



September 24, 2003 SEP 27 PM 9:15

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Document Processing Center (7407)
Office of Pollution, Prevention and Toxics
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N. W.
Washington, DC 20460
Attention: Section 8(e) Coordinator

04 SEP 27 PM 9:17

Re: TSCA Section 8(e) Submissions

Dear Sir/Madam:

3M Company ("3M") requests that EPA place the attached studies in the TSCA Section 8(e) docket. We have included a master index for these studies identifying the study title, test substance and CAS number. A Confidential Business Information (CBI) version of this index and the studies also is being submitted today pursuant to EPA procedures. 3M has not provided CBI substantiation with this submission, but would be willing to do so at the Agency's request.

3M has concluded that data in these studies may not be, strictly speaking, "corroborative" of previously reported or published information as defined in EPA's reporting guidance or otherwise potentially may warrant 8(e) submission based on EPA's reporting guidance.

3M appreciates EPA's attention to this matter. Please contact the undersigned if you have any questions or require further information regarding this submission.

Very truly yours,

Katherine E. Reed (9.27.03)

Dr. Katherine E. Reed, Ph.D
Staff Vice President
Environmental Technology and Safety
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Master Index to Studies Submitted Under TSCA 8(e) by 3M Company on September 24, 2004
 (Confidential Business Information Redacted)

Primary Eye Irritation Study - Rabbits					
Guinea Pig Contact Dermal Irritation/Sensitization	20% solids (Ethomeen S/12 1.0M with diethyl sulfate 0.94M); 80% water [Ethomeen S/12 = R-N(EI)-(C ₂ H ₄ OH) ₂ where R=C18 with 1-2 double bonds]		20% (61791-24-0 with 64-67-5); 80% 7732-18-5		
Primary Eye Irritation Study - Rabbits	Butanoic acid, heptafluoro-, calcium salt		2366-98-5		
Acute Oral Toxicity Screen with T-2712CoC in Albino Rabbits	perfluorohexanoic acid		307-24-4		
Primary Skin Irritation Test with T-2725EC (Repeat Application) in Albino Rabbits					
Acute Ocular Irritation Test with T-2725EC in Albino Rabbits					
Sensitization Study with T-2741AC in Albino Guinea Pigs	1-[3'-(perfluorooctanesulfonate) anilino amide]-2-potassium 3,4,5,6-tetrachlorophthalate		57589-85-2		
Oral Rangefinder Study of T-3140BS in Pregnant Rats	80% 1-[3'-(perfluorooctanesulfonate) anilino amide]-2-potassium 3,4,5,6-tetrachlorophthalate; 5% C7 homolog; 5% C5 homolog; 5% C4 homolog; 5% C6 homolog		80% 57589-85-2; 5% 68541-01-5; 5% 68541-02-6; 5% 68568-54-7; 5% 68815-72-5		
Acute Ocular Irritation Test with T-2997CoC in Albino Rabbits	perfluoroethylcyclohexylsulfonic acid diethanol amine salt		salt of 133201-07-7 and 111-42-2		
Sensitization Study with T-3386 in Albino Guinea Pigs					
In Vitro Microbiological Mutagenicity Assays of 3M Company's Compound T-3411					

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<p>Acute Oral Toxicity Screen with T-3448 in Albino Rats</p> <p>In Vitro Microbiological Mutagenicity Assays of 3M Company's Compound T-3516</p>	<p>68% poly(oxy-1,2-ethanediyl), alpha-[2-ethyl]([heptadecafluorooctyl)sulfonylamino]ethyl-omega-hydroxy-; 12% polyethylene glycol; 7% water; 4.86% poly(oxy-1,2-ethanediyl), alpha-[2-ethyl]([pentadecafluorohexyl)sulfonylamino]ethyl-omega-hydroxy-; 4% residual organic fluorochlorine; 3% heptadecafluoro-1-octanesulfonic acid; 0.81% poly(oxy-1,2-ethanediyl), alpha-[2-ethyl]([undecafluoropentyl)sulfonylamino]ethyl-omega-hydroxy-; 0.3% 1,4-dioxane; 0.2% n-ethylperfluorooctanesulfonamideethyl alcohol; 0.03% linear n-ethyl perfluorooctanesulfonamide</p>	<p>68% 29117-08-6; 12% 25322-68-3; 7% 7732-18-5; 4.86% 56372-23-7; 4.05% 68298-79-3; 3.24% 68298-81-7; 3% 1763-23-1; 0.81% 68298-80-6; 0.3% 123-91-1; 0.2% 1691-99-2; 0.03% 4151-50-2</p>
<p>Acute Dermal Toxicity Study with T-3451 in Albino Rabbits</p>	<p>C8F17SO2N(CH3)Na</p>	<p>Unknown</p>
<p>Acute Oral Toxicity - Method, Summary, Pathology: Primary Dermal Irritation - Method, Summary: Primary Eye Irritation - Method, Summary: Guinea Pig Maximization - Method, Summary</p>		
<p>Acute Oral Toxicity - Method, Summary, Pathology: Primary Dermal Irritation - Method, Summary: Primary Eye Irritation - Method, Summary:</p>		
<p>Dermal Sensitization Study in Guinea Pigs, Maximization Test - Method, Summary</p>		
<p>4 Hour Acute Aerosol Inhalation Toxicity Study with T-3825 in Rats</p>		
<p>Primary Eye Irritation/Corrosion Study in Rabbits</p>		
<p>4-Hour Acute Aerosol Inhalation Toxicity Study with T-3825 in Rats</p>		

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T-3820: Acute Inhalation Toxicity Test				
T-3821: Acute Inhalation Toxicity Test				
T-3845 Acute Inhalation Toxicity Test	heptafluorobutyl chloride		375-16-6	
Evaluation of the Acute Inhalation Toxicity of T-3920 in the Rat				
Primary Eye Irritation Study in Rabbits - Method Summary	Decanoic acid, nonadecafluoro- ammonium salt		3108-42-7	
Acute Oral Toxicity Study in Rats (OECD Guidelines)	95% ammonium perfluorodecanoate: 5% ammonium perfluorooctanoate		5% 3825-26-1	
Acute Inhalation Toxicity Study with T-4129 in the Rat				
Acute Inhalation Toxicity Study with T-4130 in the Rat				
Acute Oral Toxicity Study in Rats; Acute Dermal Irritation Study in Rabbits; Acute Eye Irritation Study in Rabbits				
Dermal Sensitization Study in Guinea Pigs - Maximization Test				
Mutagenicity Test on T- 4413 [] Mouse Lymphoma Forward Mutation Assay with Duplicate Cultures				
Acute Inhalation Toxicity Study with T-4354 in the Rat				
Primary Dermal Irritation/Corrosion Study in Rabbits				
Acute Inhalation Toxicity Study in the Rat with T-4397				
Primary Eye Irritation/Corrosion Study of T-5261 in Rabbits	lithium tetrafluoroethane-1,2-disulfonimide		Unknown	
Acute Inhalation Toxicity Evaluation on T-5231 in Rats				
4-Hour, Acute Inhalation Toxicity Study with T-5305 in Rats				
4-Hour, Acute Inhalation Toxicity Study (Limit Test) with T-5343.1 in Rats				

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4-Hour, Acute Inhalation Toxicity Study With T-5306 in Rats				
4-Hour, Acute Inhalation Toxicity Study (Limit Test) with T-5357, 1				
Acute Dermal Toxicity Study of T-4201 in Rabbits	Lithium Bis(Trifluoromethanesulfonyl)imide	90076-65-6		
Subacute 28-Day Oral Toxicity with T-2816 by Daily Gavage in the Rat Followed by a 14 Day Recovery Period				
Subacute 28-Day Oral Toxicity with T-2816 by Daily Gavage in the Rat Followed by a 14-Day Recovery Period				
Acute Inhalation Toxicity Evaluation on T-5187 in Rats				
T-4240 4-Week Oral Toxicity Study in Rats				
Dermal Sensitization Study of T-5473 in Guinea Pigs - Maximization Test				
4-Hour, Acute Inhalation Toxicity Study With T-5698 in Rats				
Acute Inhalation Toxicity Evaluation On T-5708 in Rats				
T-5486 Assessment of Cardiac Sensitization Potential in Dogs	octafluoropropane	76-19-7		
Acute Inhalation Toxicity Evaluation on T-5655 in Rats				
T-4201 4 Week Oral Toxicity Study in Rats with 2-Week Recovery Period	Lithium Bis(Trifluoromethanesulfonyl)imide	90076-65-6		
T-5658: Eye Irritation to the Rabbit				
Acute Inhalation Toxicity Evaluation on T-5715 in Rats				
Acute Inhalation Toxicity Evaluation on T-5716 in Rats				
Acute Inhalation Toxicity Study of T-5724 in Rats				
Acute Inhalation Toxicity Study of T-5725 (Resin Solution) in Rats				

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Acute Inhalation Toxicity Study (Limit Test) of T-5927 in Rats				
Acute Inhalation Toxicity Study of T-5928 in Rats (LC50)				
Acute Inhalation Toxicity Evaluation on T-5829 in Rats				
Single-Dose Intravenous Pharmacokinetic Study of T-5963 in Rabbits				
Single-Dose Intravenous Pharmacokinetic Study of T-6030 in Rabbits				
5-Daily Dose Dermal Absorption/Toxicity Study of T-6029 and T-6032 in Rabbits	87-93% fluorinated alkyl alkoxyates; 4-10% linear N-ethyl perfluorooctanesulfonamide; 2-4% poly(oxy-1,2-ethanediyl), alpha-[-2-ethyl[(pentadecafluorohexyl)sulfonyl]amino]ethyl]-omega--methoxy-; 0-4% residual organic fluorochemicals; 0-2% o8 sulfonamide; 0.1-1% 1-heptanesulfonamide, N-ethyl-	87-93% 68958-61-2; 4-10% 4151-50-2; 2-4% 68958-60-1; 0-2% 31506-32-8; 0.1-1% 68957-62-0		
Single-Dose Intravenous Pharmacokinetic Study of T-6061 in Rabbits				
Single-Dose Intravenous Pharmacokinetic Study of T-6065 in Rabbits				
Single Dose Intravenous Pharmacokinetic Study of T-6063 in Rabbits				
Acute Inhalation Toxicity Study of T-6235 in Rats				
Primary Dermal Irritation/Corrosion Study of T-6402 in Rabbits				
Dermal Sensitization Study of T-6402 in Guinea Pigs- Maximization Test (EC Guidelines)				
Acute Eye Irritation/Corrosion Study with T-6318 in the Rabbit	1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, Sodium Salt	102061-82-5		

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Primary Skin Irritation / Corrosion Study with T-6567 in the Rabbit (4-Hour Semi-Occlusive Application)			
Assessment of Contact Hypersensitivity to T-6318 in the Albino Guinea Pig (Maximization Test)	1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, Sodium Salt	102061-82-5	
Single-Dose Intravenous Pharmacokinetic Study of T-6502 in Rabbits			
Single-Dose Intravenous Pharmacokinetic Study of T-6504 in Rabbits			
Single Dose Intravenous Pharmacokinetic Study of T-6506 in Rabbits			
A Study for Effect on Embryo/foetal Development of the Rat (Inhalation Administration)	20-80% methyl nonafluorobutyl ether; 20-80% methyl nonafluorobutylether	20-80% 163702-08-7; 20-80% 163702-07-6	
Bacterial Reverse Mutation Test of T-6695			
5-day Inhalation Toxicity of Perfluorocyclohexene (1,1,1-T-6878) in Rats	70% crude perfluorocyclohexene; 30% perfluoromethylcyclopentane	70% 355-75-9	
5-Daily Dose Dermal Absorption/Toxicity Study of T-6502 and T-6503 in Rabbits			
Primary Eye Irritation/Corrosion Study of T-6786 in Rabbits	Lithium Bis(perfluoroethylsulfonyl)imide	132843-44-8	
Primary Dermal Irritation/Corrosion Study of T-6804 in Rabbits	Lithium Bis(perfluoroethylsulfonyl)imide	132843-44-8	
5-Day Inhalation Toxicity Screen of HFE 1	c-C6F11OCH3	4943-08-2	
Primary Eye Irritation/Corrosion Study of T-6804 in a Rabbit (OECD Guidelines)	Lithium Bis(perfluoroethylsulfonyl)imide	132843-44-8	
Acute Oral Toxicity Study of T-6804 in Rats (OECD Guidelines)	Lithium Bis(perfluoroethylsulfonyl)imide	132843-44-8	
Dermal Sensitization Study of T-6908 in Guinea Pigs, Mazimization Test (EC Guidelines)			

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Eye Irritation/Corrosion Study of T-4127 in the Rabbit	N-Me Fos Amide-Triphenylbenzyl Phosphonium Chloride Complex: D-1624	31506-32-8	
Single-Dose Intravenous Pharmacokinetic Study of T-6924 in Rabbits			
Dermal Sensitization Study of T-6924 in Guinea Pigs- Maximization Test (EC Guidelines)			
Dermal Sensitization Study of T-7003 in Guinea Pigs - Maximization Test (EC Guidelines)			
Report of Sera and Liver Data for [] Monoester - Preliminary ADME Study in Rats	N-ethyl heptadecafluoro-N[2-(phosphonoxy)ethyl] octanesulfonamide diammonium salt	67969-69-1	
[] Diester-Pharmacokinetic Study in Rats (Study No. T-7043, 1, DT-26)	ammonium bis[ethyl(perfluorooctane)sulfonyl]phosphate	30381-98-7	
Single Dose Intravenous Pharmacokinetic Study with T-7082 in Rabbits			
[] Monoester - Pharmacokinetic Study in Rats (Study No. T-6997, 2)	N-ethyl heptadecafluoro-N[2-(phosphonoxy)ethyl] octanesulfonamide diammonium salt	67969-69-1	
Determination of PFOS Presence and Concentration in Serum from the Dermal Absorption Studies of T-7106 and T-7107 in Hra:(NZW)SPF Rabbits			
Dermal Sensitization Study of T-7285.5 in Guinea Pigs - Maximization Test (EPA/OECD Guidelines)			
Twenty-eight Day Repeated-Dose Oral Toxicity Study of T-6961 in Rats	Lithium Bis(perfluoroethylsulfonyl)imide	132843-44-8	
Twenty-eight Day Repeated Dose Oral Toxicity Study of T-7005 in Rats			

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Acute (4-Hour) Inhalation Toxicity of Test Atmospheres Obtained after Healing [] in Rats	[]	[]	[]
Toxicokinetic Study of Perfluorooctanesulfonamidoacetate (I, T-7071.2) in Rats	perfluorooctanesulfonamido carboxylic acid	2806-24-8	[]
Acute Nose-Only Inhalation Toxicity Study of T-7087, T-7088, T-7089 and T-7090 in Rats (Limit Test)	[]	[]	[]
Acute Ocular Irritation Study of T-7485 Applied to New Zealand White Rabbits	potassium nonafluorobutanesulfonate	29420-49-3	[]
Toxicokinetic Study of Perfluorooctane Sulfonamide (PFOSA, T-7132.2) in Rats	perfluorooctanesulfonamide	754-91-6	[]
Acute Four-Hour Inhalation Study in Rats	Perfluorobutanesulfonyl Fluoride (96-98%) And Perfluorosulfolane (2-4%)	96-98% 375-72-4; 2-4% 42060-64-0	[]
Primary Eye Irritation/Corrosion Study of T-7508.2 in Rabbits	[]	[]	[]
MV31 K-Salz: Test for Primary Dermal Irritation in the Rabbit	[]	[]	[]
Assessment of Acute Oral Toxicity with T-7560 in The Rat (Acute Toxic Class Method)	[]	[]	[]
Acute Eye Irritation/Corrosion Study with T-7560 in the Rabbit	[]	[]	[]
[] Potassium bis-(perfluorobutanesulfonyl)imide (perfluorobutanesulfonyl)imide Repeat Dose ADME Study in Rats	Potassium bis(perfluorobutanesulfonyl)imide	129135-87-1	[]
Toxicity Study by Repeat Dose Inhalation Administration to CD Rats for 4 Weeks	Perfluorobutanesulfonyl Fluoride (96-98%) And Perfluorosulfolane (2-4%)	96-98% 375-72-4; 2-4% 42060-64-0	[]
A Sub-acute(28 Day) Inhalation Toxicity Study, Including a Recovery Study, with T-7479 in Rats	1, 1, 1, 2, 2, 4, 5, 5-nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	[]
Xenochemical Receptor trans-Activation by Perfluorooctane-based Chemicals	perfluorooctanesulfonamide	754-91-6	[]

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	84% 1-octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8- heptadecafluoro-, potassium salt; 5.5% potassium (perfluorohexyl)sulfonate; 4% potassium nonafluorobutanesulfonate; 4% potassium perfluorohexanesulfonate; 2% potassium perfluoropentanesulfonate; 0.5% unknown	84% 2795-39-3; 5.5% 3871-99-6; 4% 29420-49-3; 4% 60270-55-5; 2% 3872-25-1
Acute Inhalation Toxicokinetic Study of Perfluorooctanesulfonyl Fluoride (POSF) T-7098.4	perfluorooctanesulfonyl fluoride	307-35-7
Five-Day Inhalation Toxicity Study of HFE [] in Male CD Rats	c-C6F11-CF2-O-CH3	181214-67-5
Acute Toxicity Screen of Perfluorocyclohexene (T-6878) in Rats	70% crude perfluorocyclohexene; 30% perfluoromethylcyclopentene	70% 355-75-9
[] (T-7056)		
Toxicokinetic Study in Rats		
Assessment of Acute Oral Toxicity with T-7601.3 in the Rat (Acute Toxic Class Method)	N-Methyl Perfluorobutylsulfonamide = 95% 1-Butanesulfonamide; 1,1,2,2,3,3,4,4,4-Nonafluoro-n-Methyl; 5% N-Methyl-4-Hydroxy-Perfluorobutylsulfonamide	68298-12-4
Subchronic 90-Day Oral Toxicity Study with T-7320 By Daily Gavage in the Rat Followed by a 28-Day Recovery Period		
Protein Binding of Perfluorobutane Sulfonate, Perfluorohexane Sulfonate, Perfluorooctane Sulfonate and Perfluorodecane Sulfonate (Human, Rat, and Monkey), and Various Human-Derived Plasma Protein Fractions	84% 1-octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8- heptadecafluoro-, potassium salt; 5.5% potassium (perfluorohexyl)sulfonate; 4% potassium nonafluorobutanesulfonate; 4% potassium perfluorohexanesulfonate; 2% potassium perfluoropentanesulfonate; 0.5% unknown	84% 2795-39-3; 5.5% 3871-99-6; 4% 29420-49-3; 4% 60270-55-5; 2% 3872-25-1
	potassium nonafluorobutanesulfonate	29420-49-3
	potassium (perfluorohexyl)sulfonate	3871-99-6

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Five Day Inhalation Toxicity Study of [] Monochloride, [] and HCFC225cb in Male CD Rats	potassium perfluorooctanoate	2395-00-8	
	CAF9-OCH2Cl	206367-42-6 (n-isomer) and 221617-86-3 (l-isomer)	
	c-C6F11-CF2-O-CH3	181214-67-5	
	CF2OICF2CHClF	507-55-1	
Toxicokinetic Screen of [] (T-7483) in Rats	C7F15C(O)(H)CH3	89685-56-3	
	84% 1-octanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-, potassium salt; 5.5% potassium (perfluorohexyl)sulfonate; 4% potassium nonafluorobutanesulfonate; 4% potassium perfluoroheptanesulfonate; 2% potassium perfluoropentanesulfonate; 0.5% unknown	84% 2795-39-3; 5.5% 3871-99-6; 4% 29420-49-3; 4% 60270-55-5; 2% 3872-25-1	
Low Level Oral Perfluorooctanesulfonate (PFOS) Dose Toxicokinetic Study in Rats: Serum and Liver PFOS			

3M Strategic Toxicology
Laboratory

Final Report DT03 (T-6875.2; T-6874.2; T-6876.2)

Date: 5/21/98

Study Title: Five Day Inhalation Toxicity Study of [] monochloride, [] and [] in Male CD Rats

Test number (sample): T-6875.2 [] monochloride (C4F9-OCH2Cl)
T-6874.2 [] (C8H3F13O)
T-6876.2 [] CF2ClCF2CHClF

Laboratory Project Identification: DT03

Initiation Date: 3/3/97

In-Life Completion Date: 3/4/97

Research Client: 3M Performance Chemicals and Fluids Division
3M Center
Building 236
Saint Paul MN 55133-3220

Testing Laboratory: 3M Strategic Alternative Toxicology Laboratory
3M Center
Building 270-SB-181
Saint Paul, MN 55144

Author: Andrew M. Seacat

Approved By:

Paul H. Lieder

7/3/2003

Paul H. Lieder
Study Director

Completion Date

DT03 (T-6875.2; T-6874.2; T-6876.1)

Study Title: Five Day Inhalation Toxicity Study of [] monochloride (T-6875.2), [] (T-6874.2), and [] (T-6876.1) in Male CD Rats

Key Personnel

Five Day Inhalation Toxicity Study of, [] monochloride, [] and [] in Male CD Rats

Study Director: Paul Lieder Ph.D. D.A.B.T. Toxicology Specialist
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Study Toxicologist: Andrew M. Seacat, Ph.D. Senior Research Toxicologist
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Saint Paul, MN 55233-3220

Necropsy: Mrs. Jill Hart, and Dr. Eldin Lamprecht

Histopathology Dr. Eldin Lamprecht

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AND OTHER LAWS HAS BEEN
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DT03 (T-6875.2; T-6874.2; T-6876.1)

Study Title: Five Day Inhalation Toxicity Study of [] monochloride (T-6875.2) [] (T-6874.2), and [] (T-6876.1) in Male CD Rats

SUMMARY

All three male rats in the [] monochloride (T-6875.2) group showed lack of weight gain and an increase in liver/body weight ratios of approximately 20 %. Histology revealed dark staining and binucleate hepatocytes in the liver. Protein was present in the proximal tubules and glomeruli of the kidneys. Clinical chemistry analysis revealed that [] monochloride significantly lowered triglyceride, levels in the blood. The [] monochloride also raised serum alkaline phosphatase levels approximately ten fold in one animal.

The three male rats in the [] (T-6874.2) group had enlarged kidneys that were ~ 74% greater than in the control animals and enlarged livers, with liver/body weight ratios that were ~ 72% greater than controls. One animal died during the 4th hour of exposure on the 5th day of treatment. Histology revealed dark staining hepatocytes and mitotic figures in the liver. The kidneys showed mineralization, inflammation, tubular and medullary degeneration, with protein in glomeruli and tubules.

The animals in the [] (T-6876.1) group had liver / body weight ratios that were an average of 8% over control and no effect on kidney weight. Histology revealed dark staining hepatocytes in the liver, and tubular necrosis with protein in glomeruli and tubules of the kidneys.

FORWARD

The study was conducted in the spirit of Good Laboratory Practice Standards without compliance to a specific regulation or standard. Paul H. Lieder, Study Director and responsible for the design and supervision of the test atmosphere and monitoring system. Andrew M. Seacat, was the Study Toxicologist and conducted all laboratory operations and author of the report. Mrs. Jill Hart, and Dr. Eldin Lamprecht performed the necropsies and histology, respectively.

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DT03 (T-6875.2; T-6874.2; T-6876.1)

Study Title: Five Day Inhalation Toxicity Study of [] monochloride (T-6875.2) [] (T-6874.2), and [] (T-6876.1) in Male CD Rats

I. INTRODUCTION

A. OBJECTIVE

The objective of the study was to determine the toxicity and hepatic peroxisome proliferation effects of [] and [] monochloride vapor administered by whole body exposure to male rats for six hours per day for five days. The toxicity of the test compounds were compared to C-225cb.

Due to the death of the rats exposed to [] at 10,000 ppm in experiment DT01, a repurified lot of [] was used in this experiment, and all the other compounds remained the same in both experiments. In DT03, liver, lung and testicular tissues were collected and preserved in 10% formalin for histology. Additional liver samples were collected, frozen in liquid nitrogen, stored at -70 °C for possible future analysis of increased fatty acid β -oxidation activity, an indicator of liver peroxisomal proliferation induction.

II. MATERIALS AND METHODS

A. THE TEST ATMOSPHERE

1. Test Articles: The test articles were identified as:
 - a.) T-6875.2; [] monochloride is a volatile liquid. (NB [] C4F9-OCH2Cl, A.M. Bauer 236-3B-89, Density 1.59 g/ml, Molecular Weight 223.45 g/mol). 10,000 ppm.
 - b.) T-6874.2; [] Lot 1, Finished groups c-701 KOH KMnO4 TMD, F.E. Behr 236-3A-02, 2/24/97. Density 1.72 g/ml, Molecular Weight 362 g/mol. 10,000 ppm.
 - c.) T-6876; [] 99.9% is a volatile liquid. (CF2ClCF2CHClF; M.G. Costello 208-01-01) was used as a positive control for peroxisome proliferation without acute toxicity at 10,000 ppm.
 - d.) Air was used as a control.

2. Inhalation Exposures

Four groups of 3 male CD rats were exposed in whole-body inhalation exposure chambers to vapors of [] Cl [] and [] at target concentrations of 10,000 ppm, or to room air for six hours per day for five days. Clinical observations were made daily after the exposure period ended. Body weights were recorded at the end of the study, and test animals were compared to controls. Blood samples were collected from all animals prior to necropsy and the liver, lungs, and testis were removed from each animal and weighed.

The test atmosphere containing the test compounds was generated by an evaporation technique. The vapor generation system consisted of a 50 ml Hamilton gas-tight syringe pump containing test article delivering the test fluid at

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DT03 (T-6875.2; T-6874.2; T-6876.1)²
Study Title: Five Day Inhalation Toxicity Study of [] monochloride (T-6875.2), [] (T-6874.2), and [] (T-6876.1) in Male CD Rats
a constant flow rate into a stream of air. The air then entered the exposure chamber. After passage through the chambers, the atmosphere was automatically by sequence, or manually monitored by sampling with a Hewlett Packard Gas Chromatograph, using a 250 µl injection loops.

III RESULTS AND DISCUSSION:

Please refer to Table 1 for body weight, organ weight, and blood chemistry analysis data.

Control group:

Three male rats with an average weight of 323 g gained an average of 9 ± 11.5 g during the 5 day treatment period. Their livers were 15 ± 2.3 g with a liver to body weight ratio of 0.044 ± 0.01 . Histologically, there were no significant changes present in the liver, kidneys, lung or testis. Blood chemistry was normal.

All three male rats in the [] monochloride (T-6875.2) group lost 4.67 ± 1.15 g of body weight and had liver/body weight ratios of 0.053, which is approximately 19 % greater than in the control group. Histology revealed dark staining and binucleate hepatocytes in the liver. Protein was present in the proximal tubules and glomeruli of the kidneys. Clinical chemistry analysis revealed that [] monochloride significantly lowered triglyceride levels in the blood to 55% that of control values. The [] monochloride raised serum alkaline phosphatase levels approximately ten fold over control values in one animal only.

One of the rats in the [] (T-6874.2) group dies during the 4th hour of exposure on day 5 of treatment (the last day), and only body weigh data was recorded for that animal. The three male rats lost 43.7 ± 13.6 g of body weight during treatment with their final weight averaging 83% of the control values. Organ weight data for the two surviving rats indicated enlarged kidneys that were ~ 74% greater than in the control animals and enlarged livers, with liver/body weight ratios that were ~ 72% greater than controls. Histology revealed dark staining hepatocytes and mitotic figures in the liver. The kidneys showed mineralization, inflammation, tubular and medullary degeneration, with protein in glomeruli and tubules. Clinical chemistry on the two surviving rats revealed significant increases in BUN, AST, ALT, LDH and Creatinine levels, indicating that kidney damage, liver enzyme effects and cell lysis had occurred.

The animals in the [] (T-6876.1) group gained an average of 2.3 ± 4.16 g during the treatment period. had liver / body weight ratios that were an average of 8% over control and no effect on kidney weight. Histology revealed dark staining hepatocytes in the liver, and tubular necrosis with protein in glomeruli and tubules of the kidneys.

DT03 (T-6875.2; T-6874.2; T-6876.1)

Study Title: Five Day Inhalation Toxicity Study of [] monochloride (T-6875.2) [] (T-6874.2), and [] (T-6876.1) in Male CD Rats

Table 1 - Data	Treatment group animal numbers									100 ppm 6/16/75		
	Control - treatment											
Animal Number	K0510	K0511	K0512				K0513	K0514	K0515			
Parameter	Gr1	Gr2	Gr3	Ag	SD	%Contd				Ag	SD	%Contd
Body weight (g) d1	335	333	331	325	15.37	100						
Body weight (g) d2	335	343	341	330	21.35	100	337	301	315	3133	1850	97
Body weight (g) d3	335	344	347	333	21.70	100	341	307	322	32133	2001	98
Body weight (g) d5	335	342	331	337	25.72	100	333	294	314	31367	1850	95
wt gain	3	9	21	9	11.50		4	6	4	457	175	
Liver (g)	14055	12772	17275	75	2.31	100	17225	1574	15375	1555	0.57	113
Liver/body wt d5	0.044	0.037	0.046	0.044	0.01	100	0.052	0.035	0.035	0.055	0.01	119
Kidney (g) (right)	189	145	172	2	0.75	100	185	195	225	2.05	0.33	125
Testis (g) (right)	325	315	325	3	0.04	100	297	27	295	285	0.14	89
Blood Chemistry												
CPK mg/dL	46	46	75	75	#DVO	100			46	#DVO	#DVO	#DVO
Ca mg/dL	105	105	11	11	0.25	100	105	105	105	1077	0.75	100
Pro mg/dL	104	143	95	12	2.44	100	102	10	159	1205	3.35	105
IBL mg/dL	02	02	02	0	0.01	100	02	02	02	02	0.01	100
Alb mg/dL	34	3	34	3	0.25	100	33	35	3	327	0.25	100
TP mg/dL	65	58	64	6	0.35	100	62	64	55	605	0.47	97
BUN mg/dL	15	15	15	15	1.53	100	17	15	15	15.01	1.01	88
GLU mg/dL	145	145	155	151	2.74	100	142	135	130	13567	6.11	90
ALP U/L	251	271	237	240	20.73	100	255	2577	130	25067	147.45	409
AST U/L	94	85	85	84	13.05	100	81	74	77	77.01	3.01	92
ALT U/L	57	52	55	55	7.77	100	62	55	54	5367	1.53	105
LDH U/L	1555	1255	825	135	519.15	100	825	135	84	10457	2945	75
Na+ mmol/L	145	145	147	145	3.05	100	145	145	145	147.33	2.55	101
K+ mmol/L	63	85	67	7	1.55	100	67	64	107	7.73	2.05	109
Cl- mmol/L	112	110	107	107	1.01	100	107	101	105	101.33	1.55	100
CO2 mg/dL	05	04	04	0	0.05	100	05	05	04	0.47	0.05	105
GGT U/L	7	7	7	7	0.01	100	7	7	7	7.01	0.01	100
TRG mg/dL	151	125	135	133	29.05	100	77	74	67	7257	5.13	55

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Table 10 (cont)												
Animal Number	10000 ppm 6 h/d for 5d						10000 ppm 6 h/d for 5d					
	7F0804	7F0805	7F0806				7F0807	7F0808	7F0809			
Parameter				ag	SD	%Contd				Ag	SD	%Contd
Body weight (g) d1												
Body weight (g) d2	285	325	313	311.33	14.57	94	311	353	335	346.67	30.92	100
Body weight (g) d3	281	282	316	293.00	19.92	88	313	335	335	346.67	30.92	100
Body weight (g) d5	254	267	282	267.67	14.01	81	318	352	357	340.00	28.98	100
w gain	-4	-5	-31	-6.67	13.88		7	-1	1	23.33	4.76	
Liver (g)	1567		2580	2178	2331	141	1431	1785	1872	1592	233	118
Liver/body wt d5	0053	0000		0025	0071	81	0046	0048	0051	0048	0008	100
Kidney (g) (right)	2472		3495	292	324	184	1557	198	171	174	019	100
Testis (g) (2)	278		351	315	333	91	28	307	342	311	033	98
Blood Chemistry												
Chol mg/dL	<46		69	69.00	69.00	91	67	<46	<46	67.00	#0000	88
Cr mg/dL	97		108	102	105	95	106	109	109	108.00	017	101
BUN mg/dL	247		158	212	180	175	10	107	11	105	051	99
TBL mg/dL	03		04	03	03	175	02	02	02	02	000	100
Alb mg/dL	3		28	29	28	89	31	35	35	33	023	100
TP mg/dL	6		58	59	59	95	61	65	63	63	020	101
BLN mg/dL	34		17	25.50	16.75	139	14	14	13	13.67	058	84
GLU mg/dL	10		98	97.50	96.25	64	148	157	148	151.00	521	100
AKP U/L	251		28	24.50	25.25	105	25	174	252	229.67	484	95
AST U/L	50		173	30.50	25.75	407	84	70	91	81.67	1085	99
ALT U/L	171		148	157.00	150.00	285	71	54	59	61.33	874	100
LDH U/L	3351		639	197.00	135.00	152	1291	787	885	956.67	2587	74
Na+ mmol/L	144		144	144.00	144.00	95	146	150	150	148.67	231	100
K+ mmol/L	66		62	64	63	91	62	62	65	63.00	017	89
Cl- mmol/L	92		105	99.50	101.75	95	101	100	101	100.67	058	100
CREA mg/dL	9		31	6.05	4.58	138	0.5	0.4	0.4	0.43	0.05	100
GGT U/L	29		34	31.50	32.75	481	7	7	7	7.00	000	100
TRG mg/dL	48		65	55.00	61.00	42	112	178	112	134.00	3811	101

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DT03 Chamber gas exposure values and values for 1000ppm standards (Area [pAs])

rel. time (min)	chamber 1 Area [pAs] 250u	rel. time chamber 2 Area [pAs] 250u	rel. time (min) chamber 3 Area [pAs] 250u
2:182	3688	3053	6848
2:178	4408	3049	3337
2:178	4350	298	6144
2:107	4648	3048	8478
2:178	3788	3055	7623
2:108	3709		7178
2:18	3688		7140
	3730		7144
	3887		7118
	3850	3058	7148
	3048	2981	7131
	3708		4078
	4348		5571
	3382		7551
2:175	4538		8130
	4668		
	4628		
	4517		
exposure	4008	exposure	6748
ag	488	ag	1310
SD		SD	
standard 1000ppm	3638	standard 1000ppm	5877
ag	202	ag	888
SD		SD	
ratio ES	1.10	ratio ES	1.15

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