Aziridine, 1',1',1'''-phosphinylidynetris[2-methyl- (cas 57-39-6) MSDS

MSDS

CAS : 57-39-6
SYNONYMS : * C 3172

* ENT 50,003
* MAPO
* Metapoxide
* Metepa
* Methaphoxide
* Methyl apoxide
* 1,1',1'''-Phosphinylidynetris[2-methyl]azidine
* Tris(2-methyl-1-aziridinyl)phosphine oxide
* Tris(2-methylaziridin-1-yl)phosphine oxide
* N,N',N'''-Tris(1-methylethylene)phosphoramidate
* Tris(1-methylethylene)phosphoric triamide

*** CHEMICAL IDENTIFICATION ***

RTECS NUMBER : SZ1925000
CHEMICAL NAME : Phosphine oxide, tris(2-methyl-1-aziridinyl)-
CAS REGISTRY NUMBER : 57-39-6
BEILSTEIN REFERENCE NO. : 1345447
LAST UPDATED : 199701
DATA ITEMS CITED : 56
MOLECULAR FORMULA : C9-H18-N3-O-P
MOLECULAR WEIGHT : 215.27
WISWESSER LINE NOTATION : T3NJ B1 APO&- AT3NTJ B1&- AT3NTJ B1
COMPOUND DESCRIPTOR : Agricultural Chemical
          Tumorigen
          Drug
          Mutagen
          Reproductive Effector
SYNONYMS/TRADE NAMES :
          * C 3172
* ENT 50,003
* MAPO
* Metapoxide
* Metepa
* Methaphoxide
* Methyl aphoxide
* 1,1',1''-Phosphinylidynetris(2-methyl)azridine
* Tris(2-methyl-1-aziridinyl)phosphine oxide
* Tris(2-methylaziridin-1-yl)phosphine oxide
* N,N',N''-Tris(1-methylethylene)phosphoramidate
* Tris(1-methylethylene)phosphoric triamide

*** HEALTH HAZARD DATA ***

** ACUTE TOXICITY DATA **

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE/DURATION : 136 mg/kg

TOXIC EFFECTS :
Details of toxic effects not reported other than lethal dose value

REFERENCE :

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Administration onto the skin
SPECIES OBSERVED : Rodent - rat
DOSE/DURATION : 183 mg/kg

TOXIC EFFECTS :
Behavioral - food intake (animal)
Gastrointestinal - hypermotility, diarrhea
Lungs, Thorax, or Respiration - dyspnea

REFERENCE :

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - mouse
DOSE/DURATION : 292 mg/kg
TOXIC EFFECTS:

Details of toxic effects not reported other than lethal dose value

REFERENCE:

INHEAO Industrial Health. (National Institute of Industrial Health, 6-21-1 Nagao, Tama-ku, Kawasaki, 213 Japan) V.1- 1963- Volume(issue)/page/year: 8,54,1970

TYPE OF TEST: LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE: Administration onto the skin
SPECIES OBSERVED: Rodent - mouse
DOSE/DURATION: 375 mg/kg

TOXIC EFFECTS:

Details of toxic effects not reported other than lethal dose value

REFERENCE:

INHEAO Industrial Health. (National Institute of Industrial Health, 6-21-1 Nagao, Tama-ku, Kawasaki, 213 Japan) V.1- 1963- Volume(issue)/page/year: 8,54,1970

TYPE OF TEST: LDLo - Lowest published lethal dose
ROUTE OF EXPOSURE: Intraperitoneal
SPECIES OBSERVED: Rodent - mouse
DOSE/DURATION: 3125 ug/kg

TOXIC EFFECTS:

Details of toxic effects not reported other than lethal dose value

REFERENCE:


TYPE OF TEST: LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE: Subcutaneous
SPECIES OBSERVED: Rodent - mouse
DOSE/DURATION: 140 mg/kg

TOXIC EFFECTS:

Details of toxic effects not reported other than lethal dose value

REFERENCE:

INHEAO Industrial Health. (National Institute of Industrial Health, 6-21-1 Nagao, Tama-ku, Kawasaki, 213 Japan) V.1- 1963- Volume(issue)/page/year: 8,54,1970

TYPE OF TEST: LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE: Oral
SPECIES OBSERVED: Bird - chicken
DOSE/DURATION: 329 mg/kg
TOXIC EFFECTS:

Peripheral Nerve and Sensation - flaccid paralysis without anesthesia
(usually neuromuscular blockage)
Behavioral - ataxia

REFERENCE:
First St., Duluth, MN 55802) V.1- 1959- Volume(issue)/page/year:
16,100,1970

TYPE OF TEST : LDLo - Lowest published lethal dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Mammal - domestic
DOSE/DURATION : 50 mg/kg

TOXIC EFFECTS:

Behavioral - ataxia
Lungs, Thorax, or Respiration - cyanosis
Liver - hepatitis (hepatocellular necrosis), diffuse

REFERENCE:
ANYAA9 Annals of the New York Academy of Sciences. (New York Academy of
Sciences, 2 E. 63rd St., New York, NY 10021) V.1- 1877-
Volume(issue)/page/year: 111,715,1964

** OTHER MULTIPLE DOSE TOXICITY DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE/DURATION : 1050 mg/kg/15W-I

TOXIC EFFECTS:

Peripheral Nerve and Sensation - flaccid paralysis with appropriate
anesthesia
Related to Chronic Data - death
Related to Chronic Data - changes in testicular weight

REFERENCE:
BWHOA6 Bulletin of the World Health Organization. (WHO, Pub. Center USA, 49
Sheridan Ave., Albany, NY 12210) Volume(issue)/page/year: 31,737,1964

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE/DURATION : 480 mg/kg/8D-I

TOXIC EFFECTS:
Blood - pigmented or nucleated red blood cells
Blood - changes in erythrocyte (RBC) count
Blood - changes in leukocyte (WBC) count

REFERENCE:
INHEAO Industrial Health. (National Institute of Industrial Health, 6-21-1 Nagao, Tama-ku, Kawasaki, 213 Japan) V.1- 1963- Volume(issue)/page/year: 8,54,1970

** TUMORIGENIC DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE/DURATION : 1000 mg/kg/60W-I

TOXIC EFFECTS:
Tumorigenic - Carcinogenic by RTECS criteria
Brain and Coverings - tumors
Blood - leukemia

REFERENCE:

** REPRODUCTIVE DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE : 200 ug/kg
SEX/DURATION : female 1 day(s) pre-mating

TOXIC EFFECTS:
Reproductive - Effects on Newborn - weaning or lactation index (e.g., # alive at weaning per # alive at day 4)
TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE : 140 mg/kg
SEX/DURATION : male

TOXIC EFFECTS :
Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth)
Reproductive - Fertility - other measures of fertility
Reproductive - Effects on Newborn - live birth index (measured after birth)

REFERENCE :

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE : 193 mg/kg
SEX/DURATION : male 77 day(s) pre-mating

TOXIC EFFECTS :
Reproductive - Paternal Effects - testes, epididymis, sperm duct

REFERENCE :

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE : 1 mg/kg
SEX/DURATION : male 1 day(s) pre-mating

TOXIC EFFECTS :
Reproductive - Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females)
Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth)
Reproductive - Effects on Newborn - stillbirth

REFERENCE :
IJMRAQ Indian Journal of Medical Research. (Indian Council of Medical Research, Ansari Nagar, New Delhi 110 029, India) V.1- 1913-
Volume(issue)/page/year: 67,958,1978
TYPE OF TEST            : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE       : Oral
SPECIES OBSERVED        : Rodent - rat
DOSE                    : 350 mg/kg
SEX/DURATION            : male 70 day(s) pre-mating
TOXIC EFFECTS :
Reproductive - Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females)
REFERENCE :

TYPE OF TEST            : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE       : Oral
SPECIES OBSERVED        : Rodent - rat
DOSE                    : 500 ug/kg
SEX/DURATION            : female 1 day(s) pre-mating
TOXIC EFFECTS :
Reproductive - Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated)
Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth)
REFERENCE :
IJMRAQ Indian Journal of Medical Research. (Indian Council of Medical Research, Ansari Nagar, New Delhi 110 029, India) V.1- 1913- Volume(issue)/page/year: 67,958,1978

TYPE OF TEST            : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE       : Intraperitoneal
SPECIES OBSERVED        : Rodent - rat
DOSE                    : 30 mg/kg
SEX/DURATION            : female 12 day(s) after conception
TOXIC EFFECTS :
Reproductive - Effects on Embryo or Fetus - fetal death
Reproductive - Specific Developmental Abnormalities - musculoskeletal system
Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain)
REFERENCE :
TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - rat
DOSE : 30 mg/kg
SEX/DURATION : female 12 day(s) after conception

TOXIC EFFECTS :
Reproductive - Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord)

REFERENCE :

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - rat
DOSE : 8750 ug/kg
SEX/DURATION : female 7-13 day(s) after conception

TOXIC EFFECTS :
Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus)

REFERENCE :

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - rat
DOSE : 30 mg/kg
SEX/DURATION : female 11 day(s) after conception

TOXIC EFFECTS :
Reproductive - Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants)

REFERENCE :

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - mouse
DOSE : 12500 ug/kg
SEX/DURATION : male 1 day(s) pre-mating

TOXIC EFFECTS :
Reproductive - Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants)

REFERENCE:

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - mouse
DOSE : 25 mg/kg
SEX/DURATION : male 1 day(s) pre-mating

TOXIC EFFECTS:
Reproductive - Fertility - pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea)

REFERENCE:

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - mouse
DOSE : 25 mg/kg
SEX/DURATION : female 5 day(s) pre-mating

TOXIC EFFECTS:
Reproductive - Effects on Newborn - germ cell effects (in offspring)

REFERENCE:

** MUTATION DATA **

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Bacteria - Salmonella typhimurium
DOSE/DURATION : 500 ug/plate
REFERENCE:
CNJGA8 Canadian Journal of Genetics and Cytology. (National Research Council of Canada, Publication Sales and Distribution, Ottawa ON K1A OR6, Canada) V.1- 1959- Volume(issue)/page/year: 21,319,1979

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Bacteria - Escherichia coli
DOSE/DURATION : 5 mg/plate
TYPE OF TEST : DNA inhibition
TEST SYSTEM : Bacteria - Escherichia coli
DOSE/DURATION : 10 mmol/L

REFERENCE :
IJEB66 Indian Journal of Experimental Biology. (Publications & Information Directorate, CSIR, Hillside Rd., New Delhi 110 012, India) V.1- 1963-
Volume(issue)/page/year: 22,453,1984

TYPE OF TEST : DNA inhibition
TEST SYSTEM : Microorganism - not otherwise specified
DOSE/DURATION : 2000 ppm

REFERENCE :
IJEB66 Indian Journal of Experimental Biology. (Publications & Information Directorate, CSIR, Hillside Rd., New Delhi 110 012, India) V.1- 1963-
Volume(issue)/page/year: 16,450,1978

TYPE OF TEST : Mutation test systems - not otherwise specified
TEST SYSTEM : Microorganism - not otherwise specified
DOSE/DURATION : 1000 ppm

REFERENCE :
IJEB66 Indian Journal of Experimental Biology. (Publications & Information Directorate, CSIR, Hillside Rd., New Delhi 110 012, India) V.1- 1963-
Volume(issue)/page/year: 16,455,1978

TYPE OF TEST : Sex chromosome loss and nondisjunction
ROUTE OF EXPOSURE : Parenteral
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 5 nmol/L

REFERENCE :
For publisher information, see IOHSA5. Volume(issue)/page/year: 38,442,1969

TYPE OF TEST : Dominant lethal test
ROUTE OF EXPOSURE : Oral
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 1 mmol/L

REFERENCE :
RPZHAW Roczniki Panstwowego Zakladu Higieny. (Ars Polona, POB 1001, 00-068
TYPE OF TEST: Mutation test systems - not otherwise specified
ROUTE OF EXPOSURE: Administration onto the skin
TEST SYSTEM: Insect - not otherwise specified
DOSE/DURATION: 1000 ppm
REFERENCE:
CYTOAN Cytologia. (Japan Pub. Trading Co. (USA), 1255 Howard St., San Francisco, CA 94103) V.1- 1929- Volume(issue)/page/year: 38,21,1973

TYPE OF TEST: Cytogenetic analysis
ROUTE OF EXPOSURE: Administration onto the skin
TEST SYSTEM: Insect - not otherwise specified
DOSE/DURATION: 50 ppm
REFERENCE:
CYTOAN Cytologia. (Japan Pub. Trading Co. (USA), 1255 Howard St., San Francisco, CA 94103) V.1- 1929- Volume(issue)/page/year: 38,21,1973

TYPE OF TEST: Dominant lethal test
ROUTE OF EXPOSURE: Unreported
TEST SYSTEM: Insect - not otherwise specified
DOSE/DURATION: 10 ppm
REFERENCE:

TYPE OF TEST: Dominant lethal test
ROUTE OF EXPOSURE: Parenteral
TEST SYSTEM: Insect - not otherwise specified
DOSE/DURATION: 5 ug
REFERENCE:

TYPE OF TEST: Dominant lethal test
ROUTE OF EXPOSURE: Oral
TEST SYSTEM: Insect - not otherwise specified
DOSE/DURATION: 4000 ppm
REFERENCE:
TYPE OF TEST            : Dominant lethal test
ROUTE OF EXPOSURE       : Administration onto the skin
TEST SYSTEM             : Insect - not otherwise specified
DOSE/DURATION           : 10 ug
REFERENCE :
  ETEAA7 Entomologia Experimentalis et Applicata.  (Kluwer Academic Pub.
  Group, Distribution Centre, POB 322, 3300 AH Dordrecht, Netherlands) V.1-
  1958- Volume(issue)/page/year: 12,221,1969

TYPE OF TEST            : Sperm Morphology
ROUTE OF EXPOSURE       : Unreported
TEST SYSTEM             : Insect - not otherwise specified
DOSE/DURATION           : 50 ug
REFERENCE :
  JMENAA6 Journal of Medical Entomology.  (Bishop Museum Press, POB 19000-A,
  Honolulu, HI 96818) V.1- 1964- Volume(issue)/page/year: 9,139,1972

TYPE OF TEST            : Cytogenetic analysis
TEST SYSTEM             : Human Lymphocyte
DOSE/DURATION           : 20 mg/L
REFERENCE :
  233 Spring St., New York, NY 10013) V.2- 1966- Volume(issue)/page/year:
  8,783,1972

TYPE OF TEST            : Cytogenetic analysis
ROUTE OF EXPOSURE       : Intraperitoneal
TEST SYSTEM             : Rodent - rat
DOSE/DURATION           : 40 mg/kg/2D
REFERENCE :
  MUREAV Mutation Research.  (Elsevier Science Pub. B.V., POB 211, 1000 AE
  Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 26,199,1974

TYPE OF TEST            : Cytogenetic analysis
ROUTE OF EXPOSURE       : Oral
TEST SYSTEM             : Rodent - rat
DOSE/DURATION           : 408 mg/kg/30D
REFERENCE :
  IJEBA6 Indian Journal of Experimental Biology.  (Publications & Information
  Directorate, CSIR, Hillside Rd., New Delhi 110 012, India) V.1- 1963-
  Volume(issue)/page/year: 16,1000,1978

TYPE OF TEST            : Micronucleus test
ROUTE OF EXPOSURE : Intraperitoneal
TEST SYSTEM : Rodent - mouse
DOSE/DURATION : 400 ug/kg/24H

REFERENCE :
MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE
Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 26,391,1974

TYPE OF TEST : Dominant lethal test
ROUTE OF EXPOSURE : Intraperitoneal
TEST SYSTEM : Rodent - mouse
DOSE/DURATION : 12500 ug/kg

REFERENCE :
First St., Duluth, MN 55802) V.1- 1959- Volume(issue)/page/year:
23,288,1972

TYPE OF TEST : Sperm Morphology
ROUTE OF EXPOSURE : Intraperitoneal
TEST SYSTEM : Rodent - mouse
DOSE/DURATION : 30 mg/kg/5D

REFERENCE :
PNASA6 Proceedings of the National Academy of Sciences of the United States
of America. (National Academy of Sciences, Printing & Pub. Office, 2101
Constitution Ave., Washington, DC 20418) V.1- 1915- Volume(issue)/page/year:
72,4425,1975

*** REVIEWS ***

IARC Cancer Review:Animal Inadequate Evidence
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- Volume(issue)/page/year: 9,107,1975

IARC Cancer Review:Human No Adequate Data
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- Volume(issue)/page/year: 9,107,1975

IARC Cancer Review:Group 3
IMSDUL IARC Monographs, Supplement. (WHO Publications Centre USA, 49
Sheridan Ave., Albany, NY 12210) No.1- 1979- Volume(issue)/page/year:
7,56,1987

TOXICOLOGY REVIEW
EPA GENETOX PROGRAM 1988, Positive: In vivo cytogenetics-nonhuman bone marrow

EPA GENETOX PROGRAM 1988, Positive: Rodent dominant lethal; Mammalian micronucleus

EPA GENETOX PROGRAM 1988, Positive: N. crassa-forward mutation; Sperm morphology-mouse

EPA GENETOX PROGRAM 1988, Positive: D. melanogaster Sex-linked lethal

EPA GENETOX PROGRAM 1988, Inconclusive: Carcinogenicity-mouse/rat; Sperm morphology-mouse F1

EPA TSCA Section 8(b) CHEMICAL INVENTORY

*** END OF RECORD ***