Yangzhou Sunchem Co.,Ltd.

Material Safety Data Sheet

4-Nitro-o-Phenylenediamine (Brown 4N)

MSDS

: o-Phenylenediamine, 4-nitro-

CAS : 99-56-9

SYNONYMS : * 2-Amino-4-nitroaniline

* C.I. 76020

* 1,2-Diamino-4-nitrobenzene

* 3,4-Diaminonitrobenzene

* NCI-C03941

* 4NDB

* 4-Nitro-1,2-benzenediamine

* 4-Nitro-1,2-diaminobenzene

* 4-Nitro-1,2-fenylendiamin

* p-Nitro-o-phenylenediamine

* 4-Nitro-o-phenylene-diamine

* 4-Nitro-1,2-phenylenediamine

* 4-NO

* 4-Nop

* 4-Nopd

* 4-N-o-Pda

*** CHEMICAL IDENTIFICATION ***

RTECS NUMBER : ST2975000

CHEMICAL NAME : o-Phenylenediamine, 4-nitro-

CAS REGISTRY NUMBER : 99-56-9

BEILSTEIN REFERENCE NO. : 0608106

REFERENCE : 4-13-00-00075 (Beilstein Handbook Reference)

LAST UPDATED : 199710

DATA ITEMS CITED : 55

MOLECULAR FORMULA : C6-H7-N3-O2

MOLECULAR WEIGHT : 153.16

WISWESSER LINE NOTATION : ZR BZ DNW

COMPOUND DESCRIPTOR : Tumorigen

Mutagen

Reproductive Effector

SYNONYMS/TRADE NAMES :

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* 4-Nitro-1,2-benzenediamine
* 4-Nitro-1,2-diaminobenzene
* 4-Nitro-1,2-fenylendiamin
* p-Nitro-o-phenylenediamine
* 4-Nitro-o-phenylene-diamine
* 4-Nitro-1,2-phenylenediamine
* 4-NO
* 4-Nop
* 4-Nopd
* 4-N-o-Pda

*** 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 : 681 mg/kg
TOXIC EFFECTS :
Details of toxic effects not reported other than lethal dose value
REFERENCE :
NCILB* Progress Report for Contract No. NIH-NCI-E-C-72-3252, Submitted to the National Cancer Institute by Litton Bionetics, Inc. (Bethesda, MD)
Volume(issue)/page/year: NCI-E-C-72-3252,1973
TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - rat
DOSE/DURATION : >1600 mg/kg
TOXIC EFFECTS :
Details of toxic effects not reported other than lethal dose value
REFERENCE :
JTEHD6 Journal of Toxicology and Environmental Health. (Hemisphere Pub., 1025 Vermont Ave., NW, Washington, DC 20005) V.1- 1975/76-
Volume(issue)/page/year: 2,657,1977
TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - mouse
DOSE/DURATION : 681 mg/kg
TOXIC EFFECTS :
Details of toxic effects not reported other than lethal dose value

** REPRODUCTIVE DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Intraperitoneal

SPECIES OBSERVED : Rodent - rat

DOSE : 3 gm/kg

SEX/DURATION : male 30 day(s) pre-mating

TOXIC EFFECTS :

Reproductive - Effects on Embryo or Fetus - fetal death

REFERENCE :

SheCW# Personal Communication from C.W. Sheu, Genetic Toxicology Branch, FDA, Mar. 25, 1977 Volume(issue)/page/year: 25MAR1977

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Subcutaneous

SPECIES OBSERVED : Rodent - mouse

DOSE : 2560 mg/kg

SEX/DURATION : female 6-15 day(s) after conception

TOXIC EFFECTS:

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

Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue)

Reproductive - Specific Developmental Abnormalities - cardiovascular (circulatory) system

REFERENCE :

TJADAB Teratology, The International Journal of Abnormal Development. (Alan R. Liss, Inc., 41 E. 11th St., New York, NY 10003) V.1- 1968- Volume(issue)/page/year: 19,37A,1979

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Subcutaneous

SPECIES OBSERVED : Rodent - mouse

DOSE : 7680 mg/kg

SEX/DURATION : female 6-15 day(s) after conception

TOXIC EFFECTS :

Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth)

** MUTATION DATA **

TYPE OF TEST : Mutation in microorganisms

TEST SYSTEM : Bacteria - Salmonella typhimurium

DOSE/DURATION : 1 ug/plate

REFERENCE :

ENMUDM Environmental Mutagenesis. (New York, NY) V.1-9, 1979-87. For publisher information, see EMMUEG. Volume(issue)/page/year: 8(Suppl 7),1,1986

TYPE OF TEST : Mutation test systems - not otherwise specified
TEST SYSTEM : Bacteria - Salmonella typhimurium
DOSE/DURATION : 5 mg/L

TYPE OF TEST : DNA repair
TEST SYSTEM : Bacteria - Escherichia coli
DOSE/DURATION : 10 mg/L
REFERENCE :
CRNGDP Carcinogenesis (London). (Oxford Univ. Press, Pinkhill House, Southfield Road, Eynsham, Oxford OX8 1JJ, UK) V.1- 1980- Volume(issue)/page/year: 2,189,1981
TYPE OF TEST : Phage inhibition capacity
TEST SYSTEM : Bacteria - Escherichia coli
DOSE/DURATION : 400 ug/plate
TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Bacteria - Bacillus subtilis
DOSE/DURATION : 50 mg/L
REFERENCE :
MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 95,191,1982
TYPE OF TEST : Specific locus test
ROUTE OF EXPOSURE : Oral
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 2 mmol/L
TYPE OF TEST : Sex chromosome loss and nondisjunction
ROUTE OF EXPOSURE : Parenteral
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 5 mmol/L
REFERENCE :
MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 56,31,1977
TYPE OF TEST : Sex chromosome loss and nondisjunction
ROUTE OF EXPOSURE : Oral
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 1200 umol/L/3D
TYPE OF TEST : Gene conversion and mitotic recombination
TEST SYSTEM : yeast - Saccharomyces cerevisiae
DOSE/DURATION : 500 mg/L
REFERENCE :
MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 78,243,1980
TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Mold - Aspergillus nidulans
DOSE/DURATION : 200 mg/L

TYPE OF TEST : Unscheduled DNA synthesis
TEST SYSTEM : Human HeLa cell
DOSE/DURATION : 1 mmol/L
REFERENCE :
CNREA8 Cancer Research. (Public Ledger Building, Suit 816, 6th & Chestnut Sts., Philadelphia, PA 19106) V.1- 1941- Volume(issue)/page/year: 38,2621,1978
TYPE OF TEST : Morphological transformation
TEST SYSTEM : Rodent - rat Embryo
DOSE/DURATION : 80 ug/plate
TYPE OF TEST : Unscheduled DNA synthesis
TEST SYSTEM : Rodent - rat Liver
DOSE/DURATION : 500 ug/L
TYPE OF TEST : Micronucleus test
ROUTE OF EXPOSURE : Intraperitoneal
TEST SYSTEM : Rodent - mouse
DOSE/DURATION : 1 gm/kg
TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Rodent - mouse Lymphocyte
DOSE/DURATION : 13100 ug/L
TYPE OF TEST : Morphological transformation
TEST SYSTEM : Rodent - mouse Embryo
DOSE/DURATION : 10 umol/L/24H
TYPE OF TEST : Morphological transformation
TEST SYSTEM : Rodent - mouse Cells - not otherwise specified
DOSE/DURATION : 10 umol/L
TYPE OF TEST : DNA damage
TEST SYSTEM : Rodent - mouse Lymphocyte
DOSE/DURATION : 104 umol/L
TYPE OF TEST : Mutation test systems - not otherwise specified
ROUTE OF EXPOSURE : Oral
TEST SYSTEM : Rodent - mouse
DOSE/DURATION : 250 mg/kg
TYPE OF TEST : Dominant lethal test
ROUTE OF EXPOSURE : Intraperitoneal
TEST SYSTEM : Rodent - mouse
DOSE/DURATION : 3000 mg/kg/10W (Intermittent)
TYPE OF TEST : Mutation in mammalian somatic cells
TEST SYSTEM : Rodent - mouse Lymphocyte
DOSE/DURATION : 50 mg/L
TYPE OF TEST : Morphological transformation
TEST SYSTEM : Rodent - hamster Embryo
DOSE/DURATION : 500 ug/L
TYPE OF TEST : Cytogenetic analysis

TEST SYSTEM : Rodent - hamster Ovary
DOSE/DURATION : 138 mg/L
TYPE OF TEST : Cytogenetic analysis
TEST SYSTEM : Rodent - hamster Fibroblast
DOSE/DURATION : 25 mg/L
TYPE OF TEST : Cytogenetic analysis
TEST SYSTEM : Rodent - hamster Cells - not otherwise specified
DOSE/DURATION : 10 umol/L/24H
TYPE OF TEST : Cytogenetic analysis
TEST SYSTEM : Rodent - hamster Cells - not otherwise specified
DOSE/DURATION : 10 umol/L
TYPE OF TEST : Cytogenetic analysis
TEST SYSTEM : Rodent - hamster Lung
DOSE/DURATION : 40 mg/L
TYPE OF TEST : Sister chromatid exchange
TEST SYSTEM : Rodent - hamster Ovary
DOSE/DURATION : 25 mg/L

*** 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: 16,63,1978
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: 16,63,1978
IARC Cancer Review:Group 3
IMSUDL 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
JACTDZ Journal of the American College of Toxicology. (Mary Ann Liebert, Inc., 1651 Third Ave., New York, NY 10128) V.1-12, 1982-1993. Discontinued. Volume(issue)/page/year: 4(3),161,1985

*** NIOSH STANDARDS DEVELOPMENT AND SURVEILLANCE DATA ***
NIOSH OCCUPATIONAL EXPOSURE SURVEY DATA :
NOES - National Occupational Exposure Survey (1983)
NOES Hazard Code - A1601
No. of Facilities: 2065 (estimated)
No. of Industries: 1
No. of Occupations: 1
No. of Employees: 17652 (estimated)

No. of Female Employees: 11624 (estimated)

*** STATUS IN U.S. ***

EPA GENETOX PROGRAM 1988, Positive: Body fluid assay; SHE-clonal assay

EPA GENETOX PROGRAM 1988, Positive: Cell transform.-C3H/10T1/2

EPA GENETOX PROGRAM 1988, Positive: Cell transform.-RLV F344 rat embryo

EPA GENETOX PROGRAM 1988, Positive: Histidine reversion-Ames test

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

EPA GENETOX PROGRAM 1988, Positive/dose response: In vitro cytogenetics-nonhuman

EPA GENETOX PROGRAM 1988, Positive/dose response: In vitro SCE-nonhuman

EPA GENETOX PROGRAM 1988, Negative: Carcinogenicity-mouse/rat; N crassa-aneuploidy

EPA GENETOX PROGRAM 1988, Negative: Sperm morphology-mouse; S cerevisiae-reversion

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

EPA GENETOX PROGRAM 1988, Inconclusive: In vitro UDS-human fibroblast

EPA TSCA Section 8(b) CHEMICAL INVENTORY

EPA TSCA 8(a) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE

FEREAC Federal Register. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) V.1- 1936- Volume(issue)/page/year: 47,26992,82

EPA TSCA Section 8(d) unpublished health/safety studies

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1998

NCI Carcinogenesis Bioassay (feed);no evidence:mouse,rat

NCITR* National Cancer Institute Carcinogenesis Technical Report Series. (Bethesda, MD) No.0-205. For publisher information, see NTPTR*. Volume(issue)/page/year: NCI-TR-180,79

*** END OF RECORD ***