



HK201-11876

The Dow Chemical Company
Midland, Michigan 48674

2030 DOW CENTER
December 1, 1999

VIA CERTIFIED MAIL Z 289 678 930

Carol Browner, Administrator
U.S. Environmental Protection Agency
P.O. Box 1473
Merrifield, VA 22116

Charles Auer (7405)
U.S. Environmental Protection Agency
401 M Street SW
Washington, DC 20460

ATTENTION CHEMICAL RIGHT-TO-KNOW PROGRAM

RE: 2,4-dichlorophenoxy acetic acid (CASRN 94-75-7); 1,3-dichloropropene (CASRN 542-75-6); 4-amino-3,5,6-trichloropicolinic acid (CASRN 1918-02-1); 2-chloro-6-(trichloromethyl)-pyridine (CASRN 1929-82-4) : FIFRA Registered Substances on the HPV List

The substances identified above are currently on the U.S. HPV list and are also registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). As you know, in order to obtain a FIFRA registration, registrants must conduct and submit to EPA extensive health and environmental effects testing. EPA then must carefully review the data, and make a determination that the intended use of the substance tested will not cause unreasonable adverse effects. The data requirements to support this determination are extensive, and go well beyond the screening-level requirements of the OECD/SIDS and U.S. HPV programs.¹

The Office of Pesticide Programs signed the Reregistration Eligibility Decision (RED) for 4-amino-3,5,6-trichloropicolinic acid (common name picloram), dated March, 1995. A copy of the 4-amino-3,5,6-trichloropicolinic acid RED and EPA developed/published FACT Sheet on the molecule can be obtained at the following EPA website: http://www.epa.gov/oppsrd1/REDS/index_h2z.html#P

The Office of Pesticide Programs approved the Reregistration Eligibility Decision (RED) for 1,3-dichloropropene, dated September 30, 1998. A copy of the 1,3-dichloropropene (tradename Telone[®]) RED and EPA developed/published FACT Sheet on the molecule can be obtained at the following EPA Office of Pesticide Programs website: http://www.epa.gov/oppsrd1/REDS/index_h2z.html#T

These documents provide a summary of the known toxicological, eco-toxicological and environmental fate properties of 4-amino-3,5,6-trichloropicolinic acid and 1,3-dichloropropene, as well as other data required for FIFRA reregistration. They also provide a comprehensive listing (including MRID number) of all the studies which the EPA Office of Pesticide Programs utilized to grant the reregistration of 4-amino-3,5,6-trichloropicolinic acid and 1,3-dichloropropene.

Based upon the extensive data base already available in the EPA Office of Pesticide Programs, Dow proposes that 4-amino-3,5,6-trichloropicolinic acid and 1,3-dichloropropene receive a designation of "1," indicating that the chemicals are not considered a candidate for testing under the HPV Challenge Program.

¹FIFRA also contains exclusive use, confidentiality and data compensation provisions that restrict access to and use of test data by non-registrants (and their agents). These provisions are designed to protect the significant investment in research, development and intellectual property required of companies that are able to obtain a FIFRA registration.

Carol Browner, Administrator
ATTENTION CHEMICAL RIGHT-TO-KNOW PROGRAM
December 1, 1999
Page Two

Enclosed with this letter as attachments A and B are lists of studies, including the EPA MRID numbers, which have previously been submitted to the Office of Pesticide Programs for 2,4-dichlorophenoxy acetic acid (CASRN 94-75-7), and 2-chloro-6-(trichloromethyl)-pyridine (CASRN 1929-82-4). Dow proposes that these substances also receive a designation of "1" indicating the chemical is not considered a candidate for testing under the HPV Challenge Program.

EPA should not encourage replication of studies as this is a waste of animals and other resources. Summaries of all the studies documented in the 4-amino-3,5,6-trichloropicolinic acid and 1,3-dichloropropene RED and in the attachments should be available from the Office of Pesticide Programs.

Sincerely,

Gregory G. Bond
Corporate Director of Product Responsibility

jt

Enclosures

Guid. File	Guideline Title	Study Title	Author	VRID Number
------------	-----------------	-------------	--------	-------------

A

*Product
Chemistry*

63-8	Solubility	Determination of the Water Solubility of 2,4-Dichlorophenoxy Acetic Acid, 2-Ethylhexyl Ester	D.C. Helmer	41332008
63-8	Solubility	2,4-D Ethylhexyl Solubility in Industrial Water	R.B. Potter	42328501
63-8	Solubility	2,4-Dichlorophenoxyacetic Acid: Determination of the Water Solubility	D.L. Hopkins	41332002
63-8	Solubility	2,4-Dichlorophenoxyacetic Acid Dimethylamine Salt: Determination of the Water Solubility	D.L. Hopkins	41332001
63-9	Vapor Pressure	Vapor Pressure of 2,4-D-Ethylhexyl Ester	A. Chakrabarti S.M. Gennrich	41332007
63-9	Vapor Pressure	Vapor Pressure of 2 Dichlorophenoxyacetic Acid	A. Chakrabarti S.M. Gennrich	41332003
63-11	Octanol/Water Partition Coefficient	Determination of the Octanol/Water Partition Coefficient for 2,4 Dichlorophenoxy Acetic Acid, 2 Ethylhexyl Ester	D.C. Helmer	41332009
63-11	Octanol/Water Partition Coefficient	2,4-Dichlorophenoxyacetic Acid: Determination of Octanol/Water Partition Coefficient	R.E. Bailey D.L. Hopkins	41332004
63-11	Octanol/Water Partition Coefficient	Determination of the Octanol/Water Partition Coefficient for n Propylbenzene Using Generator Column Technology	L.W. Nicholson	41332005
63-11	Octanol/Water Partition Coefficient	Determination of the Octanol/Water Partition Coefficient for Naphthalene Using Generator Column Technology	L.W. Nicholson	41332006

**Wildlife and
Aquatic
Organisms**

71-1(a)	Avian Oral LD50 (mallard)	(2,4-Dichlorophenoxy) Acetic Acid Isooctyl Ester: An Acute Oral Toxicity Study with the Mallard	J.B. Beavers	41158303
71-1(a)	Avian Oral LD50 (bobwhite)	2,4-D Dimethylamine Salt: An Acute Oral Toxicity Study with the Northern Bobwhite	K.A. Hoxter J. Culotta	41546201
71-2(a)	Avian Dietary LC50 (bobwhite)	(2,4-Dichlorophenoxy) Acetic Acid Isooctyl Ester: A Dietary LC50 Study with the Bobwhite Quail	J.B. Beavers	41158305
71-2(a)	Avian Dietary LC50 (bobwhite)	(2,4-Dichlorophenoxyacetic Acid) 2,4 D: A Dietary LC50 Study with the Northern Bobwhite	J. Culotta K. Hoxter	41586101
71-2(a)	Avian Dietary LC50 (bobwhite)	Eight-Day Dietary LC50 - Bobwhite Quail. DMA-4 Final Report	R. Fink	41158308
71-2(a)	Avian Dietary LC50 (bobwhite)	2,4-Dimethylamine Salt: A Dietary LC50 Study with the Northern Bobwhite	R.D. Long J. Foster	41749501
71-2(b)	Avian Dietary LC50 (mallard)	(2,4-Dichlorophenoxy) Acetic Acid Isooctyl Ester: A Dietary LC50 Study with the Mallard	J.B. Beavers	41158304
71-2(b)	Avian Dietary LC50 (mallard)	(2,4-Dichlorophenoxyacetic Acid) 2,4-D: A Dietary LC50 Study with the Mallard	J. Culotta J. Foster	41546202
71-2(b)	Avian Dietary LC50 (mallard)	Eight-Day Dietary LC50 - Mallard Ducks DMA-4 - Final Report	R. Fink	41158307
71-2(b)	Avian Dietary LC50 (mallard)	2,4-Dimethylamine Salt: A Dietary LC50 Study with the Mallard	R.D. Long J. Foster	41749502
72-1	Freshwater Fish LC50 (preferably rainbow and bluegill)	The Acute Toxicity of (2,4 Dichlorophenoxy) Acetic Acid Isooctyl Ester in Representative Aquatic Organisms	H.C. Alexander M.A. Mayes F.M. Gersich	41158306
72-1	Freshwater Fish LC50 (preferably rainbow and bluegill)	The Acute Toxicity of Esteron® 99® Herbicide to the Rainbow Trout	M.A. Mayes S.J. Gorzinski R.B. Potter	41737303
72-1	Freshwater Fish LC50 (preferably rainbow and bluegill)	The Acute Toxicity of (2,4 Dichlorophenoxyacetic Acid) to Representative Aquatic Organisms	H.C. Alexander M.A. Mayes F.M. Gersich	41158301
72-1	Freshwater Fish LC50 (preferably rainbow and bluegill)	Acute Toxicity of DMA-4 to Bluegill (<i>Lepomis macrochirus</i>) and Rainbow Trout (<i>Salmo gairdneri</i>)	R.E. Bentley	41158309
72-1	Freshwater Fish LC50 (preferably rainbow and bluegill)	The Acute Toxicity of (2,4 Dichlorophenoxy) Acetic Acid Dimethylamine Salt to Representative Aquatic Organisms	H.C. Alexander M.A. Mayes F.M. Gersich	411583111
72-2	Acute LC50 Freshwater Invertebrates (preferably <i>Daphnia</i>)	The Acute Toxicity of (2,4 Dichlorophenoxyacetic Acid) to Representative Aquatic Organisms	H.C. Alexander M.A. Mayes F.M. Gersich	41158301
72-2	Acute LC50 Freshwater Invertebrates (preferably <i>Daphnia</i>)	Toxicity of 2,4-Dichlorophenoxyacetic Acid to Daphnids	W.M. McCarty T.L. Batchelder	41158302

72-2	Acute LC50 Freshwater Invertebrates (preferably <i>Daphnia</i>)	The Acute Toxicity of (2,4 Dichlorophenoxy) Acetic Acid Isooctyl Ester in Representative Aquatic Organisms	H.C. Alexander M.A. Mayes F.M. Gersich	41158306
72-2	Acute LC50 Freshwater Invertebrates (preferably <i>Daphnia</i>)	The Acute Toxicity of (2,4 Dichlorophenoxy) Acetic Acid Dimethylamine Salt to Representative Aquatic Organisms	H.C. Alexander M.A. Mayes F.M. Gersich	411583111
72-3 (e)	Acute LC50 Estuarine and Marine Organisms (mollusk)	Acute Flow-Through Mollusk Shell Deposition Test with Esteron® 99® Herbicide	T.J. Ward R.L. Boeri	41835201
72-3 (d)	Acute LC50 Estuarine and Marine Organisms (fish)	Acute Flow-Through Toxicity of Esteron® 99® Herbicide to the Tidewater Silverside, <i>Menidia beryllina</i>	T.J. Ward R.L. Boeri	41835202
72-3 (f)	Acute LC50 Estuarine and Marine Organisms (shrimp)	Acute Flow-Through Toxicity of Esteron® 99® Herbicide to Grass Shrimp, <i>Palaemonetes pugio</i>	T.J. Ward R.L. Boeri	41835203
72-3 (b)	Acute LC50 Estuarine and Marine Organisms (mollusk)	Acute Flow-Through Mollusk Shell Deposition Test with 2,4-D, 2 Ethylhexyl Ester	T.J. Ward R.L. Boeri	41835204
72-3 (a)	Acute LC50 Estuarine and Marine Organisms (fish)	Acute Flow-Through Toxicity of 2,4-D, 2-Ethylhexyl Ester to the Tidewater Silverside, <i>Menidia beryllina</i>	T.J. Ward R.L. Boeri	41835205
72-3 (c)	Acute LC50 Estuarine and Marine Organisms (shrimp)	Acute Flow-Through Toxicity of 2,4-D, 2-Ethylhexyl Ester to the Grass Shrimp <i>Palaemonetes pugio</i>	T.J. Ward R.L. Boeri	41835206
72-3 (c)	Acute LC50 Estuarine and Marine Organisms (shrimp)	2,4-D Acid: Acute Toxicity to Pink Shrimp Under Flow-Through Conditions	D.D. Vaishnau J.J. Yurk	41737306
72-3 (a)	Acute LC50 Estuarine and Marine Organisms (fish)	2,4-D Acid: Acute Toxicity To Tidewater Silverside Under Flow-Through Conditions	D.D. Vaishnau J.J. Yurk	41737307
72-3 (b)	Acute LC50 Estuarine and Marine Organisms (mollusk)	2,4-Dichlorophenoxyacetic Acid: Oyster Shell Deposition Test Under Flow-Through Conditions	B.A. Wade M.A. Overman	41848001
72-3 (b)	Toxicity to Estuarine and Marine Organisms (mollusk)	Repeat Study: 2,4-D: Acute Flow-Through Mollusk Shell Deposition Test	--	42979701
72-3 (b)	Acute LC50 Estuarine and Marine Organisms (mollusk)	Acute Toxicity of DMA-4 to Larvae of the Eastern Oyster (<i>Crassostrea virginica</i>), Pink Shrimp (<i>Penaeus duorarum</i>) and Fiddler Crabs (<i>Uca pugilator</i>)	T. Heitmuller	41158310
72-3 (c)	Acute LC50 Estuarine and Marine Organisms (shrimp)	2,4-D, Dimethylamine Salt: Acute Toxicity to Pink Shrimp, <i>Penaeus duorarum</i> , Under Flow-Through Conditions	G.S. Ward	41835208
72-3 (a)	Acute LC50 Estuarine and Marine Organisms (fish)	2,4-D, Dimethylamine Salt: Acute Toxicity to the Tidewater Silverside, <i>Menidia beryllina</i> , Under Flow-Through Test Conditions	G.S. Ward	41835209
72-3 (b)	Acute LC50 Estuarine and Marine Organisms (mollusk)	2,4-D, Dimethylamine Salt: Acute Effect on New Shell Growth of the Eastern Oyster, <i>Crassostrea virginica</i> , Under Flow-Through Conditions	G.S. Ward	41973401

72-4(a)	Early Life Stage in Fish	2,4-D Acid (2-Ethylhexyl Ester): Evaluation of the Toxicity to Early Life Stages of the Fathead Minnow	M.A. Mayes S.J. Gorzinski R.B. Potter	41737305
72-4(a)	Early Life Stage in Fish	2,4-D Acid: Evaluation of the Toxicity To Early Life Stages of the Fathead Minnow	M.A. Mayes S.J. Gorzinski R.B. Potter	41737304
72-4(a)	Early Life Stage in Fish	2,4-Dichlorophenoxyacetic Acid Dimethylamine Salt: Evaluation of the Toxicity to Early Life Stages of the Fathead Minnow	D.C. Dill S.J. Gorzinski R.B. Potter	41767701
72-4(b)	Life Cycle in Aquatic Invertebrates (Daphnia/Mysid)	Chronic Toxicity of 2,4-D, 2-Ethylhexyl Ester to the Daphnids, <i>Daphnia magna</i>	T.J. Ward R.L. Boeri	41835207
72-4(b)	Life Cycle in Aquatic Invertebrates (Daphnia/Mysid)	Chronic Toxicity of 2,4-D to the Daphnid, <i>Daphnia magna</i>	T.J. Ward R.L. Boeri	41835211
72-4(b)	Life Cycle in Aquatic Invertebrates (Daphnia/Mysid)	2,4-D Dimethylamine Salt: Chronic Toxicity to the Water Flea, <i>Daphnia magna</i> , Under Flow-Through Test Conditions	G.S. Ward	41835210

Toxicology

81-1	Acute Oral Toxicity in the Rat	2,4-D Isoooctyl Ester Technical: Determination of Acute Oral LD50 in Fischer 344 Rats	D.E. Johnson	247498 247499 00102463
81-1	Acute Oral Toxicity in the Rat	2,4-D Technical: Determination of Acute Oral LD50 in Fischer 344 Rats	D.E. Johnson	247498 247499 00102467
81-1	Acute Oral Toxicity in the Rat	Acute Oral Toxicity Study in Fischer Rats with 2,4-Dichlorophenol	P Nardini J. Hicks A.F. Kingery	--
81-1	Acute Oral Toxicity in the Rat	2,4-D Dimethylamine Salt: Determination of Acute Oral LD50 in Fischer 344 Rats	--	247498 247499 00102466
81-2	Acute Dermal Toxicity	2,4-D Technical: Determination of Acute Dermal LD50 in Rabbits	D.E. Johnson	247498 247499 00102467
81-2	Acute Dermal Toxicity	2,4-D Technical: Determination of Acute Dermal LD50 in Rabbits	D.E. Johnson	247498 247499 00102468
81-2	Acute Dermal Toxicity	2,4-D Dimethylamine Salt: Determination of Acute Dermal LD50 in Rabbits	--	247498 247499 00102468
81-3	Acute Inhalation Toxicity in the Rat	2,4-D Acid, 2-Ethylhexyl Ester Acute Aerosol Inhalation Toxicity Study with Fischer 344 Rats	F.S. Cieszlak	42605202
81-3	Acute Inhalation Toxicity in the Rat	An Acute Inhalation Toxicity Study with 2,4-D in the Rat	J.B. Terrill	--
81-4	Primary Eye Irritation in the Rabbit	Report on the Study of the Irritation to the Eye of the White Rabbit Based on Draize of 2,4-D	P. Kirsch	41125302
81-4	Primary Eye Irritation in the Rabbit	Report on the Study of the Irritation to the Eye of the White Rabbit Based on the Draize of BAS 140 14 H (Supplemental)	--	41125304
81-5	Primary Dermal Irritation	Report on the Study of the Irritation to the Intact and Abraded Dorsal Skin of the White Rabbit Based on Draize of 2,4-D	--	41125301

81-5	Primary Dermal Irritation	Report on the Study of the Irritation of the Intact and Abraded Dorsal Skin of the White Rabbit Based on Draize of BAS 140 14 H	--	41125301
81-5	Primary Dermal Irritation	2,4-D Acid: Primary Dermal Irritation Study in New Zealand White Rabbits	N.M. Berdasco	42232701
81-6	Dermal Sensitization	Dermal Sensitization Study in Guinea Pigs, 2,4-Dichlorophenoxyacetic Acid -- Final Report	J.A. Ralph	--
81-X	Dermal Neurological Exposure (rat)	Search for Effects of Repeated Dermal Exposure to 2,4-D on the Peripheral Nervous System of Fischer 344 Rats	J.L. Mattsson	254491
81-X	Acute Neurotoxicity (rat)	2,4-Dichlorophenoxyacetic Acid (2,4-D) Acute Neurotoxicity Study in Fischer 344 Rats	J.L. Mattsson R.J. McGuirk B.L. Yano	43115201
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Subchronic Toxicity Study in Rats with 2,4-D Acid-2-Ethylhexyl Ester	G.E. Schulze	41896701
82-1(a)	90-Day Feeding Study in the Rodent (mouse)	Subchronic Toxicity Study in Mice - Final Report	D.G. Serota	251473
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Subchronic Toxicity Study in Rats - Final Report	D.G. Serota	251474
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Subchronic Toxicity Study in Rats with 2,4-D--Addendum to Final Report	D.G. Serota	256619
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Subchronic Toxicity Study in Rats with the Dimethylamine Salt of 2,4-D Acid	G.E. Schulze	41896702
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Subchronic Toxicity Study in Rats with 2,4-D Acid	G.E. Schulze	41991501
82-1(a)	90-Day Feeding Study in the Rodent (mouse)	Subchronic Toxicity Study in Mice with 2,4-D Acid	G.E. Schulze	41991502
82-1(a)	90-Day Feeding Study in the Rodent (mouse)	14-Day Pilot Toxicity Study in Mice with 2,4-D Acid	G.E. Schulze	42150401
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Technical Grade 2,4-D: Results of a 13-Week Subchronic Dietary Study in the CDF Fischer Rat	S.J. Gorzinski C.E. Wade D.C. Morden	247495 00102451
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Purified 2,4-D: Results of a 13-Week Subchronic Dietary Toxicity Study in the CDF Fischer 344 Rat	S.J. Gorzinski C.E. Wade D.C. Morden	247497 00102462
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Technical Grade 2,4-Dichlorophenoxyacetic Acid (2,4-D): Results of a 13-Week Subchronic Dietary Toxicity Study in the CDF Fischer 344 Rat: Addendum Report	D.L. Eisenbrandt S.J. Gorsinski R.J. Kociba	--
82-1(a)	90-Day Feeding Study in the Rodent (rat)	Purified 2,4-Dichlorophenoxyacetic Acid (2,4-D) Results of a 13-Week Subchronic Dietary Toxicity Study in the CDF Fischer Rat: Addendum Report	D.L. Eisenbrandt S.J. Gorsinski R.J. Kociba	--
82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	13-Week Dietary Toxicity Study with 2-Ethylhexyl Ester of 2,4-D in Dogs	D.W. Dalgard	42780003

82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	4-Week Exploratory Rangefinding Study in Dogs with the 2-Ethylhexyl Ester of 2,4-D	D.W. Dalgard	42780005
82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	Subchronic Toxicity Study in Dogs with 2,4-D Acid	G.E. Schulze	41737301
82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	13-Week Dietary Toxicity Study of 2,4-D in Dogs	D.W. Dalgard	42780001
82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	13-Week Dietary Toxicity Study with Dimethylamine Salt of 2,4-D in Dogs	D.W. Dalgard	42780002
82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	4-Week Exploratory Rangefinding Study in Dogs with 2,4-D Acid	D.W. Dalgard	42780004
82-1(b)	90-Day Feeding Study in the Non-Rodent (dog)	4-Week Exploratory Rangefinding Study in Dogs with the Dimethylamine Salt of 2,4-D	D.W. Dalgard	42780006
82-2	21-Day Dermal	21-Day Dermal Irritation and Dermal Range Finding Study in Rabbits with 2,4-D Acid-2-Ethylhexyl Ester	G.E. Schulze	41735302
82-2	21-Day Dermal	21-Day Dermal Irritation and Dermal Toxicity Study in Rabbits with 2,4-D Acid-2-Ethylhexyl Ester	G.E. Schulze	41735305
82-2	21-Day Dermal	21-Day Dermal Irritation and Dermal Range-Finding Study in Rabbits with 2,4-D Acid	G.E. Schulze	41735301
82-2	21-Day Dermal	21-Day Dermal Irritation and Dermal Toxicity Study in Rabbits with 2,4-D Acid	G.E. Schulze	41735304
82-2	21-Day Dermal	21-Day Dermal Irritation and Dermal Range Finding Study in Rabbits with Dimethylamine Salt of 2,4-D Acid	G.E. Schulze	41735303
82-2	21-Day Dermal	21-Day Dermal Irritation and Dermal Toxicity Study in Rabbits with the Dimethylamine Salt of 2,4-D Acid	G.E. Schulze	41735306
83-1(a)	Chronic Feeding Study in the Rodent (See chronic onco 83-2(a))			
83-1(a)	Chronic Feeding Study in the Rodent (See 83-2(a))			
83-1(b)	Chronic Feeding Study in the Non-Rodent (dog)	52-Week Dietary Toxicity Study with 2,4-D in Dogs	D.W. Dalgard	43049001
83-2(a)	Oncogenicity Study in the Rat	Combined Toxicity and Oncogenicity Study in Rats --Final Report-Amendment 1	D.G. Serota	264983
83-2(a)	Oncogenicity Study in the Rat	Combined Toxicity and Oncogenicity Study in Rats (Volumes 1-3)	D.G. Serota	263112 263113 263114
83-2(a)	Oncogenicity Study in the Rat	2,4-Dichlorophenoxy Acetic Acid: Chronic Toxicity/Oncogenicity Study in Fischer 344 Rats - Two Year Interim Report (Volumes 1-3)	T.K. Jeffries B.L. Yano J.R. Ormand	43293801
83-2(b)	Oncogenicity Study in the Mouse	Oncogenicity Study in Mice --Final Report (Volumes 1-3)	D.G. Serota	40061801

83-2(b)	Oncogenicity Study in the Mouse (female mouse)	2,4-Dichlorophenoxyacetic Acid: Dietary Oncogenicity Study in B6C3F1 Mice - One Year Interim Report	W.T. Stott K.A. Johnson K.S. Gilbert	42801001
83-2(b)	Oncogenicity Study in the Mouse (female mouse)	2,4-Dichlorophenoxyacetic Acid: Dietary Oncogenicity Study in B6C3F1 Mice Two-Year Interim Report	W.T. Stott K.A. Johnson K.S. Gilbert	43265901
83-2(b)	Oncogenicity Study in the Mouse (male mouse)	2,4-Dichlorophenoxyacetic Acid: Chronic Dietary Oncogenicity Study in Male B6C3F1 Mice - One Year Interim Report	W.T. Stott K.A. Johnson K.S. Gilbert	43353701
83-2(b)	Oncogenicity Study in the Mouse	Oncogenicity Study in Mice (2,4-Dichlorophenoxyacetic) Acid -- 52 Week Progress Report	D.G. Serota	--
83-3(a)	Teratogenicity in the Rat	Dosage-Range Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D 2-Ethylhexyl Ester (2,4-D Isooctyl Ester) Administered Orally Via Gavage to CRI:CDBR VAF/Plus Presumed Pregnant Rats	T.Martin	42304602
83-3(a)	Teratogenicity in the Rat	Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D 2-Ethylhexyl Ester (2,4-D Isooctyl Ester) Administered Orally Via Gavage to CRI:CDBR VAF/Plus Presumed Pregnant Rats	T. Martin	42304601
83-3(a)	Teratogenicity in the Rat	A Range Finding Teratology Study in Fischer 344 Rats with 2,4-Dichlorophenol Final Report	D.E. Rodwell	251029
83-3(a)	Teratogenicity in the Rat	A Teratology Study in Fischer 344 Rats with 2,4-Dichlorophenol - Final Report	D.E. Rodwell	251030
83-3(a)	Teratogenicity in the Rat	A Teratology Study in Fischer 344 Rats Final Report (Dichlorophenoxyacetic Acid)	D.E. Rodwell	251031
83-3(a)	Teratogenicity in the Rat	Range-Finding Teratology Study in Fischer Rats with 2,4-D Acid - Final Report	D.E. Rodwell	251032
83-3(a)	Teratogenicity in the Rat	Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D Dimethylamine Salt (2,4 D-DMA) Administered Orally Via Gavage to CRI:CD@BR VAF/Flus@ Presumed Pregnant Rats	E.A. Lochry	41735201
83-3(b)	Teratogenicity in the Rabbit	Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D 2-Ethylhexyl Ester (2,4-D Isooctyl Ester) Administered Orally (Stomach) Tube to New Zealand White Rabbits	T. Martin	42304603
83-3(b)	Teratogenicity in the Rabbit	Dosage-Range Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D 2-Ethylhexyl Ester (2,4-D Isooctyl Ester) Administered Orally (Stomach Tube) to New Zealand White Rabbits	T.Martin	42304604

83-3(b)	Teratogenicity in the Rabbit	Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D Administered Orally Via Stomach Tube to New Zealand White Rabbits	A.M. Hoberman	41747601
83-3(b)	Teratogenicity in the Rabbit	Developmental Toxicity (Embryo-Fetal Toxicity and Teratogenic Potential) Study of 2,4-D Dimethylamine Salt (2,4 D-DMA) Administered Orally Via Stomach Tube to New Zealand White Rabbits	T. Martin	42224001
83-4	2-Generation Reproduction Study in the Rat	A Dietary Two-Generation Reproduction Study in Fischer 344 Rats with 2,4-D--Final Interim Report (Volumes 1-4)	D.E. Rodwell	254492
83-4	2-Generation Reproduction Study in the Rat	A Dietary Two-Generation Reproduction Study in Fischer 344 Rats with Dichlorophenoxyacetic Acid -- Final Report (Volumes 1-5)	D.E. Rodwell	254493 254494 254495 254496
83-4	2-Generation Reproduction Study in the Rat	A Dietary Two-Generation Reproduction Study in Fischer 344 Rats -- Addendum to Final Report	D.E. Rodwell	265489
83-5	Chronic Feeding/Oncogenicity in the Rat	2,4-Dichlorophenoxyacetic Acid: Chronic Toxicity/Oncogenicity Study in Fischer 344 Rats - One Year Interim Report	T.K. Jeffries B.L. Yano J.R. Ormand	42823501
83-x	Chronic Neurotoxicity (rat)	2,4-Dichlorophenoxyacetic Acid: Chronic Neurotoxicity Study in Fischer 344 Rats	J.L. Mattsson R.J. McGuirk B.L. Yano	43293901
84-2	Gene Mutation	Single Acute Exposure Dose Selection Study on 2,4-D Ethylhexyl Ester	J.L. Ivett	41420005
84-2	Gene Mutation	Single Acute Exposure Dose Selection Study on 2,4-Dichlorophenoxyacetic Acid	J.L. Ivett	41420003
84-2	Gene Mutation	Single Acute Exposure Dose Selection on 2,4-D Dimethylamine Salt	J.L. Ivett	41420004
84-2(a)	Gene Mutation	Mutagenicity Test on 2,4-D Ethylhexyl Ester in the Salmonella/Mammalian Microsome Reverse Mutation Assay	T.E. Lawlor D.C. Valentine	41409803
84-2(a)	Gene Mutation	Mutagenicity Test on 2,4 Dichlorophenoxyacetic Acid (2,4-D) in the Salmonella/Mammalian-Microsome Reverse Mutation Assay	T.E. Lawlor D.C. Valentine	41409801
84-2(a)	Gene Mutation	Mutagenicity Test on 2,4-D Dimethylamine Salt in the Salmonella/Mammalian Microsome Reverse Mutation Assay	T.E. Lawlor D.C. Valentine	41409802
84-2(b)	Structural Chromosome Aberration	Mutagenicity Test on 2,4 Dichlorophenoxyacetic Acid In Vivo Mouse Micronucleus Assay	J.L. Ivett	41409804
84-2(b)	Structural Chromosome Aberration	Mutagenicity Test on 2,4-D 2 Ethylhexyl Ester In Vivo Mouse Micronucleus Assay	J.L. Ivett	41409806

84-2 (b)	Structural Chromosome Aberration	Mutagenicity Test on 2,4-D 2 Ethylhexyl Ester in vivo Mouse Micronucleus Assay	J.L. Ivett	41870103
84-2 (b)	Structural Chromosome Aberration	Mutagenicity Test on 2,4 Dichlorophenoxyacetic Acid in vivo Mouse Micronucleus Assay	J.L. Ivett	41870101
84-2 (b)	Structural Chromosome Aberration	Mutagenicity Test on 2,4-D Dimethylamine Salt In Vivo Mouse Micronucleus Assay	J.L. Ivett	41409805
84-2 (b)	Structural Chromosome Aberration	Mutagenicity Test on 2,4 Dimethylamine Salt in vivo Mouse Micronucleus Assay	J.L. Ivett	41870102
84-4	Other Genotoxic Effects	Mutagenicity Test on 2,4-D 2 Ethylhexyl Ester in the In Vitro Rat Primary Hepatocyte Unscheduled DNA Synthesis Assay	M.A. Cifone	41409809
84-4	Other Genotoxic Effects	Mutagenicity Test on 2,4 Dichlorophenoxyacetic Acid (2,4-D) in the In Vitro Rat Primary Hepatocyte Unscheduled DNA Synthesis Assay	M.A. Cifone	41409807
84-4	Other Genotoxic Effects	Mutagenicity Test on 2,4-D Dimethylamine Salt in the In Vitro Rat Primary Hepatocyte Unscheduled DNA Synthesis Assay	M.A. Cifone	41409808
85-1	General Metabolism	Pharmacokinetic Evaluation of the 2-Ethylhexyl Isooctyl Ester of 2,4-D Administered Orally to Fischer 344 Rats	S.W. Frantz B.E. Kropscott	254491
85-1	General Metabolism	2,4-Dichlorophenoxy Acetate 2 Ethylhexyl Ester Metabolism in Fischer 344 Rats	M.D. Dryzga K.A. Brzak R.J. Nolan	42261801
85-1	General Metabolism	Pharmacokinetic Evaluation of 14C-2,4-D in the Mouse--Final Report	J.L. Eisman	25532
85-1	General Metabolism	2,4-D Acid. Tissue Distribution and Metabolism of 14C-Labeled 2,4-D Acid in Fischer 344 Rats	M.D. Dryzga K.A. Brzak	41737302
85-1	General Metabolism	Pharmacokinetics of 2,4-D in Fischer Rats	F.A. Smith R.J. Nolan E.A. Herman	247495 00102453

Plant Protection

122-2	Aquatic Plant Growth	The Toxicity of 2,4-D to <i>Anabaena flos-aquae</i>	J.S. Hughes T.L. Williams L.A. Conder	43307901
122-2	Aquatic Plant Growth	The Toxicity of 2,4-D to <i>Navicula pelliculosa</i>	J.S. Hughes T.L. Williams L.A. Conder	43307902
122-2	Aquatic Plant Growth	The Toxicity of 2,4-D to <i>Skeletonema costatum</i>	J.S. Hughes T.L. Williams L.A. Conder	43307903
122-2	Aquatic Plant Growth	The Toxicity of 2,4-D to <i>Lenina gibba</i> G3	J.S. Hughes T.L. Williams L.A. Conder	43307904
123-1 (a)	Seed Germination/Seedling Emergence	Effects of 2,4-D 2-EHE on Seed Germination/Seedling Emergence	P. Backus	42449201
123-1 (a)	Seed Germination/Seedling Emergence	Supplemental Dose Testing of 2,4-D 2-EHE Seed Germination/Seedling Emergence	P. Backus	42772902

123-1(a)	Seed Germination/Seedling Emergence	Supplement to: Effects of 2,4-D 2-Ethylhexyl Ester on Seedling Emergence (Tier II)	P. Backus	43526901
123-1(a)	Seed Germination/Seedling Emergence	Effects of 2,4-D Acid on Seed Germination/Seedling Emergence	P. Backus	42416802
123-1(a)	Seed Germination/Seedling Emergence	Supplemental Dose Testing of 2,4-D Acid Seed Germination/Seedling Emergence	P. Backus	42772901
123-1(a)	Seed Germination/Seedling Emergence	Effects of 2,4-D DMAS on Seed Germination/Seedling Emergence	P. Backus	42389501
123-1(a)	Seed Germination/Seedling Emergence	Supplemental Dose Testing of 2,4-D DMAS Seed Germination/Seedling Emergence	P. Backus	42772903
123-1(b)	Vegetative Vigor	Effect of 2,4-D 2-EHE on Vegetative Vigor of Plants (Tier II)	P. Backus K. Crosby	42343902
123-1(b)	Vegetative Vigor	Supplement Dose Testing of 2,4-D 2-EHE Vegetative Vigor of Plants	P. Backus	42772904
123-1(b)	Vegetative Vigor	Effects of 2,4-D Acid on Vegetative Vigor of Plants	P. Backus	42416801
123-1(b)	Vegetative Vigor	Supplement Dose Testing of 2,4-D Acid Vegetative Vigor of Plants	P. Backus	--
123-1(b)	Vegetative Vigor	Effect of 2,4-D DMAS on Vegetative Vigor of Plants (Tier II)	P. Backus K. Crosby	42343901
123-1(b)	Vegetative Vigor	Supplement Dose Testing of 2,4-D DMAS Vegetative Vigor of Plants	P. Backus	42772905
123-2	Aquatic Plant Growth	Toxicity of 2,4-D, 2-Ethylhexyl Ester to <i>Anabaena flos-aquae</i>	J.S. Hughes	41735202
123-2	Aquatic Plant Growth	Toxicity of 2,4-D, 2-Ethylhexyl Ester to <i>Lemna gibba</i>	J.S. Hughes	41735203
123-2	Aquatic Plant Growth	Toxicity of 2,4-D, 2-Ethylhexyl Ester to <i>Skeletonema costatum</i>	J.S. Hughes	41735204
123-2	Aquatic Plant Growth	Toxicity of 2,4-D, 2-Ethylhexyl Ester to <i>Navicula pelliculosa</i>	J.S. Hughes	41735205
123-2	Aquatic Plant Growth	Toxicity of 2,4-D 2-Ethylhexyl Ester to <i>Selenastrum capricornutum</i>	J.S. Hughes	41735206
123-2	Aquatic Plant Growth	The Toxicity of 2,4-D to <i>Selenastrum capricornutum</i>	J.S. Hughes	41420001
123-2	Aquatic Plant Growth	The Toxicity of 2,4-D Dimethylamine Salt to <i>Skeletonema costatum</i>	J.S. Hughes	41505901
123-2	Aquatic Plant Growth	The Toxicity of 2,4-D Dimethylamine Salt to <i>Anabaena flos-aquae</i>	J.S. Hughes	41505902
123-2	Aquatic Plant Growth	The Toxicity of 2,4-D Dimethylamine Salt to <i>Navicula pelliculosa</i>	J.S. Hughes	41505903
123-2	Aquatic Plant Growth	The Toxicity of 2,4-D Dimethylamine Salt to <i>Lemna gibba</i>	J.S. Hughes	41505904
123-2	Aquatic Plant Growth	The Toxicity of 2,4-D Dimethylamine Salt to <i>Selenastrum capricornutum</i>	J.S. Hughes	41420002

Environmental Fate

160-1	2,4-D Dissociation	Dissociation of 2,4 Dichlorophenoxyacetic Acid (2,4-D) and 2,4-D Dimethylamine Salt in Water	R.E. Reim	41308901
161-1	Hydrolysis	Hydrolysis of [14C]2,4-D Ethylhexyl ester at pH 5, 7 and 9	M. Concha K. Shepler S. Erhardt-Zabik	42735401
161-1	Hydrolysis	Hydrolysis of [14C] 2,4-D Ethylhexyl Ester in Soil Slurries	M. Concha K. Shepler S. Erhardt-Zabik	42770501
161-1	Hydrolysis	Hydrolysis of [14C] 2,4-D 2-Ethyl Hexyl Ester in Natural Water	M. Concha K. Shepler S. Erhardt-Zabik	42770502
161-1	Hydrolysis	Hydrolysis of 2,4-D in Aqueous Solutions Buffered at pH 5, 7 and 9	S.M. Creeger	41007301
161-2	Photodegradation in Water	Photodegradation of [14C]2,4-D 2-Ethylhexyl Ester in a Buffered Aqueous Solution at pH 5 by Natural Sunlight	M. Concha K. Shepler	42749702
161-2	Photodegradation in Water	Aqueous Photodegradation of 2,4 Dichlorophenoxyacetic Acid in pH 7 Buffered Solutions	S. M. Creeger	41125306
161-3	Photodegradation on Soil	Photodegradation of 2,4 Dichlorophenoxyacetic Acid on Soil	S.M. Creeger	41125305
162-1	Aerobic Soil Metabolism Study	Aerobic Soil Metabolism of [14C]-2-Ethylhexanol	J.L. Reynolds	43415901
162-1	Aerobic Soil Metabolism Study	Aerobic Soil Metabolism of [14C] 2,4-Dichlorophenoxyacetic Acid	M. Concha K. Shepler	43167501
162-3	Anaerobic Aquatic Metabolism Study	Anaerobic Aquatic Metabolism of [14C] 2,4-D Acid	M. Concha K. Shepler	43356001
162-4	Aerobic Aquatic Metabolism Study	Aerobic Aquatic Metabolism of 2,4-D Acid	S.P. Cohen	42045301
162-4	Aerobic Aquatic Metabolism Study	Aerobic Aquatic Metabolism of [14C]2,4-D Acid	M. Concha K. Shepler	42979201
163-1	Leaching and Adsorption/Desorption	Mobility of Unaged 2,4-D Acid Using Batch Equilibrium Technique	S.P. Cohen	42045302
163-2	Leaching Volatility Study	Laboratory Volatility of the 2 Ethylhexyl Ester of 2,4-D Acid	R.C. Doyle	42059601
164-1	Soil Field Dissipation Study	Volumes 1 & 2 Terrestrial Field Dissipation Study of 2,4-D 2EHE on Bare Soil in Colorado	J.J. Silvoy	43514601
164-1	Soil Field Dissipation Study	Volumes 1 & 2 Terrestrial Field Dissipation Study of 2,4-D 2EHE on Wheat in Colorado	J.J. Silvoy	43533401
164-1	Soil Field Dissipation Study	Volume 1 and 2 Terrestrial Field Dissipation Study of 2,4-D DMAS on Wheat in Colorado	J.J. Silvoy	43470401
164-1	Soil Field Dissipation Study	Volumes 1 and 2 Terrestrial Field Dissipation Study of 2,46-D DMAS on Bare Soil in Colorado	J.J. Silvoy	43500301
164-2	Aquatic Sediment Field Dissipation Study	Volumes 1 & 2 Aquatic Field Dissipation Study of 2,4-D DMAS in Louisiana	W.P. Barney	43491601

165-1	Confined Rotational Crop Study	Confined Rotational Crop Study On Uniformly 14C -Ring-Labeled 2,4-Dichlorophenoxyacetic Acid (2,4-D)	T.J. Burnett K.P. Ling	43356002
-------	--------------------------------	------------------------------------------------------------------------------------------------------	---------------------------	----------

Residue Chemistry

171-4	Magnitude of Residue in Irrigated Crops	Magnitude of the Residue of 2,4-D Acid [2,4-Dichlorophenoxy Acetic Acid] in Soybeans Following Ground Application with 2,4-D 2-Ethylhexyl Ester	R.D. Carringer	43356302
171-4	Magnitude of Residue in Irrigated Crops	Magnitude of the Residue of 2,4-D Acid [2,4-Dichlorophenoxy Acetic Acid] in Soybeans Following Ground Application with 2,4-D Acid	R.D. Carringer	43356301
171-4	Magnitude of Residue in Irrigated Crops	Magnitude of the Residue of 2,4-D Acid [2,4-Dichlorophenoxy Acetic Acid] in Soybeans Following Ground Application with 2,4-D Dimethylamine Salt	R.D. Carringer	43356303
171-4(a)	Nature of Residue in Plants (Potato)	Metabolism of Uniformly Ring Labeled [14C] 2,4-Dichlorophenoxy-Acetic Acid 2 Ethylhexyl Ester in Potatoes	J.M. Puglish G.A. Smith	42423101
171-4(a)	Nature of Residue in Plants (Wheat)	Metabolism of Uniformly 14C-Ring Labeled 2,4-Dichlorophenoxyacetic Acid 2-Ethylhexyl Ester in Wheat	V. Puvanesarajah	42439701
171-4(a)	Nature of Residue in Plants (Wheat)	Supplemental Data Metabolism of Uniformly 14C-Ring Labeled 2,4-Dichlorophenoxyacetic Acid 2-Ethylhexyl Ester in Wheat	V. Puvanesarajah D. Ilkka	42615601
171-4(a)	Nature of Residue in Plants (Potato)	Uniformly 14C-Ring Labeled 2,4-Dichlorophenoxyacetic Acid 2-Ethylhexyl Ester: Nature of the Residue in Potato	N.D. Prehkumar	43496101
171-4(a)	Nature of Residue in Plants (Apples)	Metabolism of 14C-(2,4-D) Acetic Acid: Dimethylamine Salt in Apples	G.A. Smith	41991503
171-4(b)	Nature of Residue in Livestock (Hen)	Metabolism of Uniformly Ring Labeled [14C]2,4-D Acid In Poultry	N.D. Prehkumar M.E. Bliss	42605201
171-4(b)	Nature of Residue in Livestock (Goat)	Metabolism of Uniformly 14C-Ring Labeled 2,4-Dichlorophenoxyacetic Acid in Lactating Goats	M. Guo S. Stewart	42749701
171-4(b)	Nature of Residue in Livestock (Goat)	Supplemental Data for the Study Metabolism of Uniformly 14C-Ring Labeled 2,4-Dichlorophenoxyacetic Acid in Lactating Goats (MRID # 42439701)	M. Guo S. Stewart	43160201

171-4(c)	Residue Analytical Method (Plants)	Radiovalidation of EN-CAS Method ENC-2/93 for the Determination of 2,4-Dichlorophenoxy Acetic Acid (2,4-D) in/on Wheat Forage, Straw and Grain Treated with [Phenyl (U) ¹⁴ C] 2,4-Dichlorophenoxy Acetic Acid	J.W. James	43289301
171-4(g)	Nature of Residue in Fish	Uniformly ¹⁴ C-Ring Labeled 2,4-Dichlorophenoxyacetic Acid: A Metabolism Study in Bluegill Sunfish	N.D. Premkumar	43378801

Nitrapyrin Matrix (USEPA Subm.)

B

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
------------------	-----------------	--------------------	-------------	--------

Product Chemistry (Nitrapyrin)

63-9	Vapor Pressure	41563103	An Effusion Method for Measurement of Vapor Pressures of 10(-2)-10(-7) mm	Hamaker, J.
63-11	Octanol/Water Partition Coefficient	41563106	A Rapid Method for Estimation of the Environmental Parameters Octanol/Water Partition Coefficient, Soil Sorption Constant, Water to Air Ratio and Water Solubility	Swann, R.

Wildlife and Aquatic Organisms (Nitrapyrin)

071-1	Avian Acute Oral Toxicity Test	00110296 (238687-A)	Final Report: Acute Oral LD50--Mallard Duck: Nitrapyrin	Fink, R., et. al.
071-2	Avian Dietary Toxicity Test	00116898 (092161-H)	An Acute Dietary Feeding Test with N-serve and 6-Chloro Picolinic Acid in Bobwhite Quail--A Pilot Study	Stevenson, G.
071-2	Avian Dietary Toxicity Test	00116899 (092161-I)	A Game Bird Toxicology Study--Acute Dietary Feeding of N-serve and 6-Chloropicolinic Acid to Japanese Quail	Stevenson, G., et. al.
071-2	Avian Dietary Toxicity Test	00117016 (092166-H)	Eight-day Dietary LC50--Mallard Ducks: 6-Chloro2-picolinic Acid	Fink, R.
071-2	Avian Dietary Toxicity Test	00118934 (092166-G)	Eight-day Dietary LC50--Mallard Ducks: Nitrapyrin	Fink, R.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00090778 (090461-B)	Letter sent to O.H. Hammer dated December 7, 1966: Progress of N-serve 24 Toxicities.	Batchelder, T. L.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00092326 (238687)	Letter sent to E. F. Feichtmeir dated October 22, 1964 (Results of tests with SD 7438)	Lowe, J. I.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00110297 (238687-B)	Toxicity of Nitrapyrin to Rainbow Trout and Bluegill	McCarty, W.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00116894 (092161-C)	Letter sent to G. Lynn dated September 26, 1961:K-31304...Toxicity to Four Species of Fish	Winston, A.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00116895 (092161-D)	Acute Fish Toxicity of N-serve Formulations and 6-Chloropicolinic Acid to Three Species of Fish	Batchelder, T., et. al.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00116896 (092161-E)	Letter Sent to J. Ridner and E. Kenaga dated December 21, 1967: Fish Exposure to N-serve	Hardy, J.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
072-1	Fish Acute Toxicity Test, Freshwater and Marine	00129370 (250328-A)	Acute Fish Toxicity of Tricyclohexyltin Hydroxide and N-Serve Formulations to Three Species of Fish	Batchelder, T.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	42077601	Nitrapyrin (Nitrogen Stabilizer): Evaluation of the Acute Toxicity to the Bluegill, <i>Lepomis macrochirus</i>	Weinberg, J., et. al.
072-1	Fish Acute Toxicity Test, Freshwater and Marine	42077602	Nitrapyrin (Nitrogen Stabilizer): Evaluation of the Acute Toxicity to the Rainbow Trout, <i>Oncorhynchus mykiss</i> Walbaum	Weinberg, J., et. al.
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	00074042 (1284498-D)	Quarterly Program Progress Report: Effect of Pesticides	Butler, P. A., et. al.
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	00077823 (091273-K)	Effects of Pesticides--Laboratory Studies. Quarterly Project Progress Report	U. S. Fish & Wildlife Service
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	00084438 (091166-V)	Effects of Pesticides--Laboratory Studies. Quarterly Project Progress Report	Lowe, J. I.
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	00092326 (090470-R)	Letter sent to E.F. Feichtmeier dated October 22, 1964 (Results of Tests with SD 7438)	Lowe, J. I.
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	00110295 (234605-A)	Toxicity of 6-Chloropicolinic Acid to Daphnids	McCarthy, W.
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	00110298 (238687-C)	Toxicity of Nitrapyrin to Daphnids	McCarthy, W.
072-2	Aquatic Invertebrate Acute Toxicity, Test, Freshwater Daphnids	42077603	Nitrapyrin (Nitrogen Stabilizer): Evaluation of the Acute Toxicity to the Daphnid, <i>Daphnia Magna</i> Straus	Weinberg, J., et. al.
072-3	Acute Toxicity Test	42077604	Nitrapyrin Acute Toxicity to the Tidewater Silverside, <i>Mendia Beryllina</i> Under Flow-Through Test Conditions	Ward, G.
072-3	Acute Toxicity Test	42077605 (092161-S)	Nitrapyrin: Acute Toxicity to the Eastern Oyster, <i>Crassostrea Virginica</i> , Under Flow-Through Conditions	Ward, G., et. al.
072-3	Acute Toxicity Test	00116917 (092161-AD)	Comparative Phytotoxicity of 2-Chloro-6-(trichloromethyl)pyridine and Its Principal Metabolite, 6-Chloropicolinic Acid	Geronimo, J., et. al.
072-3	Acute Toxicity Test	00116918 (092161-AE)	The Comparative Phytotoxicity of N-serve and Several Commercial Herbicides to Various Plants	Goring, C., et. al.
072-3	Acute Toxicity Test	05009249	An Evaluation of the Effectiveness of Terrazole as a Nitrification Inhibitor When Urea is Applied to Grain Sorghum	Westerman, R. L., et. al.

Nitrpyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
133-3 133-4	Dermal Exposure	44252101	N Serve 24: Worker Exposure Study with Corn (Pre Plant Injection with Ammonia--15 Replicates)	Honeycutt, R.

Mammalian Toxicology (Nitrpyrin)

81-1 81-2 81-3 81-4		00037519 (092163-J)	Acute Toxicological Properties of Dowco 163	Norris, J.
81-1 81-2 81-4 81-5		00037526 (092163-Q)	Toxicological Properties of N-Serve (R) 24E Nitrogen Stabilizer (M-3322)	Norris, J.
81-1	Acute Oral Toxicity in the Rat	00073564 (099615-J)	Thirteen Weeks Dietary Study of 6-Chloro-2-picolinic Acid in Mice	Warner, S.
81-1 81-2 81-3		00088720 (090440-C)	Toxicological Properties of N-Serve (2-Chloro-6-trichloromethylpyridine)	Dow Chemical
81-1 81-4		00088721 (090440-D)	Toxicity Tests with 6-Chloropicolinic Acid	Dow Chemical
81-1 81-2 81-4		00088723 (090440-F)	Toxicological Properties of S-1599, an Emulsifiable Concentrate Containing 34% 2-Chloro-6-trichloroMethylpyridine	Dow Chemical
81-1 81-2 81-4		00088736 (090440-Z)	Toxicological Properties of N-Serve (R) 101E (Code M-2475)	Taylor, M.
81-1 81-4		00088738	Toxicological Properties of S-1603, a Nitrogen Conservation Formulation Containing N-Serve	Dow Chemical
81-1 81-2 81-4 81-5		00110396 (130631-I)	Toxicological Properties of S-1599, an Emulsifiable Concentrate Containing 34% 2-Chloro-6-trichloromethylpyridine	Dow Chemical
81-1 81-4 81-5		00117018 (092166-J)	N-Serve 24 - Toxicology	Tinker, B.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
81-2	Acute Dermal Toxicity	00158904	2-Chloro-6-(trichloromethyl)pyridine: Acute Dermal Toxicity in New Zealand White Rabbits	Carreon, R.
81-3	Acute Inhalation Toxicity in the Rat	00158901	N-Serve Nitrogen Stabilizer: An Acute LC50 Vapor Study in Fischer 344 Rats	Nitschke, K.
81-4	Primary Eye Irritation in the Rabbit	00071524 (244055-A)	M-4429 (N-Serve 24): Eye Irritation Potential	Carreon, R.
81-4	Primary Eye Irritation in the Rabbit	00158902	2-Chloro-6-(trichloromethyl)pyridine: Primary Eye Irritation Study in New Zealand White Rabbits	Carreon, R.
81-6	Dermal Sensitization	00158903	2-Chloro-6-(trichloromethyl)pyridine: Dermal Sensitization Potential in the Guinea Pig	Carreon, R.
82-1	90-Day Feeding Study in the Rodent	00037520 (092163-K)	Results of 90-Day Dietary Feeding of 2-Chloro-6-trichloromethyl pyridine in Rats	Dow Chemical
82-1	90-Day Feeding Study in the Rodent	00037521 (092163-L)	Results of 94-Day Dietary Feeding of 2-Chloro-6-trichloromethyl pyridine in Beagle Hounds	Dow Chemical
82-1	90-Day Feeding Study in the Rodent	00073564 (099615-J)	Thirteen Weeks Dietary Study of 6-Chloro-2-picolinic Acid in Mice	Warner, S.
82-1	90-Day Feeding Study in the Rodent	00079565 (099792-A)	Final Report - Eight-Day Dietary LC50 Bobwhite Quail	Fink, R.
82-1	90-Day Feeding Study in the Rodent	00088722 (090440-E)	Results of 90-Day Dietary Feeding Studies of 6-Chloropicolinic Acid in Rats	Dow Chemical
82-1	90-Day Feeding Study in the Rodent	00088732 (090440-R)	Results of 90-Day Dietary Feeding of 2-Chloro-6-trichloromethyl pyridine in Rats	Dow Chemical

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
82-1	90-Day Feeding Study in the Rodent	00088733 (090440-U)	Results of 94-Day Dietary Feeding of 6-Chloropicolinic Acid in Beagle Hounds	Dow Chemical
82-1	90-Day Feeding Study in the Rodent	00105986 (247777-A)	6-Chloropicolinic Acid: Results of a 13-Week Dietary Toxicity Study in B6C3F1 Mice	Tollett, J.
82-1	90-Day Feeding Study in the Rodent	40918401	Nitrapyrin (N-Serve): Results of a 13-Week Dietary Toxicity Study in Dogs	Szabo, J.
82-1	90-Day Feeding Study in the Rodent	41345402	Involvement of Reversible Binding to [alpha] 2u - Globulin in 1,4-Dichlorobenzene-induced Nephrotoxicity	Charbonneau, M.
82-1	90-Day Feeding Study in the Rodent	41345404	The Comparative Pathobiology of [alpha] 2u - Globulin Nephropathy	Swenberg, J.
82-1	90-Day Feeding Study in the Rodent	44231802	A Subchronic (3-Month) Oral Toxicity Study of Nitrapyrin in the Mouse via Dietary Administration	Daly, I.
82-2	21-Day Dermal Toxicity	42239301	Nitrapyrin: Probe and 21 Day Repeated Dose Dermal Toxicity Study in New Zealand White Rabbits	Cosse, P.
82-3	90-Day Subchronic Dermal Toxicity	00037524 (092163-O)	21-Day Subacute Dermal Toxicity Study of N-Serve 24	Kehn, F.
82-3	90-Day Subchronic Dermal Toxicity	00037525 (092163-P)	21-Day Subacute Dermal Toxicity Study of N-Serve 24 (Lot 10197)	Kehn, F.
82-4	90-Day Inhalation in Rat	41461110	Light Hydrocarbon nephropathy and renal carcinoma	Lipsky, M.
83-1	Chronic Feeding Study in the Rodent	00088734 (090440-V)	One-Year Progress Report of a 2-Year Dietary Feeding Study of 6-Chloropicolinic Acid in Rats	Dow Chemical
83-1	Chronic Feeding Study in the Rodent	00088735 (090440-W)	One Year Progress Report of a 2-Year Dietary Feeding Study of 6-Chloropicolinic Acid in Dogs	Dow Chemical
83-1 83-2		00159891	6-Chloropicolinic Acid: 2-Year Dietary Chronic Toxicity-Oncogenicity Study in B6C3F1 Mice	Zimmer, M.
83-1	Chronic Feeding Study in the Rodent	00163217	Nitrapyrin (N-Serve): 13-Week Dietary Toxicity Study in Fischer 344 Rats	Szabo, J.
83-1 83-2		40339301	6-Chloropicolinic Acid: 2-Year Dietary Chronic Toxicity-Oncogenicity Study in B6C3F1 Mice: Supplemental Data	Zimmer, M.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
83-1	Chronic Feeding Study in the Rodent	41345401	Nitrapyrin: Chronic (One-Year) Dietary Toxicity Study in Dogs	Barna-Lloyd, T.
83-1 83-2		41345403	Nitrapyrin (N-Serve): Two-Year Chronic Toxicity and Oncogenicity Study in Fischer 344 Rats	Szabo, J.
83-2(b)	Oncogenicity Study in the Mouse	42730501	Response in Support of B6C3F1 Mouse Two-Year Oncogenicity Study (MRID 41651601)	Yano, B.
83-2(b)	Oncogenicity Study in the Mouse	44231803	Nitrapyrin (N-Serve Nitrogen Stabilizer): Two-Year Dietary Oncogenicity Study in B6C3F1 Mice (Final Report) (Relates to L0000134)	Stebbins, K.
83-3(b)	Teratogenicity in the Rabbit	00153543	Nitrapyrin: Oral Teratology in New Zealand White Rabbits	Berdasco, N.
83-3(a)	Teratogenicity in the Rat	00163792	Nitrapyrin: Oral Teratology Study in Fischer 344 Rats	Berdasco, N.
83-3(a)	Teratogenicity in the Rat	42050101	Nitrapyrin: Oral Teratology Probe Study in Fischer 344 Rats	Berdasco, N.
83-3(a)	Teratogenicity in the Rat	43165401	Letter Sent to Office of Pesticide Programs Dated March 4, 1994 Concerning Preliminary Results from a Rat Teratology Study on N-Serve	Hammond, L.
83-3(a)	Teratogenicity in the Rat	43210301	A Range-Finding Study to Evaluate the Developmental Toxicity of Nitrapyrin in the Rat	Schroeder, R.
83-3(a)	Teratogenicity in the Rat	43210302	A Developmental Toxicity Study in Rats with Nitrapyrin	Schroeder, R.
83-4	2-Generation Reproduction Study in the Rat	00116892 (092161-A)	Results of Fertility and Reproduction Studies in Rats Maintained on Diets Containing 6-Chloropicolinic Acid	McCollister, D.
83-4	2-Generation Reproduction Study in the Rat	40952701	Nitrapyrin (N-Serve TG): Results of a Two-Generation Reproduction Study in Fischer 344 Rats	Zempel, J.
83-5	Chronic Feeding/Oncogenicity in the Rat	41651601	Nitrapyrin (N-Serve): Two-Year Dietary Oncogenicity Study in B6C3F1 Mice	Quast, J.
84-2		00104957 (096187-C)	Application of the Ames Test for Mutagenesis to Nitrapyrin	Meikle, R.
84-2		00151627	Study to Determine the Ability of Nitrapyrin to Induce Mutation in Four Histidine-requiring Strains of Salmonella typhimurium	Kennelly, J.
84-2		00151628	Nitrapyrin: Micronucleus Test in Mice	Kirkland, D.
84-2		00163805	Evaluation of Nitrapyrin in the Chinese Hamster Ovary Cell/Hypoxanthine-guanine-phosphoribosyl Transferase (CHO/HGPRT) Forward Mutation Assay	Linscombe, V.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
85-1	General Metabolism	00032413 (008319-D)	N-Serve Abstracts: 1962-1970	Dow Chemical
85-1	General Metabolism	00053015 (099613-A)	Human Safety: Nitrapyrin, 6-Chloropicolinic Acid. Summary of Study 099613-C	Dow Chemical
85-1	General Metabolism	00088728 (090440-K)	Metabolism of 2-Chloro-6-trichloromethyl-C14-pyridine in the Rat	Redemann, C.
85-1	General Metabolism	00097807 (090440-L)	Metabolism of 2-Chloro-6-trichloromethyl-C14-pyridine in the Dog	Redemann, C.
85-1	General Metabolism	00099068 (090461-H)	Metabolism of 2-Chloro-6-trichloromethyl-C14-pyridine in the Dog	Redemann, C.
85-1	General Metabolism	00107172 (130631-A)	Summary and Conclusions Regarding Residues	Dow Chemical
85-1	General Metabolism	00107173 (130631-D)	Metabolism of 2-Chloro-6-trichloromethyl-C14-pyridine in the Rat	Redemann, C.
85-1	General Metabolism	00116901 (092161-L)	The Excretion of N-(6-chloropicolinoyl)-glycine by the Dog Fed 2-chloro-6-(trichloromethyl) pyridine	Redemann, C.
85-1	General Metabolism	00116902 (092161-M)	Fate of 2-chloro-6-(trichloromethyl) pyridine in the rat	Redemann, C.
85-1	General Metabolism	40305501	The Metabolism and Tissue Distribution of Orally Administered [Carbon 14]-nitrapyrin in Fischer 344 Rats	Timchalk, C.
85-1	General Metabolism	41461111	Renal Reabsorption of Low Molecular Weight Proteins in Adult Male Rats: Alpha2u-globulin (42376)	Neuhaus, O.
870.7485	Metabolism and Pharmacokinetics	44679301	Nitrapyrin: Metabolism and Tissue Distribution of 14-C Labeled Nitrapyrin in B6C3F1 Mice	Domoradzki, J.
85-2	Dermal Penetration	44282501	Nitrapyrin: Dermal Absorption of 14C-Nitrapyrin in Male Fischer 344 Rats	Domoradzki, J.
86-1	Domestic Animal Safety	00116897 (092161-G)	An Acute Single Oral Dose LD50 Toxicity Study of N-Serve in Turkey Poults and White Leghorn Cockerel Chicks	Stevenson, G.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
161-1	Hydrolysis	00079377 (245682-A)	The Hydrolysis and Photolysis Rates of Nitrapyrin in Dilute Aqueous Solution.	Meikle, R. W., et. al.
161-1	Hydrolysis	00079378 (245682-B)	Effect of Some Physical and Chemical Factors on the Rate of Hydrolysis of Nitrapyrin (N-serve.)	Hendrickson, L. L., et. al.
161-1	Hydrolysis	00226909 (092161-U)	The Partial Photolysis of 6-Chloropicolinic Acid in Aqueous Solution	Redemann, C., et. al.
161-1	Hydrolysis	00116910 (092161-V)	The Ultimate Photolysis Product of 6-Chloropicolinic Acid in Sunlight	Redemann, C., et. al.
161-1	Hydrolysis	00116911 (092161-W)	Effect of Temperature and pH on Hydrolysis of Dowco 163	Laskowski, D., et. al.
161-1	Hydrolysis	00117011 (092166-B)	The Photolysis Rate of Nitrapyrin in Buffered Distilled Water and in Canal Water: GS-1356	Meikle, R. W.
161-1	Hydrolysis	00117012 (092166-C)	The Hydrolysis Rate of Nitrapyrin in Buffered Distilled Water	Meikle, R. W.
161-1	Hydrolysis	00117013 (092166-D)	The Effect of Fluorescent Lights on 6-Chloropicolinic Acid in Aqueous Solution	Meikle, R. W.
161-1	Hydrolysis	40515302	Determination of the Hydrolysis Rate of Carbon-Nitrapyrin	Peterson, J., et. al.
161-2	Photodegradation in Water	40515303	Determination of the Photolysis Rate of Carbon - Nitrapyrin in pH-7 Buffer	Peterson, J., et. al.
161-3, 162-1	Photodegradation in Soil; Aerobic Soil Metabolism Study	00116913 (092161-Z)	Factors Influencing the Decomposition of 6-Chloropicolinic Acid in Soils	Youngson, C., et. al.
162-1, 164-1	Aerobic Soil Metabolism Study; Soil Dissipation Study	00052342 (099484-C)	Efficacy and Residue Data for Nitrapyrin Used as a Preplant Soil Application in Strawberry Production	Iwata Y., et. al.
162-1	Aerobic Soil Metabolism Study	00079379 (245682-C)	Anaerobic Degradation in Soil of ¹⁴ C-Nitrapyrin, 2-Chloro-6-(trichloromethyl) pyridine; the Active Ingredient of N-serve ^(R) Nitrogen Stabilizer sic.	Regoli, A. J., et. al.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRID (Access. No.)	Study Title	Author
162-1	Aerobic Soil Metabolism Study	00116914 (092161-AA)	The Decomposition of 6-Chloropicolinic Acid in Soil: Effect of Temperature	Meikle, R., et. al.
162-1	Aerobic Soil Metabolism Study	00116915 (092161-AB)	The Decomposition of 6-Chloropicolinic Acid in Soil: Effect of Soil Sterilization	Meikle, R., et. al.
162-1	Aerobic Soil Metabolism Study	00116916 (092161-AC)	Are Soil Microorganisms the Chief Source of Decomposition of 6-Chloropicolinic Acid in Soil	Youngson, C., et. al.
162-1	Aerobic Soil Metabolism Study	00117010 (092166-A)	Soil Degradation of 14C-Nitrapyrin, the Active Ingredient of N-serve Nitrogen Stabilizer	Regoli, A., et. al.
162-1	Aerobic Soil Metabolism Study	00117998 (248798-A)	Anaerobic Soil Degradation of Nitrapyrin	Oliver, G., et. al.
163-1	Leaching & Adsorption/Desorption	00079381 (245682-E)	The Sorption of 6-Chloropicolinic Acid by Soils	Hamaker, J. W.
163-1	Leaching & Adsorption/Desorption	00110294 (234113-B)	Nitrapyrin Volatility from Soil. Down to Earth 34(3):21-27	McCall, P., et. al.
163-1	Leaching & Adsorption/Desorption	00116903 (092161-N)	The Loss of 2-Chloro6-(trichloromethyl)-pyridine from Soil. Agricultural and Food Chemistry 12(3):207-209	Redemann, C., et. al.
163-1	Leaching & Adsorption/Desorption	00154723	Prediction of Chemical Mobility in Soil from Sorption Coefficients. Aquatic Toxicology and Hazard Assessment	McCall, P., et. al.
163-1	Leaching & Adsorption/Desorption	40339401	N-Serve--An Adsorption/Desorption Study of Nitrapyrin	Peterson, J., et. al.
163-2	Laboratory Volatility Study	00154730	Volatility of Pesticides from Soil Surfaces	Swann, R., et. al.
164-1	Soil Field Dissipation Study	00052343 (099484-D)	Determination of Nitrapyrin and 6-Chloropicolinic Acid in Strawberry Fruit and Soil Resulting from a Preplant Soil Application of N-Serve (R)	Iwata, Y., et. al.
164-1	Soil Field Dissipation Study	00116906 (092161-R)	A Study of the Persistence of Residues from N-serve in Soil	Redemann, C.
164-1	Soil Field Dissipation Study	00116907 (092161-S)	Crop Uptake and Soil Residues from 6-Chloropicolinic Acid Applied to Field Soil	Meikle, R., et. al.

Nitrapyrin Matrix (USEPA Subm.)

Guideline Number	Guideline Title	MRD (Access. No.)	Study Title	Author
164-1	Soil Field Dissipation Study	00116908 (092161-T)	Dowco 163 and 6-Chloropicolinic Acid Residue Analysis of Field Soils Treated with Dowco 163	Laskowski, D., et. al.
164-1	Soil Field Dissipation Study	40370301	Field Dissipation and Leaching of Nitrapyrin	Oliver, G., et. al.
165-0	Rotational Crop Study	00053008 (099614-B)	Kinetics of Aged Nitrapyrin in a Model Aquatic Ecosystem	Laskowski, D. A., et. al.
165-1	Confined Rotational Crop Study	00156610	Uptake and Identity of Residues in Replacement Crops Planted 30 Days after the Soil Incorporation of [Carbon-14]-Labeled Nitrapyrin	Bauriedel, W., et. al.
165-2	Aquatic Sediment Dissipation Study	41563101	A Residue Study of Nitrapyrin, 2-Chloro-6-(Dichloromethyl) Pyridine and 6-Chloropicolinic Acid in Rotational Crops	Bjerke, E., et. al.