d)	0/39 (0%)	0/39 (0%)	2/27 (7%)	0/26 (0%)	1/29 (3%)	0/31 (0%)	1/33 (3%)	0/36 (0%)
FIRST INCIDENCE	---	---	729 (T)	---	572	---	591	---
STATISTICAL TESTS								
LIFE TABLE	P=0.502	(e)	P=0.162	(e)	P=0.113N	P=0.126N	P=0.485N	P=0.110N
POLY 3	P=0.525	(e)	P=0.211	(e)	P=0.118N	P=0.126N	P=0.513N	P=0.117N

A 01

POLY-3 ADJUSTED (b)	65.9%	57.2%	60.2%	63.4%	67.4%	53.0%	61.3%	39.8%
TERMINAL (d)	28/39 (72%)	21/39 (54%)	17/27 (63%)	17/26 (65%)	19/23 (66%)	18/31 (58%)	22/33 (67%)	14/36 (39%)
FIRST INCIDENCE	642	549	537	368	565	456	196	582

POLY 1.5	P=0.545	(e)	P=0.222	(e)	P=0.120N	P=0.125N	P=0.516N	P=0.110N
POLY 6	P=0.504	(e)	P=0.197	(e)	P=0.116N	P=0.125N	P=0.503N	P=0.115N
LOGISTIC REGRESSION	(e)	(e)	P=0.162	(e)	P=0.125N	P=0.115N	P=0.489N	P=0.124N
COCH-ARM / FISHERS	P=0.595	(e)	P=0.247	(e)	P=0.125N	P=0.121N	P=0.500N	P=0.121N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
All Organs: Hemangiosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	5/50 (10%)	2/50 (4%)	2/50 (4%)	3/50 (6%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.2%	2.1%	5.0%	12.4%	4.6%	4.7%	7.1%	2.3%
TERMINAL (d)	1/39 (3%)	0/39 (0%)	1/27 (4%)	3/26 (12%)	1/29 (3%)	1/31 (3%)	3/33 (9%)	1/36 (3%)
FIRST INCIDENCE	729 (T)	670	704	454	689	670	731 (T)	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.009 **	P=0.745N	P=0.382	P=0.049 *	P=0.339N	P=0.678N	P=0.549	P=0.450N
POLY 3	P=0.019 *	P=0.749N	P=0.459	P=0.079	P=0.392N	P=0.686	P=0.487	P=0.493N
POLY 1.5	P=0.022 *	P=0.753N	P=0.477	P=0.085	P=0.397N	P=0.685	P=0.484	P=0.496N
POLY 6	P=0.016 *	P=0.745N	P=0.436	P=0.071	P=0.386N	P=0.690	P=0.497	P=0.488N
LOGISTIC REGRESSION	P=0.025 *	P=0.760	P=0.416	P=0.099	P=0.385N	P=0.688	P=0.509	P=0.486N
COCH-ARM / FISHERS	P=0.029 *	P=0.753N	P=0.500	P=0.102	P=0.404N	P=0.691N	P=0.500	P=0.500N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM
All Organs: Hemangiosarcoma or Hemangioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	4/50 (8%)	5/50 (10%)	5/50 (10%)	2/50 (4%)	5/50 (10%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.2%	2.1%	10.0%	12.4%	11.4%	4.7%	11.8%	2.3%
TERMINAL (d)	1/39 (3%)	0/39 (0%)	3/27 (11%)	3/26 (12%)	2/29 (7%)	1/31 (3%)	4/33 (12%)	1/36 (3%)
FIRST INCIDENCE	729 (T)	670	704	454	572	670	591	731 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.009 **	P=0.745N	P=0.092	P=0.049 *	P=0.101N	P=0.216N	P=0.583N	P=0.084N
POLY 3	P=0.020 *	P=0.749N	P=0.145	P=0.079	P=0.124N	P=0.231N	P=0.611	P=0.100N
POLY 1.5	P=0.023 *	P=0.753N	P=0.159	P=0.085	P=0.126N	P=0.229N	P=0.607	P=0.101N
POLY 6	P=0.017 *	P=0.745N	P=0.127	P=0.071	P=0.122N	P=0.230N	P=0.623	P=0.098N
LOGISTIC REGRESSION	P=0.025 *	P=0.760	P=0.105	P=0.099	P=0.129N	P=0.221N	P=0.618	P=0.103N
COCH-ARM / FISHERS	P=0.033 *	P=0.753N	P=0.181	P=0.102	P=0.132N	P=0.210N	P=0.630N	P=0.102N

Dose	Males CONTROL	62.5 PPM	125 PPM	250 PPM	Females CONTROL	62.5 PPM	125 PPM	250 PPM

A 03

A 02

All Organs
Histiocytic Sarcoma

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.2%	0.0%	0.0%	5.0%	2.3%	2.4%	4.7%	0.0%
TERMINAL (d)	1/39 (3%)	0/39 (0%)	0/27 (0%)	0/26 (0%)	1/29 (3%)	0/31 (0%)	1/33 (3%)	0/36 (0%)
FIRST INCIDENCE	729 (T)	---	---	629	731 (T)	606	666	---
STATISTICAL TESTS								
LIFE TABLE	P=0.178	P=0.500N	P=0.573N	P=0.402	P=0.334N	P=0.756N	P=0.536	P=0.457N
POLY 3	P=0.222	P=0.490N	P=0.524N	P=0.459	P=0.357N	P=0.757	P=0.493	P=0.495N
POLY 1.5	P=0.230	P=0.494N	P=0.513N	P=0.471	P=0.361N	P=0.756	P=0.490	P=0.498N
POLY 6	=0.214	P=0.488N	P=0.538N	P=0.445	P=0.352N	P=0.760N	P=0.504	P=0.492N
LOGISTIC REGRESSION	P=0.234	(e)	(e)	P=0.483	P=0.366N	P=0.759N	P=0.494	(e)
COCH-ARM / FISHERS	P=0.246	P=0.500N	P=0.500N	P=0.500	P=0.366N	P=0.753N	P=0.500	P=0.500N

Dose	CONTROL	62.5 PPM	Males 125 PPM	250 PPM	CONTROL	62.5 PPM	Females 125 PPM	250 PPM

All Organs
Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	3/50 (6%)	0/50 (0%)	0/50 (0%)	7/50 (14%)	9/50 (18%)	10/50 (20%)	7/50 (14%)
POLY-3 ADJUSTED (b)	2.2%	6.3%	0.0%	0.0%	16.1%	20.8%	23.0%	15.2%
TERMINAL (d)	0/39 (0%)	1/39 (3%)	0/27 (0%)	0/26 (0%)	5/29 (17%)	5/31 (16%)	5/33 (15%)	3/36 (8%)
FIRST INCIDENCE	621	611	---	---	572	544	397	437
STATISTICAL TESTS								
LIFE TABLE	P=0.208N	P=0.330	P=0.546N	P=0.524N	P=0.387N	P=0.425	P=0.381	P=0.503N
POLY 3	P=0.179N	P=0.324	P=0.526N	P=0.527N	P=0.448N	P=0.384	P=0.292	P=0.568N
POLY 1.5	P=0.168N	P=0.318	P=0.514N	P=0.518N	P=0.474N	P=0.379	P=0.282	P=0.587N
POLY 6	P=0.196N	P=0.329	P=0.541N	P=0.539N	P=0.417N	P=0.402	P=0.317	P=0.543N
LOGISTIC REGRESSION	P=0.129N	P=0.219	P=0.458N	P=0.461N	P=0.516N	P=0.376	P=0.283	P=0.598
COCH-ARM / FISHERS	P=0.153N	P=0.309	P=0.500N	P=0.500N	P=0.513N	P=0.393	P=0.298	P=0.613N

Dose	CONTROL	62.5 PPM	Males 125 PPM	250 PPM	CONTROL	62.5 PPM	Females 125 PPM	250 PPM

All Organs
Benign Tumors

TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	30/50 (60%)	28/50 (56%)	26/50 (52%)	28/50 (56%)	31/50 (62%)	23/50 (46%)	27/50 (54%)	18/50 (36%)
POLY-3 ADJUSTED (b)	65.9%	57.2%	60.2%	63.4%	67.4%	53.0%	61.3%	39.8%
TERMINAL (d)	28/39 (72%)	21/39 (54%)	17/27 (63%)	17/26 (65%)	19/29 (66%)	18/31 (58%)	22/33 (67%)	14/36 (39%)
FIRST INCIDENCE	642	549	537	368	565	456	196	582

A 03

POLY 1.5	P=0.545	(e)	P=0.222	(e)	P=0.120N	P=0.125N	P=0.516N	P=0.118N
POLY 6	P=0.504	(e)	P=0.197	(e)	P=0.116N	P=0.125N	P=0.503N	P=0.115N
LOGISTIC REGRESSION	(e)	(e)	P=0.162	(e)	P=0.125N	P=0.115N	P=0.489N	P=0.124N
COCH-ARM / FISHERS	P=0.595	(e)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible] *	P=0.394N	P=0.205	P=0.091	P=0.002N**	P=0.075N	P=0.149N	P=0.003N**
[illegible]	[illegible] 534N	P=0.252N	P=0.361N	P=0.487N	P=0.007N**	P=0.112N	P=0.345N	P=0.005N**
[illegible]	[illegible] 496N	P=0.313N	P=0.321N	P=0.432N	P=0.008N**	P=0.101N	P=0.334N	P=0.006N**
[illegible]	P=0.507	P=0.195N	P=0.415N	P=0.492N	P=0.006N**	P=0.123N	P=0.345N	P=0.005N**
[illegible] GRESSION	P=0.410	P=0.286N	P=0.588	P=0.526	P=0.008N**	P=0.095N	P=0.333N	P=0.005N**
[illegible] ISHERS	P=0.386N	P=0.420N	P=0.273N	P=0.420N	P=0.013N*	P=0.080N	P=0.272N	P=0.008N**

02, 3,

EXPERIMENT: 05197 TEST: 12

Statistical Analysis of Primary Tumors in Mice(B6C3F1)

Terminal Sacrifice at 104 weeks

2-BUTOXYETHANOL

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Do.	Males CONTROL	Males 62.5 PPM	Males 125 PPM	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
[illegible] ors								
[illegible]	#	#	#	#	#	#	#	#
[illegible] (a)	19/50 (38%)	16/50 (32%)	19/50 (38%)	28/50 (56%)	27/50 (54%)	26/50 (52%)	28/50 (56%)	22/50 (44%)
[illegible] ADJUSTED	38.6%	32.4%	42.4%	59.4%	56.9%	56.4%	60.2%	45.3%
[illegible] (d)	10/39 (26%)	8/39 (21%)	7/27 (26%)	12/26 (46%)	12/29 (41%)	12/31 (39%)	17/33 (52%)	11/36 (31%)
[illegible] CENCE	374	549	430	312	376	369	72	437
[illegible]								
[illegible]	P=0.002 **	P=0.320N	P=0.263	P=0.012 *	P=0.105N	P=0.461N	P=0.495N	P=0.129N
[illegible]	P=0.008 **	P=0.332N	P=0.435	P=0.031 *	P=0.132N	P=0.563N	P=0.456	P=0.172N
[illegible]	P=0.010 *	P=0.334N	P=0.496	P=0.036 *	P=0.151N	P=0.559N	P=0.454	P=0.189N
[illegible]	P=0.005 **	P=0.331N	P=0.362	P=0.024 *	P=0.113N	P=0.538N	P=0.479	P=0.149N
LOGIS[illegible] REGRESSION	P=0.086	P=0.529N	P=0.357N	P=0.138	P=0.196N	P=0.499N	P=0.516	P=0.224N
COCH[illegible] FISHERS	P=0.018 *	P=0.338N	P=0.58[illegible]N	P=0.054	P=0.188N	P=0.500N	P=0.500	P=0.212N

Do	Males CONTROL	Males 62.5 PPM	Males 125 [illegible]	Males 250 PPM	Females CONTROL	Females 62.5 PPM	Females 125 PPM	Females 250 PPM
[illegible] and Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	42/50 (84%)	33/50 (66%)	36/50 (72%)	41/50 (82%)	43/50 (86%)	38/50 (76%)	38/50 (76%)	35/50 (70%)
POLY-3 ADJUSTED (b)	84.9%	66.4%	76.1%	85.3%	87.7%	81.1%	80.0%	71.0%
TERMINAL (d)	32/39 (82%)	24/39 (62%)	18/27 (67%)	21/26 (81%)	24/29 (83%)	23/31 (74%)	26/33 (79%)	22/36 (61%)
FIRST INCIDENCE	374	549	430	312	37[illegible]	369	72	437
STATISTICAL TESTS								
LIFE TABLE	P=0.009 **	P=0.070N	P=0.25	P=0.045 *	P=0.023N*	P=0.212N	P=0.125N	P=0.029N*
POLY 3	P=0.278	P=0.025N*	P=0.[illegible]9 N	P=0.596	P=0.023N*	P=0.268N	P=0.219N	P=0.033N*
POLY 1.5	P=0.306	P=0.027N*	P=0.156N	P=0.608N	P=0.029N*	P=0.236N	P=0.194N	P=0.037N*
POLY 6	P=0.242	P=0.024N*	P=0.242N	P=0.563	P=0.018N*	P=0.274N	P=0.241N	P=0.027N*
LOGISTIC REGRESSION	P=0.448	P=0.044N*	P=0.108N	P=0.529N	P=0.047N*	P=0.187N	P=0.160N	P=0.049N*
COCH-ARM / FISHERS	P=0.411	P=0.032N*	P=0.114N	P=0.500N	P=0.050N	P=0.154N	P=0.154N	P=0.045N*

A 04

A 05

(a) Number of tumor-bearing animals / number of animals examined at site.
(b) Poly-3 adjusted lifetime tumor incidence.
(d) Observed incidence at terminal kill.
(f) Beneath the control incidence are the P-values associated with the trend test. Beneath the dosed group incidence are the P-values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death.
Logistic regression is an alternative method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage and Fishers exact tests compare directly the overall incidence rates For all tests a negative trend is indicated by N
(e) Value of statistic cannot be computed.
(I) Interim sacrifice
(T) Terminal sacrifice
Tumor rates based on number of animals necropsied.
* To the right of any statistical result, indicates significance at (P<=0.05).
** To the right of any statistical result, indicates significance at (P<=0.01).

A 95

A 07

Sarcoma Stromal 1 (2%)

05 MICE

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

CORE STUDY FINAL #1

Facility: Battelle Northwest

Chemical CAS #: 111-76-0002

Lock Date: 11/08/96

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Natural Death	6	3	5	4
Moribund Sacrifice	14	16	12	10
Accidently Killed	1			
Survivors				
Terminal Sacrifice	29	31	33	36
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Gallbladder	(43)	(43)	(46)	(46)
Intestine Small, Duodenum	(45)	(49)	(47)	(47)
Polyp Adenomatous			1 (2%)	
Intestine Small, Jejunum	(46)	(49)	(47)	(48)
Carcinoma	1 (2%)			
Intestine Small, Ileum	(46)	(50)	(47)	(48)
Carcinoma		1 (2%)		
Liver	(50)	(50)	(49)	(50)
Hemangiosarcoma		1 (2%)		
Hepatocellular Carcinoma	7 (14%)	10 (20%)	11 (22%)	9 (18%)
Hepatocellular Carcinoma, Multiple	3 (6%)	2 (4%)	2 (4%)	1 (2%)
Hepatocellular Adenoma	9 (18%)	5 (10%)	5 (10%)	8 (16%)
Hepatocellular Adenoma, Multiple	7 (14%)	3 (6%)	2 (4%)	
Hepatocholangiocarcinoma	2 (4%)			1 (2%)
Histiocytic Sarcoma	1 (2%)	1 (2%)	1 (2%)	
Osteosarcoma, Metastatic, Bone	1 (2%)			
Mesentery	(10)	(4)	(5)	(9)
Hemangioma	1 (10%)			
Hemangiosarcoma		1 (25%)		

A 06

Osteosarcoma			1 (20%)	
Sarcoma, Metastatic, Skin	2 (20%)			
Pancreas	(49)	(50)	(49)	(50)
Salivary Glands	(48)	(50)	(49)	(50)
Parotid Gland, Hemangioma			1 (2%)	
Stomach, Forestomach	(50)	(50)	(49)	(50)
Hemangioma	1 (2%)			
Squamous Cell Carcinoma				1 (2%)
Squamous Cell Papilloma		1 (2%)	2 (4%)	5 (10%)
Stomach, Glandular	(48)	(50)	(49)	(49)
Tongue	(1)			(1)
Squamous Cell Carcinoma	1 (100%)			

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC 2-BUTOXYETHANOL Date: 01/21/98
Route: RESPIRATORY EXPOSURE WHOLE BODY Time: 10:53:46

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Adrenal Medulla	(50)	(50)	(49)	(50)
Pheochromocytoma Benign	3 (6%)	1 (2%)		1 (2%)
Bilateral, Pheochromocytoma Benign			1 (2%)	
Islets, Pancreatic	(50)	(50)	(49)	(50)
Adenoma	2 (4%)	1 (2%)		
Pituitary Gland	(50)	(49)	(48)	(49)
Pars Distalis, Adenoma	5 (10%)	8 (16%)	8 (17%)	4 (8%)
Pars Distalis, Carcinoma	1 (2%)			
Pars Intermedia, Adenoma			1 (2%)	
Thyroid Gland	(50)	(50)	(50)	(49)
Follicular Cell, Adenoma	1 (2%)	2 (4%)	5 (10%)	1 (2%)
Follicular Cell, Carcinoma		1 (2%)		
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Ovary	(50)	(49)	(49)	(49)
Cystadenoma	2 (4%)	1 (2%)	3 (6%)	
Granulosa Cell Tumor Benign				1 (2%)
Hemangioma	1 (2%)			
Teratoma Benign			2 (4%)	
Teratoma Malignant			1 (2%)	
Uterus	(50)	(50)	(49)	(50)
Adenoma		1 (2%)		
Hemangiosarcoma			2 (4%)	
Histiocytic Sarcoma	1 (2%)	1 (2%)		
Polyp Stromal	1 (2%)	2 (4%)	4 (8%)	2 (4%)
Sarcoma Stromal			1 (2%)	

A 07

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC 2-BUTOXYETHANOL Date: 01/21/98

05 MICE

Total Animals with Malignant Neoplasms	27	26	28	22
Total Malignant Neoplasms	32	33	34	25

A 09

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Hemangiosarcoma	1 (2%)		1 (2%)	1 (2%)
Lymph Node	(4)	(7)	(6)	(1)
Sarcoma, Metastatic, Skin	1 (25%)			
Renal, Sarcoma, Metastatic, Skin	1 (25%)			
Renal, Teratoma Malignant, Metastatic, Ovary			1 (17%)	
Lymph Node, Bronchial	(41)	(39)	(41)	(37)
Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)
Lymph Node, Mandibular	(37)	(38)	(40)	(38)
Histiocytic Sarcoma		1 (3%)		
Lymph Node, Mesenteric	(47)	(48)	(49)	(50)
Hepatocholangiocarcinoma, Metastatic, Liver	1 (2%)			
Histiocytic Sarcoma			1 (2%)	
Sarcoma, Metastatic, Skin	1 (2%)			
Lymph Node, Mediastinal	(37)	(40)	(38)	(34)
Hepatocholangiocarcinoma, Metastatic, Liver				1 (3%)
Spleen	(50)	(50)	(49)	(50)
Hemangiosarcoma	1 (2%)			
Histiocytic Sarcoma	1 (2%)			
Thymus	(46)	(41)	(46)	(48)
Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Carcinoma		1 (2%)		3 (6%)
Skin	(50)	(50)	(50)	(50)
Sebaceous Gland, Adenoma				1 (2%)
Subcutaneous Tissue, Hemangioma			1 (2%)	
Subcutaneous Tissue, Hemangiosarcoma		1 (2%)	1 (2%)	
Subcutaneous Tissue, Sarcoma	2 (4%)	1 (2%)		
Subcutaneous Tissue, Sarcoma, Multiple	1 (2%)	1 (2%)		
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Hemangiosarcoma	1 (2%)			
Osteosarcoma	1 (2%)			
Skeletal Muscle	(1)			
Hemangiosarcoma	1 (100%)			

A 08

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC 2-BUTOXYETHANOL
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
NERVOUS SYSTEM				

Brain	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Pituitary Gland	1 (2%)			
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	5 (10%)	2 (4%)	4 (8%)	1 (2%)
Alveolar/Bronchiolar Adenoma, Multiple	2 (4%)			
Alveolar/Bronchiolar Carcinoma		2 (4%)	1 (2%)	
Carcinoma, Metastatic, Harderian Gland				1 (2%)
Hepatocellular Carcinoma, Metastatic, Liver	4 (8%)	3 (6%)	6 (12%)	1 (2%)
Hepatocholangiocarcinoma, Metastatic, Liver	1 (2%)			1 (2%)
Histiocytic Sarcoma		1 (2%)	1 (2%)	
Osteosarcoma, Metastatic, Bone	1 (2%)			
Sarcoma, Metastatic, Skin	1 (2%)	1 (2%)		
Mediastinum, Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)
Mediastinum, Osteosarcoma, Metastatic, Bone	1 (2%)			
Mediastinum, Sarcoma, Metastatic, Skin	1 (2%)			
Nose	(50)	(50)	(49)	(50)
SPECIAL SENSES SYSTEM				
Harderian Gland	(6)	(4)	(3)	(4)
Adenoma	4 (67%)	3 (75%)	2 (67%)	3 (75%)
Carcinoma	1 (17%)	1 (25%)	1 (33%)	2 (50%)
URINARY SYSTEM				
Kidney	(50)	(50)	(49)	(50)
Hepatocholangiocarcinoma, Metastatic, Liver	1 (2%)			
Histiocytic Sarcoma		1 (2%)		
Urinary Bladder	(47)	(49)	(48)	(50)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	1 (2%)	1 (2%)	2 (4%)	
Lymphoma Malignant	7 (14%)	9 (18%)	10 (20%)	7 (14%)

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
2-BUTOXYETHANOL

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

B6C3F1 MICE FEMALE	CONTROL	62.5 PPM	125 PPM	250 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	43	38	38	35
Total Primary Neoplasms	76	63	76	52
Total Animals with Benign Neoplasms	31	23	27	18
Total Benign Neoplasms	44	30	42	27
Total Animals with Malignant Neoplasms	27	26	28	22
Total Malignant Neoplasms	32	33	34	25

A 09

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
2-BUTOXYETHANOL

Report: PEIRPT05
Date: 01/21/98

Total Animals with Metastatic Neoplasms	9	4	7	3
Total Metastatic Neoplasm	18	4	7	8
Total Animals with Malignant Neoplasms				
Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant				
Total Uncertain Neoplasms				

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
2-BUTOXYETHANOL

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	7	8	13	9
Natural Death	4	3	10	14
Accidently Killed				1
Survivors				
Terminal Sacrifice	39	39	27	26
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Cecum	(48)	(48)	(44)	(43)
Intestine Small, Jejunum	(48)	(47)	(43)	(38)
Histiocytic Sarcoma				1 (3%)
Intestine Small, Ileum	(48)	(47)	(43)	(39)
Carcinoma		1 (2%)		
Liver	(50)	(50)	(49)	(49)
Carcinoma, Metastatic, Mouse, Pancreatic				1 (2%)
Hemangiosarcoma		1 (2%)	2 (4%)	4 (8%)
Hepatocellular Carcinoma	5 (10%)	8 (16%)	12 (24%)	16 (33%)
Hepatocellular Carcinoma, Multiple	5 (10%)	3 (6%)	4 (8%)	5 (10%)
Hepatocellular Adenoma	13 (26%	10 (20%)	13 (27%)	14 (29%)
Hepatocellular Adenoma, Multiple	9 (18%)	8 (16%)	5 (10%)	3 (6%)
Hepatocholangiocarcinoma	1 (2%)			
Histiocytic Sarcoma				2 (4%)
Mesentery	(5)	(3)	(3)	(1)
Histiocytic Sarcoma				1 (100%)
Oral Mucosa			(1)	
Squamous Cell Carcinoma			1 (100%)	
Pancreas	(50)	(50)	(47)	(47)
Hemangioma			1 (2%)	
Histiocytic Sarcoma				1 (2%)
Salivary Glands	(50)	(50)	(48)	(50)
Stomach, Forestomach	(50)	(50)	(49)	(48)
Histiocytic Sarcoma				1 (2%)
Squamous Cell Carcinoma			1 (2%)	
Squamous Cell Papilloma	1 (2%)	1 (2%)	2 (4%)	2 (4%)
Stomach, Glandular	(50)	(50)	(46)	(47)

Adenoma	1 (2%)

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Hemangiosarcoma				1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(49)	(50)
Hepatocellular Carcinoma, Metastatic, Liver		1 (2%)		
Histiocytic Sarcoma				1 (2%)
Capsule, Adenoma	2 (4%)	2 (4%)	2 (4%)	
Adrenal Medulla	(49)	(50)	(49)	(49)
Pheochromocytoma Malignant		1 (2%)		
Islets, Pancreatic	(50)	(50)	(47)	(46)
Adenoma	2 (4%)			
Carcinoma				1 (2%)
Thyroid Gland	(50)	(48)	(49)	(50)
Follicular Cell, Adenoma	2 (4%)	1 (2%)	1 (2%)	1 (2%)
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Epididymis	(50)	(50)	(49)	(50)
Hemangiosarcoma				1 (2%)
Histiocytic Sarcoma				1 (2%)
Leiomyoma				1 (2%)
Prostate	(49)	(49)	(48)	(45)
Seminal Vesicle	(50)	(49)	(46)	(46)
Histiocytic Sarcoma				1 (2%)
Testes	(50)	(50)	(49)	(50)
Interstitial Cell, Adenoma				2 (4%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(49)	(50)
Hemangiosarcoma		1 (2%)		2 (4%)
Histiocytic Sarcoma				1 (2%)
Lymph Node	(2)	(1)		(1)
Schwannoma Malignant, Metastatic, Spinal Cord	1 (50%)			
Lymph Node, Bronchial	(38)	(35)	(33)	(35)
Hepatocholangiocarcinoma, Metastatic, Liver	1 (3%)			

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Total Animals with Metastatic Neoplasms	0	1	3	0

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
HEMATOPOIETIC SYSTEM - cont				
Lymph Node, Mandibular	(24)	(26)	(32)	(25)
Lymph Node, Mesenteric	(50)	(50)	(47)	(43)
Histiocytic Sarcoma				1 (2%)
Lymph Node, Mediastinal	(40)	(33)	(40)	(37)
Hepatocholangiocarcinoma, Metastatic, Liver	1 (3%)			
Histiocytic Sarcoma				1 (3%)
Spleen	(50)	(50)	(48)	(49)
Hemangiosarcoma		1 (2%)		1 (2%)
Histiocytic Sarcoma				1 (2%)
Malignant Tumor NOS		1 (2%)		
Thymus	(43)	(43)	(36)	(37)
Histiocytic Sarcoma				1 (3%)
INTEGUMENTARY SYSTEM				
Skin	(50)	(50)	(49)	(50)
Hemangioma			1 (2%)	
Prepuce, Histiocytic Sarcoma	1 (2%)			
Subcutaneous Tissue, Hemangiosarcoma	1 (2%)			
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Hemangiosarcoma		1 (2%)		
NERVOUS SYSTEM				
Brain	(50)	(50)	(49)	(50)
Spinal Cord	(2)			
Schwannoma Malignant	1 (50%)			
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(48)	(49)
Lung	(50)	(50)	(49)	(50)
Alveolar/Bronchiolar Adenoma	7 (14%)	7 (14%)	8 (16%)	8 (16%)
Alveolar/Bronchiolar Adenoma, Multiple	2 (4%)		2 (4%)	
Alveolar/Bronchiolar Carcinoma	5 (10%)	2 (4%)	2 (4%)	3 (6%)
Alveolar/Bronchiolar Carcinoma, Multiple			1 (2%)	
Hepatocellular Carcinoma, Metastatic, Liver	7 (14%)	5 (10%)	5 (10%)	3 (6%)
Hepatocholangiocarcinoma, Metastatic, Liver	1 (2%)			
Histiocytic Sarcoma				1 (2%)
Mediastinum, Hepatocholangiocarcinoma,				

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
RESPIRATORY SYSTEM - cont				
Metastatic, Liver	1 (2%)			
None	(50)	(50)	(48)	(48)
SPECIAL SENSES SYSTEM				

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A 12

Harderian Gland	(3)	(3)	(2)	(2)
Adenoma	3 (100%)	3 (100%)	2 (100%)	2 (100%)
URINARY SYSTEM				
Kidney	(50)	(50)	(47)	(50)
Histiocytic Sarcoma				1 (2%)
Urinary Bladder	(50)	(50)	(46)	(45)
Histiocytic Sarcoma				1 (2%)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	1 (2%)			2 (4%)
Lymphoma Malignant	1 (2%)	3 (6%)		

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 05197-12 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
2-BUTOXYETHANOL
Study Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 01/21/98
Time: 10:53:46

B6C3F1 MICE MALE	CONTROL	62.5 PPM	125 PPM	250 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	42	33	36	41
Total Primary Neoplasms	62	55	60	69
Total Animals with Benign Neoplasms	30	23	26	28
Total Benign Neoplasms	42	32	37	33
Total Animals with Malignant Neoplasms	19	16	19	28
Total Malignant Neoplasms	20	22	23	36
Total Animals with Metastatic Neoplasms	9	5	5	4
Total Metastatic Neoplasm	12	6	5	4
Total Animals with Malignant Neoplasms Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant		1		
Total Uncertain Neoplasms		1		

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

END OF REPORT

B6C3F1 MICE MALE CONTROL 62.5 PPM 125 PPM 250 PPM

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CERTIFICATE OF AUTHENTICITY

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