



EPA High Production Volume (HPV) Track Sponsor ID 1100921 Albemarle Corporation Create Date 2/5/2004 CAS Number 32588764 Phthalimide, N,N'-ethylenebis[tetrabromo- Study Number 1]

32300704 Fill fall fille, N,N -ethyleneb	isteriabionio- Study Number	
	Completed: N	
	Revision D)ate
·····	2/5/2	***************************************
	•	
у		
eline followed		
	>> Year study performed 2003	3
Remarks for Metho		
The water solubility was estimated from the Only the chemical structure was entered in	e Kow using WSKOW module of EPIWIN suite. Ito the software program.	
WILAIN		
lity Value		
lity Value 0		
lity Value 0		
	Phthalimide, N,N'-ethylenebis[tetrabromo-	Revision E 2/5/2 Phthalimide, N,N'-ethylenebis[tetrabromo- >> Year study performed 2003 Remarks for Metho The water solubility was estimated from the Kow using WSKOW module of EPIWIN suite. Only the chemical structure was entered into the software program.

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Water Solubility

Sponsor ID CAS Number Consortia ID		emarle Corporation hallmide, N,N'-ethylenel	bis[tetrabromo-		Create Date Study Number Completed:	2/5/2004 1
>> Unit mg/L						
>> Temperature 2	5 degrees C					
>> Solubility Categ	ory Insoluble					
>> pH Value	0	>> pKa Value		0		
Results Remark	pH and pKa values no	ot applicable - water	solubility estimat	ed, not measur	ed.	
Conclusions						
	The water solubility w	as estimated to be 3	.029 x 10-9 mg/L	•		
Data Quality	Reliability					
Data Reliability Ren	narks					

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Water Solubility

Sponsor ID	1100021	Albemarle Corporation	Create Date 2/5/200
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number
Consortia ID			Completed: N
Reference			
>> Remarks	All estimations v	were performed using EPI Win Suite, V.304, , New York.	Syracuse Research Corporaiton,
General	Cooper Albert	Correction Reten Dougs LA	
	Sponsor: Alberr	narle Corporation, Baton Rouge, LA	

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Vapor Pressure Sponsor ID 1100021 Albemarle Corporation 2/5/2004 Create Date **CAS Number** 32588764 Phthalimide, N,N'-ethylenebis[tetrabromo-Study Number Consortia ID Completed: **Revision Date** 2/5/2004 Test Substance Remark Phthalimide, N,N'-ethylenebis[tetrabromo-Chemical Category **Method** >> Method/Guideline followed Estimation >> GLP No >> Year study performed 2003 Remarks for Metho Results >> Precision >> Vapor Pressure Value 2.54E-22

0

>> Upper Value

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Vapor Pressure

Sponsor ID	1100021	Albemarle Corporation		Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenel	ois[tetrabromo-	Study Number	
Consortia ID				Completed:	Υ
>> Unit mm Hg					
>> Temperature	25 degrees C				
>> Decompositio	No				
Results Remark	<				
Conclusions					
	The vapor press	sure was estimated to be	2.54 x 10-22 mm Hg.		
Data Quality	Reliability				
Data Quanty	1				
Data Reliability Re	emarks				
<u>Reference</u>					

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Vapor Pressure

Sponsor ID CAS Number Consortia ID	32588764	Albemarle Corporation Phthalimide, N,N'-ethylenebis[tetrabromo-	Create Date 2/5/2004 Study Number Completed: Y
>> Remarks	All estimations v North Syracuse,	vere performed using EPI Win Suite, V.304 New York.	, Syracuse Research Corporaiton,
<u>General</u>	Sponsor: Albem	arle Corporation, Baton Rouge, LA	

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Partition Coefficient

Sponsor ID CAS Number Consortia ID			orporation N,N'-ethylenebis[te	rabromo-	Create Dat Study Nun Completed	iber 1
					R	evision Date 2/5/2004
Test Substance	2					
Remark	Phthalimid	e, N,N'-ethylenebis	s[tetrabromo-			
Chemical Catego	ory					
<u>Method</u>						
>> Method/Guid	eline followed					
Estimation						
>> GLP No				>> Year study	performed	2003
	Remarks fo	or Metho				
				mated using the KOV s entered into the sof		
<u>Results</u>						
>> Precision =	=					
>> Value of Log	Pow	9.7966				
>> Upper Value		0				
>> Temperature	25 deg	rees C				

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Partition Coefficient

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID			Completed: Y]
		ngung, katanggaran 35 kenggara 6 kenggaran 35 kenggaran 19 kenggaran 19 kenggaran 19 kenggaran 19 kenggaran 19		
Results Rema	rk			
onclusions				
	The Log Kow w	as estimated to be 9.7966.		**************************************
	D-B-bB-			
Pata Quality	Reliability			
Data Reliability R	Remarks			
Reference				
>> Remarks	All estimations North Syracuse	were performed using EPI Win Suite, V.304, Sy e, New York.	racuse Research Corporaito	on,

<u>General</u>

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Partition Coefficient

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	1
Consortia ID	1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1		Completed:	Y
	Sponsor - Albe	marle Corporation, Baton Rouge, LA		

onsor - Albemarle Corporation, Baton Rouge, LA	

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Melting Point

roduction volume (nPV) Track M	lelting Point
1100021 Albemarle Corporation	Create Date 2/5/2004
32588764 Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
	Completed: Y
	Revision Date
· Committee of the comm	2/5/2004
, maiaminae, re, re caryienes se causionio	
,,,	
line followed	
>>	Year study performed 2003
	odule of EPI WIN. Only the chemical
Value 350	
330	
0	
	Albemarle Corporation 32588764 Phthalimide, N.N'-ethylenebis[tetrabromo- Phthalimide, N.N'-ethylenebis[tetrabromo- Phthalimide, N.N'-ethylenebis[tetrabromo- Ine followed >> Remarks for Metho The melting point was estimated using the MPBWIN m structure was entered into the software program.

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Melting Point

Sponsor ID	1100021	Albemarle Corporation	Create Date 2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID			Completed: Y
>> Decomposition	No		
>> Sublimation	No		
Results Remar	· k		
Conclusions			
	The melting poi	nt was estimated to be 350 degrees C.	
Data Quality	Reliability		
Data Quanty			
Data Reliability R	emarks		
Deference			
Reference			
>> Remarks	All estimations v North Syracuse	were performed using EPI Win Suite, V.30- , New York.	4, Syracuse Research Corporaiton,

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Melting Point

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	1
Consortia ID			Completed:	Y

General

Sponsor: Albemarle Corporation, Baton Rouge, LA	
	i

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Boiling Point

Sponsor ID	1100021	Albemarle Corporation		Create Date 2/5/2	004
CAS Number Consortia ID	32588764	Phthalimide, N,N'-ethyler	ebis[tetrabromo-	Study Number Completed:	1
Test Substance				Revision Date 2/5/2004	
Remark	Phthalimide, N,	N'ethylenebis[tetrabrom	0-		
Chemical Category					
>> Method/Guideli	ine followed				
Estimation					
>> GLP No			>> Year stu	ady performed 2003	
Results	Remarks for Me	etho			
	The boiling point chemical structu	was estimated using the was entered into the	e MPBPWIN module of E software program.	EPI WIN suite. Only the	
>> Precision =					
>> Boiling Point V	alue	887			
>> Upper Value		0			
>> Unit ©C					

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Boiling Point

Sponsor ID	1100021	Albemarle Corporation	ni ar Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	1
Consortia ID	1946		Completed:	Y
>> Pressur	760			
>> Pressure Un	ii mm Hg			
>> Decomposit	io No			
Results Rem	ark			

Conclusions				
	The boiling point	t was estimated to be 886.97 degrees C.		
Data Quality	Name of the state			
	Reliability			
Data Reliability I	Remarks			
				4
	······································			

EPA High Production Volume (HPV) Track Physical-Chemical End Point: Boiling Point

Sponsor ID	1100021	Albemarie Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID			Completed:	<u>Y</u>
Reference		-		
>> Remarks	All estimations w North Syracuse,	vere performed using EPI Win Suite, V New York.	.304, Syracuse Research Corpo	oraiton,
General	Sponsor: Albem	arle Corporation		
	5,500			

Environmental Fate and Pathway End Point: Transport between Environmental Compartments (Fugacity)

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N.N'-ethylenebis[tetrabromo-	Study Number	1111
Consortia ID	Section 1		Completed:	Y

Revision Date

2/5/2004

Test Substance

Remark

Phthalimide, N,N'-ethylenebis[tetrabromo-

Chemical Category

Method

>> Method/Guideline followed

Estimation

>> Test Type

Level III fugacity model

>> Year study performed

2003

Remarks for Metho

Transport was estimated using the Level III Fugacity Model included in EPIWIN Suite, v3.04. Only the chemical structure was entered into the software program. The model assumed emissions of 1000 kg/hr to each of air, water and soil, and 0 emissions to sediment.

Results

>> Media

Air (0.0106%), Water (1.09%), Soil (41.8%), Sediment (57.1%)

>> Distribution Concentratio

Fugacity (atm): Air 3.82e-25; Water 9.6e-32; Soil 1.6e-32, Sediment 1.7e-31

Reaction (kg/hr): Air 0.211; Waer 4.06; Soil 899; Sediment 53.2

Advection (kg/hr): Air 0.0198; Waer 21.1; Soil 0; Sediment 22.1

Reaction (%): Air 0.0211; Water 0.406; Soil 89.9; Sediment 5.32

Environmental Fate and Pathway End Point: Transport between Environmental Compartments (Fugacity)

Sponsor ID CAS Number	1100021 32588764	Albemarle Corporation Phthalimide, N.N'-ethylene	ois[tetrabromo-	Create Date 2/5/2004 Study Number 1
Consortia ID				Completed: Y
	Advection (%)	: Air 0.00198; Water 2.11	; Soil 0; Sediment 2.21	
Results Remark				
	Vapor Press 4 Liquid VP: 6.7 Melting Pt: 35 Log Kow: 9.8	Constant: 3.64e-21 atm-m l.15 e-19 mm Hg 7e-16 mm Hg (super-cod 0 deg C le+9 (calc by model)		
Conclusions				
			to sediment and soil in the e amounts are expected to pa	
Data Quality	Reliability			
Data Reliability Rema	ırks			
Reference				
>> Remarks	All estimations North Syracus	s were performed using E e, New York.	Pl Win Suite, V.304, Syracu	se Research Corporaiton,
General			W	

Environmental Fate and Pathway End Point: Transport between Environmental Compartments (Fugacity)

Sponsor ID	1100021	Albemarie Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	1
Consortia ID			Completed:	Y

Sponsor: Albemarle Corporation, Baton Rouge, LA	

Environmental Fate and Pathway End Point: Stability in Water

Application of the state of the	bemarle Corporation	Create Date Study Number	2/5/2004
Consortia ID		Completed:	N
		Revis	sion Date
Test Substance		T.G.V.	2/5/2004
Remark Phthalimide, N,N'-e	thylenebis[tetrabromo-		
Chemical Category			
<u>Method</u>			
>> Method/Guideline followed			
Estimation			
>> Test Type HYDROWIN v1.67	- A		U
>> GLP No		>> Year study performed	2003
Results	vas entered into the software progra		
>> Nominal concentration Not applica	ble		
>> Measured concentration Not appli	cable		
>> Precision >			
>> Hydrolysis Resul	12		
>> Upper Value	0		
>> Unit Months			

Environmental Fate and Pathway End Point: Stability in Water

Sponsor ID	1100021	Albemarle Corporation			Create Date	2	/5/200/
CAS Number	32588764	Phthalimide, N,N'-ethyler	nebis[tetrabromo-		Study Number		
Consortia ID	i Residentialistica. Partitionia 1995 billionia			444	Completed:	N	
>> pHVal	0						
>> Temperature	25 degrees C						
>>Breakdown pro	oduct No	, ************************************					
Results Remarks							
	to be extremely sl	d not calculate a half ow or t1/2 > 1 year. To pecified by the model	The estimation was I	based on the	amide functio		9
<u>Conclusions</u>							
		sults and the substar er, hydrolysis is not e					
Data Quality	Reliability						
Data Reliability Re	emarks						
Reference	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TO THE PERSON NAMED IN COLUMN T						

Environmental Fate and Pathway End Point: Stability in Water

Sponsor ID	1100021	Albemarie Corporation	Create Date 2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID			Completed: N
>> Remarks	All estimations v North Syracuse,	were performed using EPI Win Suite, V.304, S , New York.	Syracuse Research Corporaiton,
	Sponsor: Albem	arle Corporation, Baton Rouge, LA	

Sponsor ID 1100021 Albemarle Corporation CAS Number 32588764 Phthalimide, N.N'-ethylenebis[tetrabromo-	Create Date 2/5/2004 Study Number 1 Completed: N
Total Cultural	Revision Date
Test Substance Remark Phthalimide, N,N'-ethylenebis[tetrabromo-	2/5/2004
Chemical Category	
<u>Method</u>	
>> Method/Guideline followed	
Estimation	
>> Light Source Spe	ctrum in nm 1
>> Relative Intensity Not applicable	
>> Absorption Spectrum of Substanc Not applicable	
>> GLP No >> '	Year study performed 2003
Remarks for Method	
The potential for reaction with atmospheric hydroxyl rad module of EPI WIN suite. Only the chemical structure v	icals was estimated using the AOP vas entered into the program.
<u>Results</u>	
>> Concentration Value 0	
>> Unit	
>> Temperature	
>> Direct Photolysis Precisio	

Sponsor ID CAS Number Consortia ID	Albemarle Corporation 32588764 Phthalimide, N.N'-ethylenebis[tetr	Create Date abromo-Study Number Completed:	2/5/2004 1
>> Direct Photolysi	0		
>> Direct Photolysis U	pper valu 0		
>> Direct Photolysis U	ni		
>> Indirect Photolysis	Precisio		
>> Indirect Photolysi	0		
>> Indirect Photolysis	Upper value 0		
>> Indirect Photolysis	Uni		
>> Sensitizer			
>> Sensitizer Concent	ration >>	Sensitizer Unit	
>> Rate Constan			
>> Breakdown produc	<u>t</u>		
Results Remark			
	e overall OH rate constant was calculated to was estimated to be 0.271 days or 3.252 ho		
Conclusions			
Th	e substance is not expected to be persistent	in air.	

Sponsor ID	1100021	Albemarle Corporation		Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N.N'-ethylenebis[tetrab	oromo-	Study Number	10 00 21
Consortia ID	T. S. Santa			Completed:	N
Data Quality	Reliability				
Data Reliability Ren	narks				
					12.
Reference		7.70			
>> Remarks	All estimations v North Syracuse,	vere performed using EPI Win Su New York.	uite, V.304, Syracuse F	Research Corpora	iton,
<u>General</u>					, d

Sponsor ID 1100021 Albemarle Corporation Create Date 2/5/2004 CAS Number 32588764 Phthalimide, N,N'-ethylenebis[tetrabromo- Study Number 1 Consortia ID Completed: N
Revision Date
St Substance 2/5/2004 Remark Phthalimide, N,N'ethylenebis[tetrabromo-
remark remaining, N,N emplementation
nemical Category
ethod
> Method/Guideline followed
Estimation
> Test Type
BIOWIN, EPIWIN suite, v3.04
>> GLP No >> Year study performed 2003
> Contact Time 0
> Inoculum
Remarks for Method
The potential for biodegradation was estimated using the BIOWIN module of EPIWIN suite. Only the chemical structure was entered into the program.
<u>esults</u>
> Precision
> Degradation Value 0

Albemarle Corporation

1100021

Sponsor ID

Environmental Fate and Pathway End Point: Biodegradation

Create Date

CAS Number Consortia ID	32588764	Phthalimide, N,N'-ethylenebis	[tetrabromo-	Study Number Completed:
> Upper value		0		
Time Frame		0		
Time Units				
Results Remark				
nclusions	non-linear mode	ed that the substance "doe el. The program predicted t primary biodegradation tim	he substance would be "	ing either the linear or recalcitrant" with respect
ta Quality	Reliability			
ata Reliability Rer	marks			

Sponsor ID CAS Number	1100021 32588764	Albernarie Corporation Phthalimide, N,N'-ethylenebis[tetrabromo-	Create Date Study Number	2/5/2004
Consortia ID			Completed: N	1
>> Remarks	All estimations v North Syracuse,	vere performed using EPI Win Suite, V.304 New York.	1, Syracuse Research Corporaiton	j
General				

Oponsorio	14.40	Albemarie Corporation	100 mg 100 mg 100 mg 100 mg		Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylene	ebis[tetrabromo-		Study Number	2
Consortia ID					Completed:	Y
The second second						
					Re	vision Date
Гest Substance						2/5/2004
Remark	Phthalimide, N	,N'-ethylenebis[tetrabromo	o-; 99%+ purity		<u> </u>	
Chemical Category						
Method						
>> Method/Guideli	ine followed					
		n Law No. 117, 1973, Jap	an.			
>> Test Type	A. C.					
Ready biodegrad	fation					
>> GLP Unknown			_\ \V_	ear study per	formed 1	981
22 GLP OHKHOWII			16	ar Study per	iornied 1	301
>> Contact Time		14				
>> Inoculum						
Standard activate	ed sludge, NOS					
Remarks for Metho	od					
Remarks for welling		tandard activated aludas	20 ppm (w/w) colle	noted in Jane		
	Concentration	tandard activated sludge, of test chemical = 100 pp		ecteu iii Japai	II.	
		vf incubation = 25 +/- 1 ols = basal culture only; w	vater + test substar	nce		
	Positive contro	l = basal culture + aniline				
	Automated clos	sed-system oxygen consu ophotomer, 200-350 nm s	imption measuring scan range, measu	red wave leng	3OD-meter) 1th 254 nm, 1	10 mm
	quartz cell.	•				
Results						
[
>> Precision =	A STATE OF THE STA					

Sponsor ID	1100021	Albemarle Corporation		Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebi	s[tetrabromo-k	Study Number	2
Consortia ID		Company of the second of the s		Completed: Y	j.
>> Degradation Val	ue	0			
>> Upper value		0			
opper value					
>> Time Frame		28			
Same and the same					
>> Time Units Days	s				
>> Breakdown prod	luct No				
>> Breakdown prod	ino				
Results Remark					
		of test substance by BOD of aniline after 7 days = 679			1111
Conclusions		***************************************			
	The test substa	nce was not readily biodeg	radable under the condition	ons of this test.	
Data Quality	Reliability Go	od			
,					
Data Reliability Ren	narks				
	77 77 77 77 77 77 77 77 77 77 77 77 77				

Sponsor ID	1100021	Albemarie Corporation	Create Date 2	/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	, tors
Consortia ID			Completed: Y	j
Reference				
>> Remarks		ability Test of S-502. November 5, 1981. Chemectoin & Testing Institute, Japan. Tokyo.	nical Biotesting Center.	
General				

Ecotoxicity End Point: Acute Toxicity to Fish

Sponsor ID CAS Number Consortia ID	1100021 Albemarle Corpor. 32588764 Phthalimide, N,N'-	ethylenebis[tetrabromo- Study Number 1 Completed: Y
		Revision Date
<u> Fest Substance</u>		2/5/2004
Remark	Phthalimide, N,N'-ethylenebis[tetra	abromo-; 99%+ purity
Chemical Category		
Viethod		
>> Method/Guideli	ne followed	
MITI; In accordance	ce with Law No. 117. 1973. Japan	
>> Test Type		
Acute toxicity, 48	hour exposure	
>> GLP Unknown		>> Year study performed 1982
>> Species		
Orange-red Killifis	sh (Oryzias latipes)	
>> Analytical moni	toring No	
>> Exposure perior	d 48 hours	
>> Statistical Meth	od Not provided	
Remarks for Metho	od]	
	Adult killifish, avg body wt = 0.32 of Preparatoin of test media - Auxilia oil), Crystalized sugar. Test comp	eliminary test to the bioconcentration test in carp. gry agent: HCO-40 (polyoxyethylene hydrogenated castor obund (1.0 g) and crystallized sugar (10 g) were ground dn mixed thoroughly. Ion exchanged water was added to 1

Ecotoxicity End Point: Acute Toxicity to Fish

			orporation	Create Date	
CAS Number	32588764	Phthalimide,	N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID				Completed:	Υ
sults				 	
Nominal cond	centration 500 ppr	m (w/v)			
Measured cor	ncentration Not do	ne.			
Precision >					
Endpoint Typ	e LC50				
Endpoint Valu	ue	500	>> Unit used ppm		
Concentration	n Type Nominal		>> Endpoint Time	48	
Concentration	n Type Nominal		>> Endpoint Time	48	
			>> Endpoint Time	48	
Concentration Statistical res			>> Endpoint Time	48	
Statistical res	sult		>> Endpoint Time	48	
Statistical res	sult		>> Endpoint Time	48	
Statistical res	sult		>> Endpoint Time	48	
Statistical res	sult		>> Endpoint Time	48	
Statistical res	sult		>> Endpoint Time	48	
Statistical res	sult		>> Endpoint Time	48	
Statistical res	sult .				
Statistical res	sult .		>> Endpoint Time		
Statistical res	sult .				
Statistical res	sult .				

Data Reliability Remarks

Ecotoxicity End Point: Acute Toxicity to Fish

•		,	-
Sponsor ID	1100021	Albemarle Corporation	Create Date 2/5/20
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number
Consortia ID			Completed: Y
	This study was p study.	performed by an experienced laboratory as a pa	art of a fish bioconcentration
eference >> Remarks		ation of Compound S-503 by Carp. Chemical I	Biotesting Center. Chemicals
	Inspection & Tes	sting Institute, Japan. Tokyo.	
<u>Seneral</u>	Sponsor: Colum	bian Carbon Japan, Ltd.	
	Sponsor. Colum	ыан Сагрон Јаран, Еш.	

Ecotoxicity End Point: Acute Toxicity to Fish

Sponsor ID	1100021	Albernarie Corporation		reate Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[t	etrabromo- S	tudy Number	3
Consortia ID				ompleted:	N
		Control of the property of the control of the contr	700000 100000		
					Revision Date
est Substance Remark	Phthalimide N.N.	l'-ethylenebis[tetrabromo-		<u> </u>	2/6/2004
Kelliaik	r Hulaillinde, N,N	-euryienebisţieuabiomo-			
Chemical Category					
<u>flethod</u>					
>> Method/Guideli	ne followed				
Estimation					
>> Test Type					
LC50, 96 hour					
>> GLP No	***************************************		>> Year study perfor	med 2003	
>> Species					
Not specified					
>> Analytical moni	toring Not appli	cable			
>> Exposure perio	d 96 hours				
>> Statistical Meth	od Not applicab	le			
Remarks for Metho	od				
		e selected the class "imides"	s used to estimate the 96 hours for the estimation. Only the		

Results

Ecotoxicity End Point: Acute Toxicity to Fish

Sponsor ID	1100021	lbemarle Corporation		Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylen	ebis[tetrabromo-	Study Number	3
Consortia ID				Completed:	N
>> Nominal conce	entration Not applic	able			
>> Measured con	centration Not applic	able			
>> Precision =					
>> Endpoint Type	LC50				
>> Endpoint Value	е	0 >> Unit u	sed mg/L		
(MANAGAA)		Terminal Control of Co			
>> Concentration	Type Nominal	>> Endpo	int Time	96	
>> Statistical res					
Not applicable.	uit				
Results Remark					
				g/L and indicated that the	
				ed effect. Further, the predic I daphnid acute toxicity.	ted
		The state of the s			
onclusions					
	The substance is n	ot expected to be acu	tely toxic to fish at its	s limit of water solubility.	
			,		
ata Quality	Reliability				
	\\\\\\\				
Data Reliability Re	marks				

Ecotoxicity End Point: Acute Toxicity to Fish

Sponsor ID	1100021	Albemarte Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID			Completed:	N
Reference				
>> Remarks	All estimations w North Syracuse,	vere performed using EPI Win Suite, V.304 New York.	I, Syracuse Research Corpora	aiton,
<u>General</u>	Sponsor: Albema	arle Corporation		

View of End Points for a Data Set

Sponsor		1100021	Albemarle Corporation	on	CreateDate: 2/5/2004
CAS No	32588	764	Phthalimide, N.N'-etl	nylenebis[tetrabromo-	
Consortia					
Physical/Chem		Melting F	Point	Ecotoxicity	Acute Toxicity to Fish
Properties		Boiling P	oint The second		Toxicity to Aquatic Plants
		Vapor Pr	essure		Acute Toxocity to Aquatic Invertebrates
		Partition	Coefficient	Health	Acute Toxicity
		Water So	lubility		Genetic Toxicity in Vivo
Environmental	Fate	Photodeg	gradation		Genetic Toxicity in Vitro
		Stability i	n Water		Repeat Dose Toxicity
		Transpor			Reproductive Toxicity
		Biodegra	dation		Developmental Tox/Teratogenicity

Environmental Fate and Pathway End Point: Photodegradation

Remark Phthalimide, N,N'-ethylenebis[tetrabromo- emical Category thod Method/Guideline followed Estimation Light Source Sunlight >> Light Source Spectrum in nm Relative Intensity Not applicable Absorption Spectrum of Substanc Not applicable The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.	Sponsor ID	1100021	Albemarie Corporation	Create Date 2/5/200
Remark Phthalimide, N.N'-ethylenebis[tetrabromo- mical Category thod Method/Guideline followed Estimation Light Source Sunlight >> Light Source Spectrum in nm Relative Intensity Not applicable Absorption Spectrum of Substanc Not applicable GLP No >> Year study performed 2003 marks for Method The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.	CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number
Remark Phthalimide, N,N'-ethylenebis[tetrabromo- mical Category chod Method/Guideline followed Estimation Light Source Sunlight >> Light Source Spectrum in nm Relative Intensity Not applicable Absorption Spectrum of Substanc Not applicable GLP No >> Year study performed 2003 marks for Method The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.	Consortia ID	A STATE THE STATE OF THE STATE		Completed: N
Remark Phthalimide, N,N'-ethylenebis[tetrabromo- semical Category thod Method/Guideline followed Estimation Light Source Sunlight >> Light Source Spectrum in nm Relative Intensity Not applicable Absorption Spectrum of Substanc Not applicable Absorption Spectrum of Substanc Not applicable Absorption Spectrum of Substanc Not applicable The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.				Revision Date
emical Category thod Method/Guideline followed Estimation Light Source Sunlight >> Light Source Spectrum in nm Relative Intensity Not applicable Absorption Spectrum of Substanc Not applicable The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.	st Substance			2/5/2004
Method/Guideline followed Estimation Light Source Sunlight >> Light Source Spectrum in nm Relative Intensity Not applicable Absorption Spectrum of Substanc Not applicable GLP No >> Year study performed 2003 Permarks for Method The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.	<u> </u>		,N'-ethylenebis[tetrabromo-	
Estimation > Light Source Sunlight >> Light Source Spectrum in nm > Relative Intensity Not applicable > Absorption Spectrum of Substanc Not applicable > GLP No >> Year study performed 2003 emarks for Method The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program. Sults Sults Substanc Substanc Not applicable				
> Light Source Sunlight >> Light Source Spectrum in nm > Relative Intensity Not applicable > Absorption Spectrum of Substanc Not applicable > GLP No >> Year study performed 2003 emarks for Method The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program.		line followed		
> Relative Intensity Not applicable > Absorption Spectrum of Substanc Not applicable > GLP No	Estimation			
> Absorption Spectrum of Substanc Not applicable > GLP No	> Light Source	Sunlight	>> Light Source Sp	ectrum in nm
> GLP No >> Year study performed 2003 The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program. sults > Concentration Value 0	> Relative Intens	sity Not applica	ble	
> GLP No >> Year study performed 2003 Remarks for Method The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program. sults > Concentration Value 0 > Unit	> Absorption Sp	ectrum of Subst	anc Not applicable	
The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program. Securits Concentration Value 0 Unit			Level	
The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program. sults Concentration Value 0 Unit	> GLP No		>>	Year study performed 2003
The potential for reaction with atmospheric hydroxyl radicals was estimated using the AOP module of EPI WIN suite. Only the chemical structure was entered into the program. sults Concentration Value 0 Unit				W
module of EPI WIN suite. Only the chemical structure was entered into the program. sults Concentration Value 0 Unit	emarks for Meth			
> Concentration Value 0		The potential for module of EPI	or reaction with atmospheric hydroxyl ra WIN suite. Only the chemical structure	edicals was estimated using the AOP was entered into the program.
> Unit	esults			
	> Concentration	Value	0	
> Temperature	> Unit		· Commenter of the control of the co	
	> Temperature			

Environmental Fate and Pathway End Point: Photodegradation

Sponsor ID CAS Number Consortia ID		narle Corporation	is[tetrabromo-	Create Date Study Number Completed:	2/5/2004 1
>> Direct Photolysi		0			
>> Direct Photolysi >> Direct Photolysi		0			
>> Indirect Photoly	sis Precisio		7000		
>> Indirect Photoly >> Indirect Photoly		0			
>> Indirect Photoly	sis Uni				
>> Sensitizer >> Sensitizer Conc	entration		>> Sensitizer Unit		
>> Rate Constan >> Breakdown proc	duct				
Results Remark	The overall OH rate or	onstant was calculat	ed to be 39.4691 E-1	2 cm3/molecule-sec.	The half
				12-hr day and 1.5E6 C	
<u>Conclusions</u>	The substance is not e	expected to be pers	stent in air.		
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			

Environmental Fate and Pathway End Point: Photodegradation

Sponsor ID	1100021	Albemarle Corporation	Create Date 2/5/2004
CAS Number	32588764	Phthalimide, N.N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID			Completed: N
Data Quality	Reliability		
Data Reliability R	Remarks		
Reference	· · · · · · · · · · · · · · · · · · ·		
>> Remarks	All estimations North Syracuse	were performed using EPI Win Suite, V.304, Sy , New York.	racuse Research Corporaiton,
General			

Environmental Fate and Pathway End Point: Biodegradation

	Albemarle Corporation	Create Date 2/5/2004
CAS Number	32588764 Phthalimide, N,N'-ethylene	bis[tetrabromo- Study Number 1
Consortia ID		Completed: N
	-	Revision Date
st Substance		2/5/2004
Remark	Phthalimide, N,N'ethylenebis[tetrabromo-	-
nemical Category		
ethod		
> Method/Guidel	ine followed	
Estimation		
> Test Type		
BIOWIN, EPIWI	N suite, v3.04	
·> GLP No		>> Year study performed 2003
>> Contact Time	0	
> Inoculum		
Remarks for Meth	Dd	
	The potential for biodegradation was esting Only the chemical structure was entered	mated using the BIOWIN module of EPIWIN suite.
	only the chemical structure was entered	into the program.
sults		
> Precision		
> Degradation Va	ue 0	

Albemarle Corporation

1100021

Sponsor ID

Environmental Fate and Pathway End Point: Biodegradation

Sponsor ID	1100021	Albemarie Corporation	Create Date 2/5	5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	185
Consortia ID	Total III.		Completed: N	
>> Upper value		0		
>> Time Frame		0		
>> Time Units				
p				
>> Breakdown prod	duct			
Results Remark				
				MANT
	ę.			5
Conclusions				
	non-linear mode	ed that the substance "does not biodegrade el. The program predicted the substance wo	fast" using either the linear or ould be "recalcitrant" with respect	
	to an ultimate or	primary biodegradation timeframe.		
Data Quality	Reliability			********
Data Reliability Rei	marks			
Reference				

EPA High Production Volume (HPV) Track Environmental Fate and Pathway End Point: Biodegradation

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N.N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID			Completed:	N
>> Remarks	All estimations v North Syracuse	were performed using EPI Win Suite, V.304, Sy , New York.	racuse Research Corpora	aíton,
		•		
<u>General</u>				

EPA High Production Volume (HPV) Track Toxicity End Point: Acute Toxicity

Sponsor ID 1100021 Albemarie Corporation	Create Date 2/5/2004
CAS Number 32588764 Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID	Completed: Y
	Revision Date
est Substance	2/6/2004
Remark Phthalimide, N,N'-ethylenebis[tetrabromo-	
Remark Tritianimoe, N,N -ctriyichebis[terabiomo-	
Chemical Category	
<u>flethod</u>	
>> Method/Guideline followed	
Other	
>> GLP Unknown >> Year study pe	erformed 1976
>> Species	
rat	
>> Strain Sherman-Wistar	
>> Sex Both	
>> Number of males per dose 5 >> Number of females per do	ose 5
>> Vehicle Corn oil	
>> Route of Administratio Oral, by gavage	
Remarks for Metho	

EPA High Production Volume (HPV) Track Toxicity End Point: Acute Toxicity

Sponsor ID	1100021	Albemarle Corporation	Create Date 2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID			Completed: Y
	dosing. The test	ween 200 and 300 gm. Deprived of food, article was administered as a 33% w/v so The animals were observed daily for 14	uspension in corn oil at a single
Results >> Precision	,		
>>Acute Lethal Valu	ıe	7500	
>> Unit mg/kg-bw			
>> Deaths per Dos No animals died or	n-test.		
Results Remark			
<u>Conclusions</u>			
	The oral LD50 in	the rat was > 7500 mg/kg, the highest do	se tested.
Data Quality	Reliability		

2/11/2004

Data Reliability Remarks

EPA High Production Volume (HPV) Track Toxicity End Point: Acute Toxicity

Sponsor ID	1100021	Albemarie Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID			Completed: Y	J .
Reference	limina.			***************************************
······································				
>> Remarks		ite Oral Toxicity - Rats. Cities Service Company A. January 1976.	/ - LTW-31-1. Biosearch, In	IC.
>> Remarks			/ - LTW-31-1. Biosearch, In	IC.
>> Remarks			/ - LTW-31-1. Biosearch, In	IC.
			r - LTW-31-1. Biosearch, In	ic.
	Philadelphia, PA	A. January 1976.	r - LTW-31-1. Biosearch, In	ic.
>> Remarks	Philadelphia, PA		r - LTW-31-1. Biosearch, In	ic.

Toxicity End Point: Repeated Dose Toxicity

Sponsor ID 1100021 Albemarle Co	prporatio	n N	Create Date	2/5/2004
CAS Number 32588764 Phthalimide,	N.N'-eth	ylenebis[tetrabromo-	Study Number	1
Consortia ID			Completed:	Y
			Revisi	on Date
Test Substance				2/6/2004
Remark Phthalimide, N,N'-ethylenebis	[tetrab	romo-; Tested as the commercial pr	oduct BT-93	
Chemical Category				
Method				
>> Method/Guideline followed				
Other				
>> GLP Unknown		>> Year study peri	ormed 1976	
>> Species				
rat				
>> Strain Mammal strai Sprague-Dawley				
>> Sex M				
>> Number of males per dose	10	>> Number of females per dose		0
>> Route of Administratio Diet	J			
			4.	
>> Exposure Period 28				
>> Frequency of treatment Daily				
>> Dose 0.01, 0.1, and 1% in the diet				**************************************
e.o.i, e.i, and i /o in the diet			WA	
>> Control Group Yes				
>> Post observation perio None				
>> Statistical Method T-test: body wt, feed cor	neumn t	ion organ wt		
1 - Cest. Dody Wt, reed Cor	isumpl	ion, organ wi		
Remarks for Metho				

Toxicity End Point: Repeated Dose Toxicity

Sponsor ID	1100021 Albemarle Corporation	Create Date 2/5/2004
CAS Number	32588764 Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID		Completed: Y
	See results.	
<u>sults</u>		
> NOAEL Precis	sio >=	
> NOAEL dos	1000 >> Unit mg/kg in feed	
> NOAEL Effec	No adverse effects noticed at the highest dose tested, 1% i	in the diet.
> LOAEL Precis	ion >	
> LOAEL dos	1000 >> Unit mg/kg in feed	
> LOAEL Effec	None noted. LOAEL > highest dose tested.	
> Actual dose re	eceived by dose level by sex	
Not available.		
> Toxic respons	ie i	
	None observed.	
> Statistical resu	ult	
See results.		

The test article was fed to Sprague Dawley male rats (n=10/group) at 0, 0.01, 0.1 and 1% of the diet for 28 days. No mortality occurred during the study. No clinical signs of toxicity were observed. Mean body weights, body weight gains, food consumption and organ weights were not affected by treatment. Organs weighed at necropsy were liver, heart, spleen, kidney, and testes. Hematology and serum chemistry parameters were not affected by treatment. No gross or microscopic lesions attributable to test article were detected at necropsy or on light microscopy. The 28-day NOEL was 1% of the diet. This is estimated to be ~ 1,000 mg/kg/d using the assumption of consumption of 25 g diet per 250 g rat per day. This study was performed prior to the adoption of Good Laboratory Practices or EPA/OECD guidelines. (Report Cities Service Company, CITEX BT-93. Rat – 28-Day Feeding Study –

Toxicity End Point: Repeated Dose Toxicity

Sponsor ID	Albemarle Corporation		Create Date 2/5/2004
CAS Number	32588764 Phthalimide, N,N'-ethylene	bis[tetrabromo-	Study Number 1
Consortia ID			Completed: Y
	Study Code T-626. 1976. Warf Institute	, Inc. Madison, WS)	
Conclusions			
	The NOEL was 1% of the diet, the highe mg/kg/day.	st dose tested. This is approxim	ately equal to 1000
Data Quality	Reliability		
Data Reliability R	emarks		
	This study is old and does not conform to adverse effects is consistent with a lack developmental toxicity study at a compa	of toxicity observed in this specie	es in a modern
Reference			
>> Remarks	Report Cities Service Company, CITEX 626. 1976. Warf Institute, Inc. Madisor		tudy – Study Code T-
<u>General</u>			
	Sponsor - Cities Service Company.		

Toxicity End Point: Repeated Dose Toxicity

Sponsor ID 1100021 Albemarle Corporation	
Sponsor ID 1100021 Albemarle Corporation	Create Date 2/5/2004
CAS Number 32588764 Phthalimide, N,N'-ethylenebis	tetrabromo- Study Number 2
Consortia ID	Completed: Y
	THE STRUCTURE HE WISH STATE OF THE STATE OF
	Revision Date
Test Substance	2/6/2004
Remark Phthalimide, N,N'-ethylenebis[tetrabromo-;	rested as the commercial product B1-93
Chemical Category	
<u>Method</u>	
>> Method/Guideline followed	
Other	
>> GLP Unknown	>> Year study performed 1978
>> Species	
rat	
>> Strain Mammal strai Sprague-Dawley	
>> Sex Both	
>> Number of males per dose 15 >> Nu	mber of females per dose 15
>> Route of Administratio Oral, in the diet	
>> Exposure Period 90	
>> Frequency of treatment Daily	
- Trequency of creatment	
>> Dose 0.01, 0.1, and 1.0% of the diet	
>> Control Group Yes	
Doct above tion waits (42 days	
>> Post observation perio 42 days	·
>> Statistical Method Analysis of Variance	
, mayoro or variance	
Demoules for Mothe	

Toxicity End Point:
Repeated Dose Toxicity

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	2
Consortia ID	A service of the serv		Completed:	Y_

Rats were acclimated for 12 days prior to study initiation. All rats were housed individually in wire cages. The test diets were mixed prior to initiation of the study and weekly thereafter. Food was replinished weekly. After 90 days, all animals were placed on the control diet for 46 days.

Animals were observed twice daily during the work week and once daily on week ends. Body weights were recorded initially and weekly thereafter. Food consumption was recorded for one week prior to initiation and weekly thereafter. Blood was drawn from the orbital sinus for hematology and serum chemistry exams on days 0 (all rats), 45 (10/sex/dose), and 92 (10/sex/dose). Hamatology exams consisted of hemoglobin, hematocrit, differential, leukocytes, and erythrocytes. Serum chemistries included protein, glutamic pyruvic transaminase, alkaline phosphatase, BUN, glucose. Urine was collected on days 0 (all animals), 45 (10/sex/dose) and 90 (10/sex/dose) for analysis. The urinalysis included color. turbidity, pH and occult blood. On day 92, 3/sex/dose were randomly selected and sacrificed by CO2 exposure. A complete necropsy was performed. The liver, kidneys, heart, and thyroids were weighed and the relative organ weights calculated. The following were fixed in formalin: adrenals, bone marrow, brain, esophagus, heart, intestine, kidney, liver, lung, oral mucosa, tissue mass, prostate, salivary gland, spleen stomach, testes or ovaries, tongue. thyroid, urinary bladder, uterus, gross lesions. All tissues from the 90-day and recovery sacrifices were examined microscopically from animals in the control and high dose group. The tissues were stained with hematoxylin and eosin.

Body weights, food consumption, hematology and organ weights were compared using Analysis of Variance. $P \le 0.5$ or 0.1.

Results

>> NOAEL Precisio	>=		
>> NOAEL dos		100	00 >> Unit mg/kg-bw
>> NOAEL Effec	No adve	erse effects were	re detected.
>> LOAEL Precision) >=		
>> LOAEL dos		1000	>> Unit mg/kg-bw
>> LOAEL Effec		No adverse	effects were detected.
>> Actual dose rece	ived by	dose level by s	sex
Not available			
>> Toxic response			

Toxicity End Point: Repeated Dose Toxicity

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID	en e		Completed:	Ŷ
Consortia ID			Completed:	
	No toxicity was	observed.		
>> Statistical resu	14			

Results Remark

See results.

EBTBP was administered to four groups of Sprague Dawley rats (n=15/sex/group) at 0, 0.01, 0.1 and 1.0% of the diet for 90 days followed by 46 days during which the rats were fed control diet. No changes in hematology or serum chemistry values related to treatment were detected on study days 0, 45, 92. No effect of treatment was found on urinalysis (d 0, 45 and 90). The mean relative and absolute organ weights of the liver, kidney, heart, and thyroids from the control and 1.0% groups were statistically comparable. Several animals died on test from non-test article related causes (most deaths were related to collection of blood for hematology and serum chemistry evaluations). Gross necropsy from animals dieing on test and sacrificed on days 92, 134, 135 and 136 revealed no test article-related gross lesions. No test article related lesions were detected on histopathology. The 90-day NOEL was 1% of the diet. This is estimated to be ~ 1,000 mg/kg/d using the assumption of consumption of 25 g diet per 250 g rat per day. This study was performed prior to the adoption of Good Laboratory Practices or EPA/OECD guidelines. (Report: 90-Day Feeding Study in Rats Evaluating Cities Service Compound RW-4-178B. Laboratory Number: 8E-0183. September 19, 1978. Cannon Laboratories, Inc. Reading, PA)

Conclusions

The NOEL was 1% in diet for 90-days. This is approximately equivalent to 1000 mg/kg/day.

Data Quality

Reliability

Data Reliability Remarks

This study is old and does not conform to current guidelines. Nonetheless, the results are considered valid. The results are consistent with a lack of effects seen in a rat 28 day study performed in separate laboratory and with the lack of toxicity observed in a modern rat developmental study performed in a third laboratory. All three studies were performed at a comparable dose.

Reference

Toxicity End Point: Repeated Dose Toxicity

Sponsor ID	1100021	Albemarie Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	2
Consortia ID	urt see a kalendar Karan		Completed:	<u>Y</u>
>> Remarks		Feeding Study in Rats Evaluating Cities Servic nber: 8E-0183. September 19, 1978. Cannon		
<u>General</u>	Sponsor: Cities	Sorvices Company Norman OK		
	Sponsor. Cities	Services Company, Norman, OK.		

Toxicity End Point: Developmental Toxicity/Teratogenicity

Sponsor ID 1100021	Albemarle Corporation	Create Date 2/5/2004
CAS Number 32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number
Consortia ID		Completed:
		Revision Date
st Substance		2/6/2004
Remark Phthalimide, N,N'	ethylenebis[tetrabromo-; tested as the comme	ercial product Saytech BT-93
nemical Category		
>> Method/Guideline follow	red	
EPA OPPTS Method 870.3700		
> GLP Yes	>> Year stu	idy performed 1988
> Species		
rat		
> Strain Mammal strai Sprague-E	Dawley	
> Sex F		
> Number of males per dose	0 >> Number of females p	er dose 25
> Route of Administratio Oral by	gavage in corn oil	
> Days of Gestation 6-15		**************************************
> Frequency of treatment Once	daily	
> Doses 100, 500, 1000 mg/kg/day		
> Control Group Yes	Concurrent controls	
> Statistical Method		
All analyses were 2-tailed for a signicompared to the control group or by under Remarks for Method.	ficance level of 5% unless otherwise specified an individual group by group comparison dep	. The treated groups were ending on the test. Continued
Remarks for Metho		

Toxicity End Point:
Developmental Toxicity/Teratogenicity

Sponsor ID	1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	1
Consortia ID			Completed:	

The test article was administered to four groups of 25 mated female Sprague Dawley rats by gavage in corn oil at doses of 0, 100, 500 or 1000 mg/kg/d on gestation days 6-15. The animals were observed daily for clinical signs of toxicity. Body weights were measured on gestation days 0, 6, 9, 12, 16, and 20. Food consumption was measured daily. All females were sacrificed on gestation day 20 and subjected to a cesarean section. Fetuses were individually weighed, sexed, and examined for external, visceral and skeletal abnormalities.

ANOVA followed by Dunnett's test was used to analyze maternal and fetal data including body weight, food consumption, number of viable fetuses, implantation sites, and copora lutea. A one-tailed Mann-Whiney was the test used for analyses of number of postimplanation loss, dead fetuses, and resorptions. Fetal sex ratios were analyzed using the Chi square test. A one-tailed Fisher's exact test was used for the number of fetuses and litters with variations and malformations.

Results

>> Maternal Precision/NOAEL	>=				
>> Maternal NOAEL dos	1000		>> Unit used	mg/kg-bw	
>> Maternal NOAEL effect No	adverse effec	cts			
>> Maternal Precision/LOAEL	>				
>> Maternal LOAEL dose	1000		>> Unit used	mg/kg-bw	
>> Maternal LOAEL effect No	adverse effec	ts			
>> Developmental Precision/N	IOAE >=				
>> Developmental NOAEL dos		1000	>> Unit used	mg/kg-bw	
>> Developmental NOAEL effe	ect No advers	se effects			
>> Developmental Precision/N	IOAE >				
>> Developmental LOAEL dos	e	1000	>> Unit used	mg/kg-bw	
>> Developmental LOAEL effe	ct No advers	se effects			
>> Actual dose					
1000 mg/kg/day	-7778.01.4				
>> Maternal data with dose le	vel (with NOA	\EL value).			

Survival was 100% in the control and treated groups. There were no abortions or premature deliveries. The pregnancy rate was 100% in all groups. No treatment-induced clinical signs were observed.

>> Fetal data with dose level (with NOAEL value).

EPA High Production Volume (HPV) Track Toxicity End Point:

Li A ingili	oddellon	Volume (iii V) Hack	Developmental Toxicity/Teratogenicity	
Sponsor ID	1100021	Albemarie Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabrom	o- Study Number	1
Consortia ID	Service Constitution of the Constitution of th		Completed:	The state of the s
		gravid uterine weight, implantation sites comparable in control and treated gr	es, viable fetuses, late resorptions, fetal roups.	
>> Statistical resu	ilt			i
No indication of	maternal toxicity	or teratogolical effects.		
Results Remark				
	treatment-relate weights, food c	ortality or clinical signs of toxicity were ed differences were noted among the consumption, necropsy or caesarean s or developmental variations were dete	groups with respect to maternal body section data. No treatment-induced fetal	
Conclusions				
	The maternal a	and fetal NOEL >= 1,000 mg/kg/d.		
Data Quality	Reliability	High		
Data Reliability Rer	marks			
	This study was	performed at an experienced laborate	ory using modern guidelines.	
Reference				
>> Remarks		Teratology Study in Rats with BT-93. orn Life Sciences, Inc. Spencerville, 0	Final Report. SLS Study No. 3196.4. DH	
General				j
-	Sponsor - Ethy	l Corporation, Baton Rouge, LA		

Toxicity End Point:
Developmental Toxicity/Teratogenicity

Sponsor ID 1100021	Albemarle Corporation	Create Date	2/5/2004
CAS Number 32588764	Phthalimide, N.N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID		Completed:	
Property of the second	Alleria (n. 1921) 4 Alleri	en e	
		Revision	Date
<u>st Substance</u>		2/6	6/2004
Remark Phthalimide, N,N	l'ethylenebis[tetrabromo-; tested as the comme	ercial Saytech BT-93 proc	luct
hemical Category			
ethod >> Method/Guideline follo	wed		
EPA OPPTS Method 870.3700			
>> GLP Yes	>> Year stu	ıdy performed 1988	
>> Species			
rabbit			
Lancata and the second and the secon	land white		
>> Sex F			
>> Number of males per dose	0 >> Number of females p	er dose	20
>> Route of Administratio Oral b	y gavage in carboxymethyl cellulose		
>> Days of Gestation 7-19		***************************************	
>> Frequency of treatment Once	e daily		
>> Doses 1000			
>> Control Group Yes	Concurrent controls		
>> Statistical Method			
All analyses were 2-tailed for a sigr compared to the control group or b under Remarks for Method.	nificance level of 5% unless otherwise specified y an individual group by group comparison dep	 The treated groups we ending on the test. Cont 	re inued
Remarks for Metho			

Toxicity End Point:
Developmental Toxicity/Teratogenicity

Sponsor ID	1100021	Albemarie Corporation	Create Date	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	2
Consortia ID			Completed:	—

EBTBP was administered to two groups of 20 mated female New Zealand White rabbits each by gavage in methyl cellulose at dose of 0 or 1,000 mg/kg/d on gestation days 7-19. The animals were observed daily for clinical signs of toxicity. Body weights were measured on gestation days 0, 7, 10, 13, 19, 24 and 29. Food consumption was measured daily. All females were sacrificed on gestation day 29 and subjected to a cesarean section. Fetuses were individually weighed sexed an examined for external, visceral and skeletal abnormalities.

ANOVA followed by Dunnett's test was used to analyze maternal and fetal data including body weight, food consumption, number of viable fetuses, implantation sites, and copora lutea. A one-tailed Mann-Whiney was the test used for analyses of number of postimplanation loss, dead fetuses, and resorptions. Fetal sex ratios were analyzed using the Chi square test. A one-tailed Fisher's exact test was used for hte number of fetal variations and malformations utilizing the dam (litter) as the experimental unit.

This study was conducted according to US TSCA Guidelines and Good Laboratory Practices.

Results

>> Maternal Precision/NOAE	EL >=				
>> Maternal NOAEL dos	1000		>> Unit used	mg/kg-bw	
>> Maternal NOAEL effect	Vo adverse effe	cts			72
>> Maternal Precision/LOAE	:L >				
>> Maternal LOAEL dose	1000		>> Unit used	mg/kg-bw	
>> Maternal LOAEL effect	No adverse effe	cts			
>> Developmental Precision	/NOAE >=				
>> Developmental NOAEL d	os	1000	>> Unit used	mg/kg-bw	
>> Developmental NOAEL e	ffect No advers	se effects			
>> Developmental Precision	/NOAE >				
>> Developmental LOAEL d	ose	1000	>> Unit used	mg/kg-bw	AR 84.6************************************
>> Developmental LOAEL et	ffect No advers	se effects			
>> Actual dose					
1000 mg/kg/day		777 (848)			
>> Maternal data with dose	level (with NO	AEL value).			

Survival was 100% in the control and treated groups. There were no abortions or premature deliveries. The pregnancy rate was 90% in the control and 95% in the high dose group.

EPA High Production Volume (HPV) Track Toxicity End Point: Developmental Toxicity/T

		i voidino (iii v) iidok	Developmental Toxicity/Teratogenicity
Sponsor ID	1100021	Albemarle Corporation	Create Daté 2/5/2
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabrome	o- Study Number
Consortia ID	(1) and	THE COURT SECTION OF THE SECTION OF	Completed:
>> Fetal data with	dose level (w	ith NOAEL value).	
		eights were not adverserly affected by t and variations were not indicatve of a ter	
>> Statistical resu	ilt		
No adverse effe	cts were noted		
	······································		
Results Remark			
onclusions	malformation was 1,000 m Laboratory P		erved. The maternal and fetal NOEL ording to US TSCA Guidelines and Good ord in Rabbits with BT-93. Final Report.
		r maternal toxicity, embryo/fetal toxicity e highest dose tested.	or fetal teratogenicity was 1000
ta Quality	Reliability	High	
ata Reliability Rer	narks		
	This study wa	as performed at an experienced laborato	ory using modern guidelines.
eference			
> Remarks	D. E. Rodwel 3196.5. 1988	I. Teratology Study in Rabbits with BT-9 3. Springborn Life Sciences, Inc. Spend	93. Final Report. SLS Study No. cerville, OH
neral	<u> </u>		
	Sponsored by	/ Ethyl Corporation, Baton Rouge, LA	

Toxicity End point: Toxicity in Vitro (Gene Mutations)

	Albemarie Corporation		Create Date 2/5/20
CAS Number	32588764 Phthalimide, N,N'-ethyle	nebis[tetrabromo-	Study Number
Consortia ID			Completed: Y
		and the Control of th	And the second s
			Revision Date
est Substance			2/6/2004
,	Distribuida NINI attadas abiatatas basa		<u></u>
Remark	Phthalimide, N,N'-ethylenebis[tetrabro	110-	
Chemical Category			
<u>lethod</u>			
>> Method/Guidel	ne followed		
MITI, the Indust	ial Safety and Health Law, 1979 (a mod	fication of the Ames tet)	
>> Test Type			
Ames test		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
>> System of Test	in Bacterial		
>> GLP Unknowr		>> Year study	performed 1982
Olikilowi	All	-> Tear Study	performed 1302
>> Species			
	murium, E. Coli WP2 uvrA		
>> Metabolic Activ			
			·
Rat Liver micros	Jilles (3-a)		
>> Concentration			
10, 50, 100, 500	1000, 5000 ug/plate		
>> Statistical Met	Not specified in English translation		
Remarks for Me	tha		
Remarks for Me		[A1538 TANS and TA100]	E Coli WP2 mrs mars
	Salmonella strains TA1535, TA1537, Tused in this modification of the Ames	assay. All strains were tested v	with and without
	metabolic activation. Both solvent and The positive controls were 2-(2-furyl)-3	positive controls were used. (5-nitro-2-furyl)acrylamide. N	The solvent was DMSO.
	nitrosguanidine, 9-Aminoacridine, 2-Ni	trofluorene, and 2-Aminoantra	cene.

Toxicity End point: Toxicity in Vitro (Gene Mutations)

Sponsor ID	1100021	Albemarie Corporation	Create Date 2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 1
Consortia ID			Completed: Y
Results			
>> Result Negati	ve		
>> Cytotoxic Con	centratio		
Not cytotoxic			
>> Genotoxic Effe	ect Unconfirm	ned	1,000,000
>> Statistical resu	ilt		
Not provided			
Results Remark	No mutageni positive cont	c activity was detected in the 5 Salmonella strair rols responded as expected.	ns or in the E.coli strain. The
Data Quality	Reliability	Good	
Data Reliability Re	marks		

2/11/2004

<u>Reference</u>

Toxicity End point: Toxicity in Vitro (Gene Mutations)

Sponsor ID	1100021	Albemarle Corporation	Create Date 2	2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number	
Consortia ID			Completed: Y	
>> Remarks	the Ames Salmo	utagenicity Evaluation of Ethylene-1,2-bis(3 nella/Microsome Assay. February 18, 1982 Japan. Induced Mutation Division.		
<u>General</u>				······································

Toxicity End point: Toxicity in Vitro (Gene Mutations)

Sponsor ID CAS Number Consortia ID		Albemarie Corporation Phthalimide, N,N'-ethyleneb	is[tetrabromo-	Create Date Study Number Completed:	2/5/2004 2
T - 4 0 L - 4					on Date
Test Substance					2/6/2004
Remark	Phthalimide, N,N'e	ethylenebis[tetrabromo-			
Chemical Category					
<u>Method</u>					
>> Method/Guidelin	e followed				
Other	Man				
>> Test Type					
Ames test	ALWA ALWA ALWA ALWA ALWA ALWA ALWA ALWA				
>> System of Testin	Bacterial				
>> GLP Unknown			>> Year study p	performed 1978	8
>> Species					
saccharomyces ce	erevisiae, Salmone	lla typhimurium			
>> Metabolic Activa	tion				
Male Sprague Dav	vley rats, induced v	with Arochlor 1254, Hep	atic S-9		
>> Concentration					
1, 10, 50, 100, 500), 1000 ug/plate				
>> Statistical Metho	Not specified				
Remarks for Meth	10	•			
	and tested both wi	th and without metabolion rent was DMSO. Five d	8 and 100 and Sacchromyco c activation. Solvent and nei ifferent positive controls wer	gative controls w	ere

Toxicity End point: Toxicity in Vitro (Gene Mutations)

Sponsor ID	1100021	Albemarle Corpora	tion 36 general			Create Date	2	/5/2004
CAS Number	32588764	Phthalimide, N,N'-e	ethylenebis[tetrab	romo-		Study Number		2
Consortia ID				Partition and partition of the control of the contr		Completed:	Y	
Results								
>> Result Negative								
>> Cytotoxic Concen	ntratio							
Cytotoxicity not obs	served.		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
>> Genotoxic Effect	Unconfirme	d						
>> Statistical result								
Not provided,								The state of the s
	No mutagenic appropriately.	activity was associa	ated with the te	st article. The	positive	controls perfor	med	
Conclusions								***************************************
	The test substa	ance was not mutaç	genic under the	conditions of	f this test.			
Data Quality F	Reliability						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Data Reliability Rema	arks							

Reference

Toxicity End point: Toxicity in Vitro (Gene Mutations)

Sponsor ID	1100021	Albemarie Corporation	Create Date 2/5/2004
CAS Number	32588764	Phthalimide, N,N'-ethylenebis[tetrabromo-	Study Number 2
Consortia ID			Completed: Y
>> Remarks		narles S. Mutagenicity Evaluation of RW-4-17 rosome Plate Test. Cannon Laboratories, Inc	
General			
	Sponsor = Citie	s Service Company, Tulsa, OK.	