



The Registry of Toxic Effects of Chemical Substances

Cyclopropanecarboxylic acid, 3 - (2,2 - dichlorovinyl) - 2,2 - dimethyl - , 3 - phenoxybenzyl ester, (+ -) - , (cis,trans) -

RTECS #: GZ1255000

CAS #: 52645-53-1

UPDATE: November 2007

MW: 391.31

MF: C₂₁H₂₀Cl₂O₃

NOTE:

- TOXICITY DATA HAVE NOT BEEN EVALUATED. OMISSION OF A SUBSTANCE OR NOTATION DOES NOT IMPLY ANY RELIEF FROM REGULATORY RESPONSIBILITY.

TABLE OF CONTENTS:

1. [SYNONYMS:](#)
2. [SKIN AND EYE IRRITATION DATA:](#)
3. [MUTATION DATA:](#)
4. [REPRODUCTIVE EFFECTS DATA:](#)
5. [ACUTE TOXICITY DATA:](#)
6. [OTHER MULTIPLE DOSE DATA:](#)
7. [REVIEWS:](#)
8. [STANDARDS AND REGULATIONS:](#)
9. [STATUS IN FEDERAL AGENCIES:](#)
10. [REFERENCES:](#)

SYNONYMS:

- | | |
|--|-------------------------|
| 1. (3 - Phenoxyphenyl) methyl 3 - (2,2 - dichlorethenyl) - 2,2 - | 33. Kaleait |
| | 34. Kestrel (pesticide) |

- dimethylcyclopropanecarboxylate
2. 3 - (2,2 - Dichloroethenyl) - 2,2 - dimethylcyclopropanecarboxylic acid
 3. 3 - Phenoxybenzyl (+ -) - 3 - (2,2 - dichlorovinyl) - 2,2 - dimethylcyclopropanecarboxylate
 4. 3 - Phenoxybenzyl dl - cis/trans - 3 - (2,2 - dichlorovinyl) - 2,2 - dimethyl - 1 - cyclopropanecarboxylate
 5. 3 - Phenoxybenzyl (+ -) - cis, trans - 3 - (2,2 - dichlorovinyl) - 2,2 - dimethylcyclopropane - 1 - carboxylate
 6. 3 - Phenoxybenzyl - (+) - cis,trans - 3 - (2,2 - dichloroethenyl) - 2,2 - dimethylcyclopropane - 1 - carboxylate
 7. AI3 - 29158
 8. Ambush
 9. Ambushfog
 10. Anomethrin N
 11. Antiborer 3768
 12. BW - 21 - Z
 13. Bematin 987
 14. Chinetrin
 15. Coopex
 16. Corsair
 17. Damminix
 18. Diffusil H
 19. Dragnet
 20. Dragnet FT
 21. Dragon
 22. Ecsumin
 23. Ectiban
 24. Efmethrin
 25. Exmin
 26. Exsmin
 27. FMC 33297
 28. FMC 41655
 29. ICI - PP 557
 30. Indothrin
 31. Ipitox
 32. Kafil
 35. Kudos
 36. LE 79 - 519
 37. MP79
 38. NIA 33297
 39. NRDC 143
 40. OMS 1821
 41. Outflank
 42. Outflank - stockade
 43. PP 557
 44. Peregine
 45. Peregine W
 46. Permasect
 47. Permasect - 25EC
 48. Permethrin
 49. Permethrin, commercial
 50. Permetrin (Hungarian)
 51. Permetrina (Portuguese)
 52. Permitrene (Hungarian)
 53. Picket
 54. Picket G
 55. Pounce
 56. Pramex
 57. S - 3151
 58. SBP - 1513
 59. SBP - 1513TEC
 60. Stomoxin
 61. Stomoxin P
 62. Stomozan
 63. Technical - grade permethrin
 64. WL 43479

SKIN AND EYE IRRITATION DATA AND REFERENCES:

ROUTE/ ORGANISM	DOSE	EFFECT	REFERENCE
skin rabbit	500 mg/24 hour	mild	NTIS** AD-A047-284

MUTATION DATA AND REFERENCES:

SYSTEM TEST	ROUTE/ ORGANISM/ TISSUE	DOSE	REFERENCE
cytogenetic analysis	oral mouse	150 mg/kg	PHABDI 21,227,1981
DNA damage	oral rat	9,000 mg/kg/60 day- intermittent	TXCYAC 203,17,2004
DNA inhibition	human lymphocyte	140 µmol/L	DCTODJ 10,291,1987
DNA inhibition	mouse leukocyte	110 µmol/L	DCTODJ 10,291,1987
micronucleus test	human lymphocyte	10 mg/L	EMMUEG 20,218,1992
micronucleus test	oral rat	139 µg/kg	DCTODJ 10,291,1987
sister chromatid exchange	human lymphocyte	50 mg/L	EMMUEG 20,218,1992
specific locus test	multiple <i>Drosophila melanogaster</i>	100 ppb	EMMUEG 25,148,1995

REPRODUCTIVE EFFECTS DATA AND REFERENCES:

ROUTE/ ORGANISM	DOSE	EFFECT	REFERENCE
oral mouse	lowest published toxic dose: 196 mg/kg (28 day male/28 day prior to copulation)	Reproductive: Effects on newborn: Growth statistics (e.g., reduced weight gain) Reproductive: Effects on newborn: Behavioral Reproductive: Effects on newborn: Physical	NRTXDN 27,421,2006
oral mouse	lowest published toxic dose: 196 mg/kg (28 day male/28 day prior to copulation)	Reproductive: Effects on newborn: Viability index (e.g., # alive at day 4 per # born alive)	NRTXDN 27,421,2006
oral rat	lowest published toxic dose: 250 mg/kg (6-15 day pregnant)	Reproductive: Effects on fertility: Post- implantation mortality (e.g., dead and/or resorbed implants per total number of implants)	BECTA6 29,84,1982

TUMORIGENIC DATA AND REFERENCES:

ROUTE/ ORGANISM	DOSE	EFFECT	REFERENCE
N/R	N/R	N/R	N/R

ACUTE TOXICITY DATA AND REFERENCES:

ROUTE/ ORGANISM	DOSE	EFFECT	REFERENCE
intracerebral mouse	lowest published lethal dose: 600 µg/kg	N/R	TXAPA9 66,290,1982
inhalation mouse	lethal concentration (50 percent kill): 685 mg/m ³	N/R	YKYUA6 30,1635,1979
inhalation rat	lethal concentration (50 percent kill): 485 mg/m ³	N/R	GISAAA 55(12),21,1990
intraperitoneal mouse	lethal dose (50 percent kill): 429 mg/kg	N/R	EESADV 18,27,1989
intraperitoneal rat	lowest published toxic dose: 60 mg/kg	Behavioral: Change in motor activity (specific assay)	VHTODE 42,65,2000
intravenous mouse	lethal dose (50 percent kill): 31 mg/kg	Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Other enzymes	TXAPA9 66,153,1982
intravenous rat	lethal dose : >270 mg/kg	N/R	NATUAS 246,169,1973
oral domestic bird	lethal dose (50 percent kill): 32 gm/kg	N/R	DEVEAA 32,168,1978
oral chicken	lethal dose (50 percent kill): 7 gm/kg	Behavioral: Tremor Behavioral: Irritability Gastrointestinal: Changes in structure or function of salivary glands	JJATDK 7,367,1987
oral duck	lethal dose (50 percent kill): 11,300 mg/kg	N/R	DEVEAA 32,168,1978
oral guinea pig	lethal dose (50 percent kill): 4 gm/kg	N/R	85JFAN A316,1984
oral man	lowest published toxic dose: 2,270 mg/kg	Behavioral: Coma Gastrointestinal: Hypermotility, diarrhea	JTCTDW 36,57,1998

		Nutritional and Gross Metabolic: Changes in: Metabolic acidosis	
oral mouse	lethal dose (50 percent kill): 424 mg/kg	N/R	EESADV 18,27,1989
oral quail	lethal dose (50 percent kill): 13,500 mg/kg	N/R	DEVEAA 32,168,1978
oral rat	lethal dose (50 percent kill): 383 mg/kg	N/R	NTIS** AD-A047-284
oral rat	lowest published toxic dose: 180 mg/kg	Endocrine: Other changes Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Other enzymes	NRTXDN 8,15,1987
oral rat	lowest published toxic dose: 50 mg/kg	Brain and Coverings: Other degenerative changes Biochemical: Metabolism (intermediary): Other	TOXID9 44,443,2005
oral rabbit	lethal dose (50 percent kill): 4 gm/kg	N/R	85JFAN A316,1984
subcutaneous mouse	lethal dose (50 percent kill): 10 gm/kg	Behavioral: Tremor Behavioral: Ataxia	BOCKAF 41,143,1976
subcutaneous rat	lethal dose (50 percent kill): 6,600 mg/kg	Behavioral: Tremor Behavioral: Ataxia	BOCKAF 41,143,1976
skin mouse	lethal dose (50 percent kill): >10 gm/kg	N/R	YKYUA6 30,1635,1979
skin mouse	lowest published toxic dose: 440 mg/kg	Endocrine: Changes in spleen weight	FCTOD7 40,1863,2002
skin mouse	lowest published toxic dose: 660 mg/kg	Endocrine: Changes in spleen weight Endocrine: Changes in thymus weight	FCTOD7 40,1863,2002
skin mouse	lowest published toxic dose: 660 mg/kg	Endocrine: Changes in thymus weight Blood: Changes in spleen Immunological Including Allergic: Decrease in cellular immune response	FCTOD7 40,1863,2002
skin mouse	lowest published lethal dose: 1,650 µL/kg	Behavioral: Ataxia Endocrine: Changes in thymus weight Immunological Including Allergic: Decrease in cellular immune response	IJTOFN 22,35,2003

skin rat	lethal dose (50 percent kill): 1,750 mg/kg	N/R	GISAAA 53(9),69,1988
skin rabbit	lethal dose (50 percent kill): >2 gm/kg	N/R	FMCHA2 -,C233,1991
unreported route man	lethal dose (50 percent kill): >4 gm/kg	N/R	DEVEAA 32,168,1978
unreported route mouse	lethal dose (50 percent kill): 680 mg/kg	Behavioral: Convulsions or effect on seizure threshold Behavioral: Ataxia Behavioral: Coma	GISAAA 53(9),69,1988
unreported route rat	lethal dose (50 percent kill): 537 mg/kg	Behavioral: Convulsions or effect on seizure threshold Behavioral: Ataxia Behavioral: Coma	GISAAA 53(9),69,1988
unreported route rat	lethal dose (50 percent kill): 1,200 mg/kg	N/R	TOXID9 44,256,2005

OTHER MULTIPLE DOSE DATA AND REFERENCES:

ROUTE/ ORGANISM	DOSE	EFFECT	REFERENCE
inhalation rat	lowest published toxic concentration: 1,500 $\mu\text{g}/\text{m}^3/24$ hour/13 week-continuous	Brain and Coverings: Recordings from specific areas of CNS Blood: Changes in leukocyte (WBC) count Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Phosphatases	GISAAA 55(12),21,1990
intraperitoneal mouse	lowest published toxic dose: 2.4 mg/kg/2 week-intermittent	Brain and Coverings: Other degenerative changes Biochemical: Metabolism (intermediary): Effect on active transport	NRTXDN 23,537,2002
intraperitoneal mouse	lowest published toxic dose: 4.5 mg/kg/2 week-intermittent	Brain and Coverings: Other degenerative changes Biochemical: Neurotransmitters or modulators (putative): Dopamine in striatum	NRTXDN 23,537,2002

intraperitoneal mouse	lowest published toxic dose: 0.6 mg/kg/2 week- intermittent	Brain and Coverings: Other degenerative changes Biochemical: Metabolism (intermediary): Other proteins	TXAPA9 192,287,2003
intraperitoneal mouse	lowest published toxic dose: 4.5 mg/kg/2 week- intermittent	Biochemical: Neurotransmitters or modulators (putative): Dopamine in striatum	NRTXDN 23,537,2002
intraperitoneal mouse	lowest published toxic dose: 150 mg/kg/2 week- intermittent	Biochemical: Metabolism (intermediary): Other Biochemical: Neurotransmitters or modulators (putative): Dopamine in striatum	NRTXDN 23,537,2002
intraperitoneal mouse	lowest published toxic dose: 4.5 mg/kg/2 week- intermittent	Biochemical: Neurotransmitters or modulators (putative): Dopamine at other sites	TOXID9 60,238,2001
intraperitoneal mouse	lowest published toxic dose: 600 mg/kg/2 week- intermittent	Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Dehydrogenases	TOXID9 60,238,2001
intraperitoneal mouse	lowest published toxic dose: 75 mg/kg/2 week- intermittent	Brain and Coverings: Other degenerative changes Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: True cholinesterase	TOXID9 60,242,2001
intraperitoneal mouse	lowest published toxic dose: 2.4 mg/kg/15 day- intermittent	Biochemical: Neurotransmitters or modulators (putative): Dopamine in striatum	TXAPA9 211,188,2006
intraperitoneal mouse	lowest published toxic dose: 9 mg/kg/15 day- intermittent	Brain and Coverings: Other degenerative changes Biochemical: Neurotransmitters or modulators (putative): Dopamine in striatum	IJTOFN 22,359,2003
oral mouse	lowest published toxic dose: 4 mg/kg/10 day- intermittent	Immunological Including Allergic: Decrease in cellular immune response	BECTA6 54,768,1995
oral mouse	lowest published toxic dose: 2,184 mg/kg/104 week- continuous	Lung, Thorax, or Respiration: Tumors	HBPTO* 1,814,2001
oral mouse	: 196 mg/kg/28 day- intermittent	Behavioral: Tremor Behavioral: Change in motor activity (specific assay) Nutritional and Gross Metabolic: Weight loss or decreased weight gain	NRTXDN 27,421,2006
oral quail	lowest published toxic dose: 1,098 mg/kg/7 day- continuous	Liver: Changes in liver weight Nutritional and Gross Metabolic: Weight loss or	BECTA6 31,479,1983

		decreased weight gain Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Hepatic microsomal mixed oxidase (dealkylation, hydroxylation, etc.)	
oral rat	lowest published toxic dose: 5,166 mg/kg/14 day-continuous	Behavioral: Tremor Liver: Changes in liver weight	NTIS** AD-A047284
oral rat	lowest published toxic dose: 33,855 mg/kg/26 week-continuous	Liver: Changes in liver weight	BOCKAF 41,143,1976
oral rat	lowest published toxic dose: 72 gm/kg/2 year-continuous	Liver: Other changes Liver: Changes in liver weight Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Other enzymes	FAATDF 11,308,1988
oral rat	lowest published toxic dose: 2,800 mg/kg/7 day-intermittent	Peripheral Nerve and Sensation: Recording from peripheral motor nerve Behavioral: Muscle weakness Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Other enzymes	ARTODN 53,297,1983
oral rat	lowest published toxic dose: 2,700 mg/kg/90 day-continuous	Behavioral: Convulsions or effect on seizure threshold Kidney, Ureter, and Bladder: Hematuria Related to Chronic Data: Death in the "MULTIPLE DOSE" data type field	NAYXEW 1,222,1981
oral rat	lowest published toxic dose: 9,000 mg/kg/60 day-intermittent	Blood: Changes in serum composition (e.g. TP, bilirubin, cholesterol) Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Multiple enzyme effects Biochemical: Metabolism (intermediary): Lipids including transport	TXCYAC 191,233,2003
oral rat	lowest published toxic dose: 252 mg/kg/28 day-intermittent	Liver: Changes in liver weight	INIMP* 1,925,2001
oral rat	lowest published toxic dose: 2,520 mg/kg/28 day-intermittent	Blood: Changes in bone marrow not included in above	INIMP* 1,925,2001

oral rat	lowest published toxic dose: 6,600 mg/kg/22 day-intermittent	Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Catalases Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: Other oxidoreductases Biochemical: Metabolism (intermediary): Lipids including transport	TXCYAC 203,17,2004
skin mouse	lowest published toxic dose: 660 mg/kg/10 day-intermittent	Immunological Including Allergic: Decrease in cellular immune response	FCTOD7 39,133,2001
skin mouse	lowest published toxic dose: 924 mg/kg/14 day-intermittent	Immunological Including Allergic: Decrease in cellular immune response	FCTOD7 39,133,2001
skin mouse	lowest published toxic dose: 6,160 mg/kg/28 day-intermittent	Immunological Including Allergic: Decrease in cellular immune response	FCTOD7 39,133,2001
skin mouse	lowest published toxic dose: 660 mg/kg/30 day-intermittent	Immunological Including Allergic: Decrease in cellular immune response	FCTOD7 39,133,2001
skin rat	lowest published toxic dose: 0.39 mg/kg/30 day-intermittent	Behavioral: Change in psychophysiological tests	JTEHD6 62,523,2001
skin rat	lowest published toxic dose: 5.85 mg/kg/45 day-intermittent	Brain and Coverings: Other degenerative changes Behavioral: Change in motor activity (specific assay) Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: True cholinesterase	TOSCF2 60,305,2001
skin rat	lowest published toxic dose: 3.9 mg/kg/30 day-intermittent	Brain and Coverings: Other degenerative changes Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: True cholinesterase	TOXID9 78,86,2004
skin rat	lowest published toxic dose: 7.8 mg/kg/60 day-intermittent	Brain and Coverings: Recordings from specific areas of CNS Brain and Coverings: Other degenerative changes	TOXID9 66,319,2002
skin rat	lowest published toxic dose: 3.64 mg/kg/28 day-intermittent	Brain and Coverings: Other degenerative changes	TOXID9 60,238,2001

skin rat	lowest published toxic dose: 5.85 mg/kg/45 day- intermittent	Behavioral: Alteration of classical conditioning	TOXID9 60,376,2001
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REVIEWS:		
ORGANIZATION	STANDARD	REFERENCE
International Agency for Research on Cancer (IARC) Cancer Review	Animal Inadequate Evidence	IMEMDT 53,329,1991
International Agency for Research on Cancer (IARC) Cancer Review	Human No Available Data	IMEMDT 53,329,1991
International Agency for Research on Cancer (IARC) Cancer Review	Group 3	IMEMDT 53,329,1991
TOXICOLOGY REVIEW		JTCTDW 38,103,2000
TOXICOLOGY REVIEW		TOLED5 127,29,2002
TOXICOLOGY REVIEW		MUREAV 488,151,2001
TOXICOLOGY REVIEW		MUREAV 562,77,2004
TOXICOLOGY REVIEW		EMMUEG 43,143,2004
TOXICOLOGY REVIEW		MUTAEX 21,93,2006
TOXICOLOGY REVIEW		NRTXDN 27,628,2006
TOXICOLOGY REVIEW		ENTOX* -,358,2005

STANDARDS AND REGULATIONS:		
ORGANIZATION	STANDARD	REFERENCE
Environmental Protection Agency (EPA) Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) 1988	PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION	FEREAC 54,7740,1989
Environmental Protection Agency (EPA) Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) 1998 STATUS OF	PESTICIDES: Supported	RBREV* -,198,1998
Occupational Exposure Limit - RUSSIA	short term exposure limit 1 mg/m ³ , JUN2003	

NIOSH DOCUMENTATION AND SURVEILLANCE:

ORGANIZATION	STANDARD or SURVEY	REFERENCE
N/R	N/R	N/R

STATUS IN FEDERAL AGENCIES:

ORGANIZATION	REFERENCE
EPA GENETOX PROGRAM 1988, Negative: In vitro UDS-human fibroblast; S cerevisiae-homozygosis	
Used in insecticides	
On EPA IRIS database	
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001	

REFERENCES:

CODEN	REFERENCE
85JFAN	"Agrochemicals Handbook," with updates, Hartley, D., and H. Kidd, eds., Nottingham, Royal Soc. of Chemistry, 1983-86
ARTODN	Archives of Toxicology. (Springer-Verlag, Heidelberger Pl. 3, D-1000 Berlin 33, Fed. Rep. Ger.) V.32- 1974-
BECTA6	Bulletin of Environmental Contamination and Toxicology. (Springer-Verlag New York, Inc., Service Center, 44 Hartz Way, Secaucus, NJ 07094) V.1- 1966-
BOCKAF	Bochu Kagaku. Scientific Pest Control. (Kyoto, Japan) V.1-42, 1937-77. Discontinued.
DCTODJ	Drug and Chemical Toxicology. (Marcel Dekker, 270 Madison Ave., New York, NY 10016) V.1- 1977/78-
DEVEAA	Defense des Vegetaux. (Federation Nationale des Groupements de Protection des Cultures, 149, rue de Bercy, 75595 Paris Cedex, 12, France) V.1- 1947-
EESADV	Ecotoxicology and Environmental Safety. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1977-
EMMUEG	Environmental and Molecular Mutagenesis. (Alan R. Liss, Inc., 41 E. 11th St., New York, NY 10003) V.10- 1987-

ENTOX*	Encyclopedia of Toxicology: Reference Book, Elsevier, 2005
FAATDF	Fundamental and Applied Toxicology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1-40, 1981-97. For publisher information, see TOSCF2
FCTOD7	Food and Chemical Toxicology. (Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523) V.20- 1982-
FEREAC	Federal Register. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) V.1- 1936-
FMCHA2	Farm Chemicals Handbook. (Meister Pub., 37841 Euclid Ave., Willoughby, OH 44094)
GISAAA	Gigiena i Sanitariya. For English translation, see HYSAAV. (V/O Mezhdunarodnaya Kniga, 113095 Moscow, USSR) V.1- 1936-
HBPTO*	Handbook of pesticide toxicology. Robert Krieger ed, Academic press, 2001
IJTOFN	International Journal of Toxicology. (Taylor & Francis, 47 Runway Rd., Suite g, Levittown, PA 19057) V.16- 1997-
IMEMDT	IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man. (WHO Publications Centre USA, 49 Sheridan Ave., Albany, NY 12210) V.1- 1972-
INIMP*	International Immunopharmacology (http://www.elsevier.com/locate/intimp) V.1- 2001-
JJATDK	JAT, Journal of Applied Toxicology. (John Wiley & Sons Ltd., Baffins Lane, Chichester, W. Sussex PO19 1UD, UK) V.1- 1981-
JTCTDW	Journal of Toxicology, Clinical Toxicology. (Marcel Dekker, 270 Madison Ave., New York, NY 10016) V.19- 1982-
JTEHD6	Journal of Toxicology and Environmental Health. (Hemisphere Pub., 1025 Vermont Ave., NW, Washington, DC 20005) V.1- 1975/76-
MUREAV	Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1964-
MUTAEX	Mutagenesis. (Oxford Univ. Press, Pinkhill House, Southfield Road, Eynsham, Oxford OX8 1JJ, UK) V.1- 1986-
NATUAS	Nature. (Nature Subscription Dept., POB 1018, Manasquan, NJ 08736) V.1- 1869-
NAYXEW	Nanjing Yixueyuan Xuebao. Journal of Nanjing Medical College. (Nanjing Yixueyuan, 140 Hanzhonglu, Nanjing, Peop. Rep. China) V.1- 1981(?)-
NRTXDN	Neurotoxicology. (Intox Press, Inc., POB 34075, Little Rock, AR 72203) V.1- 1979-
NTIS**	National Technical Information Service. (Springfield, VA 22161) Formerly U.S. Clearinghouse for Scientific & Technical Information.
PHABDI	Proceedings of the Hungarian Annual Meeting for Biochemistry. (Magyar Kemikusok Egyesulete, Anker Koz 1, 1061 Budapest, Hungary) V.1- 1961-
RBREV*	Status of Pesticides in Registration, Reregistration, and Special Review (Rainbow Report), Special Review and Reregistration Division Office of Pesticide Programs U.S. Environmental Protection Agency, 401 M. Street, S.W., Washington, D.C. 20460, Spring 1998
TOLED5	Toxicology Letters. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1977-
TOSCF2	Toxicological Sciences (Oxford University Press, 6277 Sea Harbor Drive, Orlando, FL 32887) V. 41, Jan. 1998-

TOXID9	Toxicologist. (Soc. of Toxicology, Inc., 475 Wolf Ledge Parkway, Akron, OH 44311) V.1- 1981-
TXAPA9	Toxicology and Applied Pharmacology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1959-
TXCYAC	Toxicology. (Elsevier Scientific Pub. Ireland, Ltd., POB 85, Limerick, Ireland) V.1- 1973-
VHTODE	Veterinary and Human Toxicology. (American College of Veterinary and Comparative Toxicology, Publication Office, Comparative Toxicology, Manhattan, KS 66506) V.19- 1977-
YKYUA6	Yakkyoku. Pharmacy. (Nanzando, 4-1-11, Yushima, Bunkyo-ku, Tokyo, Japan) V.1- 1950-

Used in insecticides

RTECS Compound Description:

Agricultural Chemical
Tumorigen
Mutagen
Reproductive Effector
Human Data
Primary Irritant

ALT CAS #: 57608-04-5

ALT CAS #: 60018-94-2

ALT CAS #: 63364-00-1

ALT CAS #: 75497-64-2

ALT CAS #: 93388-66-0

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