

FIGURE 10. 2,4-D ON CCINFO/DISC

* * * * *
 * R T E C S (R) *
 *
 * Produced by : National Institute for Occupational Safety and Health *
 * Provided by : Canadian Centre for Occupational Health and Safety *
 * * * * * Issue : 96-4 (November, 1996) *

*** CHEMICAL IDENTIFICATION ***

RTECS NUMBER : AG6825000
 CHEMICAL NAME : Acetic acid, (2,4-dichlorophenoxy)-
 CAS REGISTRY NUMBER : 94-75-7
 LAST UPDATED : 9607
 DATA ITEMS CITED : 119
 MOLECULAR FORMULA : C8-H6-Cl2-O3
 MOLECULAR WEIGHT : 221.04
 WISWESSER LINE NOTATION : QV1OR BG DG
 COMPOUND DESCRIPTOR : Agricultural Chemical
 Tumorigen
 Mutagen
 Reproductive Effector
 Human
 Primary Irritant

SYNONYMS/TRADE NAMES :

- * Acide 2,4-dichloro phenoxyacetique
- * Acido(2,4-dicloro-fenossi)-acetico
- * Acme amine 4
- * Acme butyl ester 4
- * Acme LV 4
- * Agrotect
- * Amidox
- * Amoxone
- * Aqua-Kleen
- * Barrage
- * BH 2,4-D
- * Brush-rhap
- * B-Selektionon
- * Chipco turf herbicide "D"
- * Chloroxone
- * Citrus fix
- * Crop rider
- * 2,4-D (ACGIH:OSHA)
- * 2,4-D acid
- * Debroussaillant 600
- * Decamine
- * Deherban
- * (2,4-Dichloor-fenoxy)-azijnzuur
- * Dichlorophenoxyacetic acid
- * 2,4-Dichlorophenoxyacetic acid
- * Dichlorophenoxyacetic acid (OSHA)
- * 2,4-Dichlorophenoxyacetic acid
- * (2,4-Dichlor-phenoxy)-essigsaeure
- * Dicopur
- * DMA-4
- * Dormone
- * 2,4-Dwuchlorofenoksyoctowy kwas
- * Emulsamine BK
- * Emulsamine E-3

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

- * ENT 8,538
- * Envert 171
- * Envert DT
- * Estone
- * Farmco
- * Fernimine
- * Fernoxone
- * Ferxone
- * Foredex 75
- * Hedonal
- * Hedonal (the herbicide)
- * Herbidal
- * Hivol-44
- * Ipaner
- * Kwasu 2,4-dwuchlorofenoksyoctowego
- * Kwas 2,4-dwuchlorofenoksyoctowy
- * Kyselina 2,4-dichlorfenoksyoctova
- * Lawn-keep
- * Macrondray
- * Miracle
- * Monosan
- * Moxone
- * Netagrone
- * Netagrone 600
- * NSC 423
- * Pennamine
- * Pennamine D
- * Phenox
- * Pielik
- * Plantgard
- * RCRA waste number U240
- * Rhodia
- * Spritz-hormin/2,4-D
- * Spritz-hormit/2,4-D
- * Superormone centre
- * U-5043
- * U 46DP
- * Vergemaster
- * Verton
- * Verton D
- * Verton 2D
- * Vidon 638
- * Weed-Ag-Bar
- * Weedar-64
- * Weedatul
- * Weedez Wonder BAR
- * Weedone LV4
- * Weed-rhap
- * Weed TOX
- * Weedtrol

*** HEALTH HAZARD DATA ***

** SKIN/EYE IRRITATION DATA **

TYPE OF TEST	: Standard Draize test
ROUTE OF EXPOSURE	: Administration onto the skin
SPECIES OBSERVED	: Rodent - rabbit

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

DOSE/DURATION : 500 mg/24H
 REACTION SEVERITY : Mild
 REFERENCE :
 28ZPAK "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku," Marhold,
 J.V., Institut Pro Vychovu Vedoucicn Pracovniku Chemickeho Prumyclu Praha,
 Czechoslovakia, 1972 Volume(issue)/page/year: -,279,72

TYPE OF TEST : Standard Draize test
 ROUTE OF EXPOSURE : Administration into the eye
 SPECIES OBSERVED : Rodent - rabbit
 DOSE/DURATION : 750 ug/24H
 REACTION SEVERITY : Severe
 REFERENCE :
 28ZPAK "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku," Marhold,
 J.V., Institut Pro Vychovu Vedoucicn Pracovniku Chemickeho Prumyclu Praha,
 Czechoslovakia, 1972 Volume(issue)/page/year: -,279,72

** ACUTE TOXICITY DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose
 ROUTE OF EXPOSURE : Oral
 SPECIES OBSERVED : Human - man
 DOSE/DURATION : 2 gm/kg
 TOXIC EFFECTS :
 Behavioral - coma
 Lungs, Thorax, or Respiration - respiratory depression
 REFERENCE :
 ARTODN Archives of Toxicology. (Springer-Verlag, Heidelberger Pl. 3, D-1000
 Berlin 33, Fed. Rep. Ger.) V.32- 1974- Volume(issue)/page/year: 66,518,92

TYPE OF TEST : TDLo - Lowest published toxic dose
 ROUTE OF EXPOSURE : Oral
 SPECIES OBSERVED : Human - man
 DOSE/DURATION : 5714 mg/kg
 TOXIC EFFECTS :
 Behavioral - coma
 Cardiac - change in rate
 Lungs, Thorax, or Respiration - respiratory depression
 REFERENCE :
 ARTODN Archives of Toxicology. (Springer-Verlag, Heidelberger Pl. 3, D-1000
 Berlin 33, Fed. Rep. Ger.) V.32- 1974- Volume(issue)/page/year: 66,518,92

TYPE OF TEST : LDLo - Lowest published lethal dose
 ROUTE OF EXPOSURE : Oral
 SPECIES OBSERVED : Human
 DOSE/DURATION : 80 mg/kg
 TOXIC EFFECTS :
 Gastrointestinal - nausea or vomiting
 Behavioral - coma
 Behavioral - somnolence (general depressed activity)
 REFERENCE :
 ARPAAQ Archives of Pathology. (Chicago, IL) V.5(3)-50(3), 1928-50; V.70-99,
 1960-75. For publisher information, see APLMAS. Volume(issue)/page/year:
 94,270,72

TYPE OF TEST : LDLo - Lowest published lethal dose
 ROUTE OF EXPOSURE : Oral
 SPECIES OBSERVED : Human - man

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

DOSE/DURATION : 93 mg/kg

TOXIC EFFECTS :

Behavioral - convulsions or effect on seizure threshold

REFERENCE :

PAREAQ Pharmacological Reviews. (Williams & Wilkins, 428 E. Preston St., Baltimore, MD 21202) V.1- 1949- Volume(issue)/page/year: 14,225,62

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE/DURATION : 375 mg/kg

TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

FMCHA2 Farm Chemicals Handbook. (Meister Pub., 37841 Euclid Ave., Willoughby, OH 44094) Volume(issue)/page/year: -,C174,91

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill

ROUTE OF EXPOSURE : Administration onto the skin

SPECIES OBSERVED : Rodent - rat

DOSE/DURATION : 1500 mg/kg

TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

WRPCA2 World Review of Pest Control. (London, UK) V.1-10, 1962-71. Discontinued. Volume(issue)/page/year: 9,119,70

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill

ROUTE OF EXPOSURE : Intraperitoneal

SPECIES OBSERVED : Rodent - rat

DOSE/DURATION : 666 mg/kg

TOXIC EFFECTS :

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change

Behavioral - muscle weakness

Behavioral - coma

REFERENCE :

JHITAB Journal of Industrial Hygiene and Toxicology. (Cambridge, MA) V.18-31, 1936-49. For publisher information, see AEHLAU. Volume(issue)/page/year: 29,85,47

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - mouse

DOSE/DURATION : 347 mg/kg

TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

RPZHAW Roczniki Panstwowego Zakladu Higieny. (Ars Polona, POB 1001, 00-068 Warsaw 1, Poland) V.1- 1950- Volume(issue)/page/year: 31,373,80

TYPE OF TEST : LDLo - Lowest published lethal dose

ROUTE OF EXPOSURE : Intraperitoneal

SPECIES OBSERVED : Rodent - mouse

DOSE/DURATION : 125 mg/kg

TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

TXAPAS Toxicology and Applied Pharmacology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1959- Volume(issue)/page/year: 23,288,72

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
 ROUTE OF EXPOSURE : Oral
 SPECIES OBSERVED : Mammal - dog
 DOSE/DURATION : 100 mg/kg
 TOXIC EFFECTS :

Behavioral - stiffness
 Behavioral - coma

REFERENCE :

AEHLAU Archives of Environmental Health. (Heldref Pub., 4000 Albemarle St., NW, Washington, DC 20016) V.1- 1960- Volume(issue)/page/year: 7,202,63

TYPE OF TEST : LDLo - Lowest published lethal dose
 ROUTE OF EXPOSURE : Oral
 SPECIES OBSERVED : Rodent - rabbit
 DOSE/DURATION : 800 mg/kg
 TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

AMPMAR Archives des Maladies Professionnelles de Medecine du Travail et de Securite Sociale. (SPPIF, B.P.22, F-41353 Vineuil, France) V.7- 1946- Volume(issue)/page/year: 12,26,51

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
 ROUTE OF EXPOSURE : Administration onto the skin
 SPECIES OBSERVED : Rodent - rabbit
 DOSE/DURATION : 1400 mg/kg
 TOXIC EFFECTS :

Behavioral - ataxia
 Skin and Appendages - primary irritation (after topical exposure)

REFERENCE :

AFDOAQ Quarterly Bulletin--Association of Food and Drug Officials of the United States. (Denver, CO) V.3-38, 1939-74. Volume(issue)/page/year: 16,3,52

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
 ROUTE OF EXPOSURE : Intraperitoneal
 SPECIES OBSERVED : Rodent - rabbit
 DOSE/DURATION : 400 mg/kg
 TOXIC EFFECTS :

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change
 Behavioral - muscle weakness
 Behavioral - coma

REFERENCE :

JHITAB Journal of Industrial Hygiene and Toxicology. (Cambridge, MA) V.18-31, 1936-49. For publisher information, see AEHLAU. Volume(issue)/page/year: 29,85,47

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
 ROUTE OF EXPOSURE : Intravenous
 SPECIES OBSERVED : Rodent - rabbit
 DOSE/DURATION : 400 mg/kg
 TOXIC EFFECTS :

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change
 Behavioral - muscle weakness

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

Behavioral - coma

REFERENCE :

Jihtab Journal of Industrial Hygiene and Toxicology. (Cambridge, MA) V.18-31, 1936-49. For publisher information, see AEHLAU. Volume(issue)/page/year: 29,85,47

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - guinea pig
DOSE/DURATION : 469 mg/kg
TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

AJVRAH American Journal of Veterinary Research. (American Veterinary Medical Assoc., 930 N. Meacham Rd., Schaumburg, IL 60196) V.1- 1940- Volume(issue)/page/year: 15,622,54

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Intraperitoneal
SPECIES OBSERVED : Rodent - guinea pig
DOSE/DURATION : 666 mg/kg
TOXIC EFFECTS :

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change

Behavioral - muscle weakness

Behavioral - coma

REFERENCE :

Jihtab Journal of Industrial Hygiene and Toxicology. (Cambridge, MA) V.18-31, 1936-49. For publisher information, see AEHLAU. Volume(issue)/page/year: 29,85,47

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - hamster
DOSE/DURATION : 500 mg/kg
TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

TXAPA9 Toxicology and Applied Pharmacology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1959- Volume(issue)/page/year: 48,A192,79

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Bird - chicken
DOSE/DURATION : 541 mg/kg
TOXIC EFFECTS :

Gastrointestinal - gastritis

Behavioral - somnolence (general depressed activity)

Liver - fatty liver degeneration

REFERENCE :

AJVRAH American Journal of Veterinary Research. (American Veterinary Medical Assoc., 930 N. Meacham Rd., Schaumburg, IL 60196) V.1- 1940- Volume(issue)/page/year: 15,622,54

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Mammal - species unspecified
DOSE/DURATION : 375 mg/kg

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

TOXIC EFFECTS :

Details of toxic effects not reported other than lethal dose value

REFERENCE :

SCIEAS Science. (American Assoc. for the Advancement of Science, 1333 H St., NW, Washington, DC 20005) V.1- 1895- Volume(issue)/page/year: 165,465,69

** OTHER MULTIPLE DOSE TOXICITY DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE/DURATION : 13650 mg/kg/13W-C

TOXIC EFFECTS :

Nutritional and Gross Metabolic - weight loss or decreased weight gain

REFERENCE :

FAATDF Fundamental and Applied Toxicology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1981- Volume(issue)/page/year: 9,423,87

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE/DURATION : 200 mg/kg/5W-I

TOXIC EFFECTS :

Behavioral - muscle weakness

REFERENCE :

NTOTDY Neurobehavioral Toxicology and Teratology. (Fayetteville, NY) V.3-8, 1981-86. For publisher information, see NETEEC. Volume(issue)/page/year: 5,331,83

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE/DURATION : 54750 mg/kg/1Y-C

TOXIC EFFECTS :

Sense Organs and Special Senses (Eye) - retinal changes (pigmentary depositions, retinitis, other)

Behavioral - change in motor activity (specific assay)

REFERENCE :

TOXID9 Toxicologist. (Soc. of Toxicology, Inc., 475 Wolf Ledge Parkway, Akron, OH 44311) V.1- 1981- Volume(issue)/page/year: 15,23,95

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Mammal - dog

DOSE/DURATION : 700 mg/kg/90D-I

TOXIC EFFECTS :

Blood - changes in other cell count (unspecified)

Nutritional and Gross Metabolic - weight loss or decreased weight gain

Reproductive - Tumorigenic effects - other reproductive system tumors

REFERENCE :

AMIHBC AMA Archives of Industrial Hygiene and Occupational Medicine. (Chicago, IL) V.2-10, 1950-54. For publisher information, see AEHLAU. Volume(issue)/page/year: 7,61,53

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Mammal - dog

DOSE/DURATION : 1820 mg/kg/52W-C

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

TOXIC EFFECTS :

Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis)
Liver - other changes
Blood - changes in serum composition (TP, bilirubin, cholesterol)

REFERENCE :

FAATDF Fundamental and Applied Toxicology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1981- Volume(issue)/page/year: 29,78,96

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Intravenous

SPECIES OBSERVED : Mammal - dog

DOSE/DURATION : 300 mg/kg/6D-I

TOXIC EFFECTS :

Musculoskeletal - changes in teeth and supporting structures
Skin and Appendages - dermatitis, other (after systemic exposure)
Reproductive - Tumorigenic effects - other reproductive system tumors

REFERENCE :

JIH TAB Journal of Industrial Hygiene and Toxicology. (Cambridge, MA) V.18-31, 1936-49. For publisher information, see AEHLAU. Volume(issue)/page/year: 29,85,47

** REPRODUCTIVE DATA **

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE : 220 ug/kg

SEX/DURATION : female 1-22 day(s) after conception

TOXIC EFFECTS :

Reproductive - Specific Developmental Abnormalities - blood and lymphatic systems (including spleen and marrow)

REFERENCE :

GISAAA Gigiena i Sanitariya. For English translation, see HYSAAV. (V/O Mezhdunarodnaya Kniga, 113095 Moscow, USSR) V.1- 1936- Volume(issue)/page/year: 50(10),76,85

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE : 1 gm/kg

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

TOXIC EFFECTS :

Reproductive - Specific Developmental Abnormalities - musculoskeletal system
Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus)
Reproductive - Effects on Embryo or Fetus - fetal death

REFERENCE :

TXAPA9 Toxicology and Applied Pharmacology. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) V.1- 1959- Volume(issue)/page/year: 22,14,72

TYPE OF TEST : TDLo - Lowest published toxic dose

ROUTE OF EXPOSURE : Oral

SPECIES OBSERVED : Rodent - rat

DOSE : 125 mg/kg

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

TOXIC EFFECTS :

Reproductive - Specific Developmental Abnormalities - musculoskeletal system

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

REFERENCE :

FCTXAV Food and Cosmetics Toxicology. (London, UK) V.1-19, 1963-81. For publisher information, see FCTOD7. Volume(issue)/page/year: 9,801,71

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE : 500 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 - Central Nervous System
Reproductive - Specific Developmental Abnormalities - urogenital system

REFERENCE :

FCTXAV Food and Cosmetics Toxicology. (London, UK) V.1-19, 1963-81. For publisher information, see FCTOD7. Volume(issue)/page/year: 9,801,71

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - rat
DOSE : 500 mg/kg
SEX/DURATION : female 6-15 day(s) after conception

TOXIC EFFECTS :

Reproductive - Specific Developmental Abnormalities - homeostasis
Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain)

REFERENCE :

FCTXAV Food and Cosmetics Toxicology. (London, UK) V.1-19, 1963-81. For publisher information, see FCTOD7. Volume(issue)/page/year: 9,801,71

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - mouse
DOSE : 707 mg/kg
SEX/DURATION : female 11-14 day(s) after conception

TOXIC EFFECTS :

Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus)
Reproductive - Effects on Embryo or Fetus - fetal death
Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue)

REFERENCE :

AECTCV Archives of Environmental Contamination and Toxicology. (Springer-Verlag New York, Inc., Service Center, 44 Hartz Way, Secaucus, NJ 070944) V.1-1973- Volume(issue)/page/year: 6,33,77

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - mouse
DOSE : 900 mg/kg
SEX/DURATION : female 6-14 day(s) after conception

TOXIC EFFECTS :

Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth)
Reproductive - Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord)
Reproductive - Specific Developmental Abnormalities - eye/ear

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

REFERENCE :

NTIS** National Technical Information Service. (Springfield, VA 22161)
Formerly U.S. Clearinghouse for Scientific & Technical Information.
Volume(issue)/page/year: PB223-160

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - mouse
DOSE : 438 mg/kg
SEX/DURATION : female 8-12 day(s) after conception
TOXIC EFFECTS :
Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain)

REFERENCE :

TCMUD8 Teratogenesis, Carcinogenesis, and Mutagenesis. (Alan R. Liss, Inc., 41
E. 11th St., New York, NY 10003) V.1- 1980- Volume(issue)/page/year: 7,7,87

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Subcutaneous
SPECIES OBSERVED : Rodent - mouse
DOSE : 882 mg/kg
SEX/DURATION : female 6-14 day(s) after conception
TOXIC EFFECTS :
Reproductive - Effects on Embryo or Fetus - fetal death
Reproductive - Specific Developmental Abnormalities - Central Nervous System
Reproductive - Effects on Embryo or Fetus - extra-embryonic structures (e.g.,
placenta, umbilical cord)

REFERENCE :

NTIS** National Technical Information Service. (Springfield, VA 22161)
Formerly U.S. Clearinghouse for Scientific & Technical Information.
Volume(issue)/page/year: PB223-160

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Subcutaneous
SPECIES OBSERVED : Rodent - mouse
DOSE : 900 mg/kg
SEX/DURATION : female 6-14 day(s) after conception
TOXIC EFFECTS :
Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g.,
stunted fetus)
Reproductive - Specific Developmental Abnormalities - eye/ear
Reproductive - Specific Developmental Abnormalities - craniofacial (including
nose and tongue)

REFERENCE :

NTIS** National Technical Information Service. (Springfield, VA 22161)
Formerly U.S. Clearinghouse for Scientific & Technical Information.
Volume(issue)/page/year: PB223-160

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Subcutaneous
SPECIES OBSERVED : Rodent - mouse
DOSE : 900 mg/kg
SEX/DURATION : female 6-14 day(s) after conception
TOXIC EFFECTS :
Reproductive - Fertility - pre-implantation mortality (e.g. reduction in number
of implants per female; total number of implants per corpora lutea)
Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured
before birth)

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

REFERENCE :

NTIS** National Technical Information Service. (Springfield, VA 22161)
Formerly U.S. Clearinghouse for Scientific & Technical Information.
Volume(issue)/page/year: PB223-160

TYPE OF TEST : TDLo - Lowest published toxic dose
ROUTE OF EXPOSURE : Oral
SPECIES OBSERVED : Rodent - hamster
DOSE : 200 mg/kg
SEX/DURATION : female 7-11 day(s) after conception

TOXIC EFFECTS :

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

REFERENCE :

BECTA6 Bulletin of Environmental Contamination and Toxicology. (Springer-Verlag New York, Inc., Service Center, 44 Hartz Way, Secaucus, NJ 07094) V.1-1966- Volume(issue)/page/year: 6,559,71

** MUTATION DATA **

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Bacteria - Salmonella typhimurium
DOSE/DURATION : 250 ug/plate

REFERENCE :

MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 204,615,88

TYPE OF TEST : DNA repair
TEST SYSTEM : Bacteria - Escherichia coli
DOSE/DURATION : 5 mg/disc

REFERENCE :

NTIS** National Technical Information Service. (Springfield, VA 22161)
Formerly U.S. Clearinghouse for Scientific & Technical Information.
Volume(issue)/page/year: PB80-133226

TYPE OF TEST : DNA adduct
TEST SYSTEM : Bacteria - Escherichia coli
DOSE/DURATION : 20 umol/L

REFERENCE :

MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 89,95,81

TYPE OF TEST : DNA repair
TEST SYSTEM : Bacteria - Bacillus subtilis
DOSE/DURATION : 5 mg/disc

REFERENCE :

NTIS** National Technical Information Service. (Springfield, VA 22161)
Formerly U.S. Clearinghouse for Scientific & Technical Information.
Volume(issue)/page/year: PB80-133226

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Microorganism - not otherwise specified
DOSE/DURATION : 1 gm/L

REFERENCE :

MILEDM Microbios Letters. (Faculty Press, 88 Regent St., Cambridge, UK) V.1-1976- Volume(issue)/page/year: 5,103,77

TYPE OF TEST : Mutation in microorganisms

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

TEST SYSTEM : Microorganism - not otherwise specified
DOSE/DURATION : 1 gm/L
REFERENCE :
MILEDM Microbios Letters. (Faculty Press, 88 Regent St., Cambridge, UK) V.1-
1976- Volume(issue)/page/year: 5,103,77

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Microorganism - not otherwise specified
DOSE/DURATION : 1 gm/L
REFERENCE :
MILEDM Microbios Letters. (Faculty Press, 88 Regent St., Cambridge, UK) V.1-
1976- Volume(issue)/page/year: 5,103,77

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Microorganism - not otherwise specified
DOSE/DURATION : 1 gm/L
REFERENCE :
MILEDM Microbios Letters. (Faculty Press, 88 Regent St., Cambridge, UK) V.1-
1976- Volume(issue)/page/year: 5,103,77

TYPE OF TEST : Specific locus test
ROUTE OF EXPOSURE : Oral
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: 319,237,93

TYPE OF TEST : Specific locus test
ROUTE OF EXPOSURE : Multiple routes
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 10 ppb
REFERENCE :
EMMUEG Environmental and Molecular Mutagenesis. (Alan R. Liss, Inc., 41 E.
11th St., New York, NY 10003) V.10- 1987- Volume(issue)/page/year:
25,148,95

TYPE OF TEST : Sex chromosome loss and nondisjunction
ROUTE OF EXPOSURE : Oral
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 25 ppm
REFERENCE :
ECBUDQ Ecological Bulletins. (Editorial Service of FRN, Box 6710, S-11385,
Stockholm, Sweden) No.19- 1975- Volume(issue)/page/year: 27,190,78

TYPE OF TEST : Sex chromosome loss and nondisjunction
ROUTE OF EXPOSURE : Unreported
TEST SYSTEM : Insect - Drosophila melanogaster
DOSE/DURATION : 1000 ppm/15D
REFERENCE :
ECBUDQ Ecological Bulletins. (Editorial Service of FRN, Box 6710, S-11385,
Stockholm, Sweden) No.19- 1975- Volume(issue)/page/year: 27,182,78

TYPE OF TEST : Mutation in microorganisms
TEST SYSTEM : Yeast - Saccharomyces cerevisiae
DOSE/DURATION : 150 mg/L
REFERENCE :
ECBUDQ Ecological Bulletins. (Editorial Service of FRN, Box 6710, S-11385,

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

Stockholm, Sweden) No.19- 1975- Volume(issue)/page/year: 27,193,78

TYPE OF TEST : Gene conversion and mitotic recombination
 TEST SYSTEM : Mold - Aspergillus nidulans
 DOSE/DURATION : 4 umol/L
 REFERENCE :
 MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE
 Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 204,615,88

TYPE OF TEST : DNA damage
 TEST SYSTEM : Fish - salmon Sperm
 DOSE/DURATION : 1 mmol/L
 REFERENCE :
 PYTCAS Phytochemistry. An International Journal of Plant Biochemistry.
 (Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523) V.1-
 1961- Volume(issue)/page/year: 11,3135,72

TYPE OF TEST : Unscheduled DNA synthesis
 TEST SYSTEM : Human Fibroblast
 DOSE/DURATION : 1 umol/L
 REFERENCE :
 MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE
 Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 42,161,77

TYPE OF TEST : Cytogenetic analysis
 TEST SYSTEM : Human Lymphocyte
 DOSE/DURATION : 20 ug/L
 REFERENCE :
 CYGEDX Cytology and Genetics (English Translation). Translation of TGANAK.
 (Allerton Press Inc., 150 Fifth Ave., New York, NY 10011) V.8- 1974-
 Volume(issue)/page/year: 8(3),6,74

TYPE OF TEST : Sister chromatid exchange
 TEST SYSTEM : Human Lymphocyte
 DOSE/DURATION : 10 mg/L
 REFERENCE :
 JOHEAS Journal of Heredity. (American Genetic Assoc., 818 18th St., NW,
 Washington, DC 20006) V.5- 1914- Volume(issue)/page/year: 73,224,82

TYPE OF TEST : Cytogenetic analysis
 ROUTE OF EXPOSURE : Intraperitoneal
 TEST SYSTEM : Rodent - rat
 DOSE/DURATION : 100 ug/kg
 REFERENCE :
 CYTOAN Cytologia. (Japan Pub. Trading Co. (USA), 1255 Howard St., San
 Francisco, CA 94103) V.1- 1929- Volume(issue)/page/year: 52,275,87

TYPE OF TEST : DNA inhibition
 ROUTE OF EXPOSURE : Oral
 TEST SYSTEM : Rodent - mouse
 DOSE/DURATION : 200 mg/kg
 REFERENCE :
 MUREAV Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE
 Amsterdam, Netherlands) V.1- 1964- Volume(issue)/page/year: 55,197,78

TYPE OF TEST : Cytogenetic analysis
 ROUTE OF EXPOSURE : Oral
 TEST SYSTEM : Rodent - mouse

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

DOSE/DURATION : 100 mg/kg

REFERENCE :

CYGEDX Cytology and Genetics (English Translation). Translation of TGANAK. (Allerton Press Inc., 150 Fifth Ave., New York, NY 10011) V.8- 1974- Volume(issue)/page/year: 8(3),6,74

TYPE OF TEST : DNA inhibition

TEST SYSTEM : Rodent - hamster Ovary

DOSE/DURATION : 1 mmol/L

REFERENCE :

TOLED5 Toxicology Letters. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) V.1- 1977- Volume(issue)/page/year: 29,137,85

TYPE OF TEST : Cytogenetic analysis

TEST SYSTEM : Rodent - hamster Ovary

DOSE/DURATION : 2400 mg/L

REFERENCE :

EMMUEG Environmental and Molecular Mutagenesis. (Alan R. Liss, Inc., 41 E. 11th St., New York, NY 10003) V.10- 1987- Volume(issue)/page/year: 10(Suppl 10),1,87

TYPE OF TEST : Sister chromatid exchange

TEST SYSTEM : Rodent - hamster Ovary

DOSE/DURATION : 167 mg/L

REFERENCE :

EMMUEG Environmental and Molecular Mutagenesis. (Alan R. Liss, Inc., 41 E. 11th St., New York, NY 10003) V.10- 1987- Volume(issue)/page/year: 10(Suppl 10),1,87

TYPE OF TEST : Mutation in mammalian somatic cells

TEST SYSTEM : Rodent - hamster Lung

DOSE/DURATION : 10 umol/L

REFERENCE :

CBINA8 Chemico-Biological Interactions. (Elsevier Scientific Pub. Ireland Ltd., POB 85, Limerick, Ireland) V.1- 1969- Volume(issue)/page/year: 19,369,77

TYPE OF TEST : Cytogenetic analysis

TEST SYSTEM : Mammal - cattle Kidney

DOSE/DURATION : 1 ppm

REFERENCE :

ITCSAF In Vitro. (Rockville, MD) V.1-20, 1965-85. For publisher information, see ICDBEO. Volume(issue)/page/year: 8,416,73

TYPE OF TEST : DNA damage

TEST SYSTEM : Mammal - species unspecified Lymphocyte

DOSE/DURATION : 1 mmol/L

REFERENCE :

PYTCAS Phytochemistry. An International Journal of Plant Biochemistry. (Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523) V.1-1961- Volume(issue)/page/year: 11,3135,72

*** REVIEWS ***

ACGIH TLV-TWA 10 mg/m3

85INA8 "Documentation of the Threshold Limit Values and Biological Exposure Indices," 5th ed., Cincinnati, OH, American Conference of Governmental Industrial Hygienists, Inc., 1986 Volume(issue)/page/year: 6,375,91

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

IARC Cancer Review:Human Limited 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: 41,357,86

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: 15,111,77

TOXICOLOGY REVIEW

RREVAH Residue Reviews. (Springer-Verlag New York, Inc., Service Center, 44 Hartz Way, Secaucus, NJ 07094) V.1- 1962- Volume(issue)/page/year: 59,1,75

TOXICOLOGY REVIEW

DTTIAF Deutsche Tieraerztliche Wochenschrift. (Hanover, Fed. Rep. Ger.) V.1-77, 1893-1970. Volume(issue)/page/year: 80,485,73

TOXICOLOGY REVIEW

RREVAH Residue Reviews. (Springer-Verlag New York, Inc., Service Center, 44 Hartz Way, Secaucus, NJ 07094) V.1- 1962- Volume(issue)/page/year: 56,107,75

TOXICOLOGY REVIEW

ECMAAI Economie et Medecine Animales. (Paris, France) V.1-17, 1960-76. Discontinued. Volume(issue)/page/year: 14,141,73

TOXICOLOGY REVIEW

BIOGAL Biologico. (Instituto Biologica, Av. Cons. Rodrigues Alves, 1252, CEP 04014, Sao Paulo, Brazil) V.1- 1935- Volume(issue)/page/year: 40(2),44,74

TOXICOLOGY REVIEW

HYSAAV Hygiene and Sanitation (USSR). English translation of GISAAA. (Springfield, VA) 1964-71. Discontinued. Volume(issue)/page/year: 31(7-9),383,66

*** U.S. STANDARDS AND REGULATIONS ***

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION

FEREAC Federal Register. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) V.1- 1936- Volume(issue)/page/year: 54,7740,89

MSHA STANDARD-air:TWA 10 mg/m3

DTLVS* "Documentation of Threshold Limit Values for Substances in Workroom Air." For publisher information, see 85INA8. Volume(issue)/page/year: 3,67,71

OSHA PEL (Gen Indu):8H TWA 10 mg/m3

CFRGBR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 29,1910.1000,94

OSHA PEL (Construc):8H TWA 10 mg/m3

CFRGBR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 29,1926.55,94

OSHA PEL (Shipyard):8H TWA 10 mg/m3

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

CFRGR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 29,1915.1000,93

OSHA PEL (Fed Cont):8H TWA 10 mg/m3

CFRGR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 41,50-204.50,94

*** OCCUPATIONAL EXPOSURE LIMITS ***

OEL-AUSTRALIA:TWA 10 mg/m3 JAN93

OEL-AUSTRIA:TWA 10 mg/m3 JAN93

OEL-BELGIUM:TWA 10 mg/m3 JAN93

OEL-DENMARK:TWA 5 mg/m3 JAN93

OEL-FINLAND:TWA 10 mg/m3;STEL 20 mg/m3;Skin JAN93

OEL-FRANCE:TWA 10 mg/m3 JAN93

AOEL-GERMANY:TWA 10 mg/m3 JAN93

OEL-HUNGARY:TWA 1 mg/m3;STEL 2 mg/m3;Skin JAN93

OEL-THE NETHERLANDS:TWA 10 mg/m3 JAN93

OEL-THE PHILIPPINES:TWA 10 mg/m3 JAN93

OEL-POLAND:TWA 7 mg/m3 JAN93

OEL-SWITZERLAND:TWA 10 mg/m3;STEL 50 mg/m3 JAN93

OEL-THAILAND:TWA 10 mg/m3 JAN93

OEL-TURKEY:TWA 10 mg/m3 JAN93

OEL-UNITED KINGDOM:TWA 10 mg/m3;STEL 20 mg/m3 JAN93

OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV

*** NIOSH STANDARDS DEVELOPMENT AND SURVEILLANCE DATA ***

NIOSH RECOMMENDED EXPOSURE LEVEL (REL) :

NIOSH REL TO 2,4-D-air:10H TWA 10 mg/m3

REFERENCE :

NIOSH* National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda. Volume(issue)/page/year: DHHS #92-100,92

NIOSH OCCUPATIONAL EXPOSURE SURVEY DATA :

NOHS - National Occupational Hazard Survey (1974)

NOHS Hazard Code - 24270

No. of Facilities: 1132 (estimated)

No. of Industries: 6

No. of Occupations: 8

FIGURE 10. 2,4-D ON CCINFO/DISC (continued)

No. of Employees: 6266 (estimated)

NOES - National Occupational Exposure Survey (1983)

NOES Hazard Code - 24270

No. of Facilities: 94 (estimated)

No. of Industries: 1

No. of Occupations: 1

No. of Employees: 471 (estimated)

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

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

EPA GENETOX PROGRAM 1988, Positive: In vitro cytogenetics-human lymphocyte

EPA GENETOX PROGRAM 1988, Positive: B subtilis rec assay; E coli polA without S9

EPA GENETOX PROGRAM 1988, Positive: V79 cell culture-gene mutation

EPA GENETOX PROGRAM 1988, Positive: S cerevisiae gene conversion

EPA GENETOX PROGRAM 1988, Negative: D melanogaster-whole sex chrom. loss

EPA GENETOX PROGRAM 1988, Negative: D melanogaster-nondisjunction

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

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

EPA GENETOX PROGRAM 1988, Negative: In vitro UDS-human fibroblast; TRP reversion

EPA GENETOX PROGRAM 1988, Negative: S cerevisiae-homozygosis

EPA GENETOX PROGRAM 1988, Inconclusive: Carcinogenicity-mouse/rat; Mammalian micronucleus

EPA TSCA Section 8(b) CHEMICAL INVENTORY

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

On EPA IRIS database

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JULY 1996

NIOSH Analytical Method, 1994: 2,4-D, 5001

NTP Carcinogenesis studies; on test (prechronic studies), May 1996

*** END OF RECORD ***

FIGURE 11. SILVERPLATTER

PC-SPIRS 3.30

RTECS (through October 1996)

RTECS (through October 1996) usage is subject to the terms and conditions of the Subscription and License Agreement and the applicable Copyright and intellectual property protection as dictated by the appropriate laws of your country and/or by International Convention.

1 of 1
Marked Record

AN: XU0175000
 PN: Toluene, 2,4,6-trinitro-
 RN: Current: 118-96-7
 UD: 9610
 MF: C7-H5-N3-O6
 MW: 227.15
 WL: WNR B1 CNW ENW
 SY: Benzene, 2-methyl-1,3,5-trinitro-; Entsufo; 2-Methyl-1,3,5-trinitrobenzene; NCI-C56155; TNT; alpha-Tnt; TNT (OSHA); TNT, dry or wetted with <30% water, by weight (UN0209) (DOT); TNT-tolite (French); Tolit; Tolite; 2,4,6-Trinitrotolueen (Dutch); Trinitrotoluene; Trinitrotoluene (UN0209) (DOT); Trinitrotoluene, wetted with not <30% water, by weight (UN1356) (DOT); s-Trinitrotoluene; sym-Trinitrotoluene; 2,4,6-Trinitrotoluene (ACGIH:OSHA); s-Trinitrotoluol; sym-Trinitrotoluol; 2,4,6-Trinitrotoluol (German); Tritol; Triton; Trojnitrotoluen (Polish); Trotyl; Trotyl oil; UN0209 (DOT); UN1356 (DOT)
 CC: Agricultural-Chemical-and-Pesticide (A); Tumorigen (C); Mutagen (M); Reproductive-Effector (T); Human-Data (P); Primary-Irritant (S)
 ID:
 skn-rbt 500 mg/24H MLD
 National Technical Information Service. AD-B011-150 (NTIS**)
 ME:
 nmo-sat 10 ug/plate (+/-S9)
 National Technical Information Service. AD-A080-146 (NTIS**);
 bfa-rat/sat 50 mg/kg
 Mutation Research. 262,167,91 (MUREAV);
 msc-mus-lym 40 mg/L
 Cancer Letters (Shannon, Ireland). 20,103,83 (CALEDQ)
 RE:
 T02 orl-rat TDLo: 5376 mg/kg (28D male)
 Journal of Toxicology and Environmental Health. 9,565,82 (JTEHD6)
 AT:
 F08-J24-K30 orl-hmn LDLo: 28 gm/kg
 "Toxicology of Drugs and Chemicals," Deichmann, W.B., New York, Academic Press, Inc., 1969 -,610,69 (34ZIAG);
 F07-F11-F12 orl-rat LD50: 795 mg/kg
 Journal of Toxicology and Environmental Health. 9,565,82 (JTEHD6);
 F07-F11-F12 orl-mus LD50: 660 mg/kg
 Journal of Toxicology and Environmental Health. 9,565,82 (JTEHD6);
 J22-J24-R01 orl-cat LDLo: 1850 mg/kg
 Special Report Series--Medical Research Council (United Kingdom). 58,32,21 (MRCSAB);
 J22-J24-R01 scu-cat LDLo: 200 mg/kg
 Special Report Series--Medical Research Council (United Kingdom). 58,32,21 (MRCSAB);
 F12-K12-J24 orl-rbt LDLo: 500 mg/kg
 Special Report Series--Medical Research Council (United Kingdom). 58,32,21 (MRCSAB);
 F12-K12-J24 scu-rbt LDLo: 500 mg/kg
 Special Report Series--Medical Research Council (United Kingdom). 58,32,21 (MRCSAB)

FIGURE 11. SILVERPLATTER (continued)

MD:

L30-P28-Z73 orl-rat TDLo: 7200 mg/kg/6W-I
 Toxicology Letters. 55,343,91 (TOLED5);
 F15-P05-U01 orl-rat TDLo: 11375 mg/kg/13W-C
 Toxicology. 32,253,84 (TXCYAC);
 L30-Y08-Y37 orl-rat TDLo: 3 gm/kg/30D-I
 Gigiena Truda i Professional'nye Zabolevaniya. 18(10),57,74 (GTPZAB);
 L70-N73-P27 orl-mus TDLo: 11 mg/kg/13W-C
 Journal of Toxicology and Environmental Health. 9,565,82 (JTEHD6);
 L70-P05-U01 orl-dog TDLo: 182 mg/kg/13W-C
 Journal of Toxicology and Environmental Health. 9,565,82 (JTEHD6);
 L70-P05-P27 orl-dog TDLo: 1456 mg/kg/26W-I
 Toxicology. 63,233,90 (TXCYAC)

TR:

ACGIH TLV-TWA 0.5 mg/m³ (skin)
 "Documentation of the Threshold Limit Values and Biological
 Exposure Indices," 5th ed., Cincinnati, OH, American Conference
 of Governmental Industrial Hygienists, Inc., 1986
 6,1652,91 (85INA8);
 IARC Cancer Review: Animal Inadequate Evidence
 IARC Monographs on the Evaluation of Carcinogenic Risk of
 Chemicals to Man. 65,449,96 (IMEMDT);
 IARC Cancer Review: Human Inadequate Evidence
 IARC Monographs on the Evaluation of Carcinogenic Risk of
 Chemicals to Man. 65,449,96 (IMEMDT);
 IARC Cancer Review: Group 3
 IARC Monographs on the Evaluation of Carcinogenic Risk of
 Chemicals to Man. 65,449,96 (IMEMDT);
 TOXICOLOGY REVIEW
 National Technical Information Service. AD778-725 (NTIS**);
 TOXICOLOGY REVIEW
 CRC Critical Reviews in Toxicology. 1(1),93,71 (CRTXB2);
 TOXICOLOGY REVIEW
 Pharmacological Reviews. 4,1,52 (PAREAQ)
 SR: DOT-HAZARD: EXPLOSIVE 1.1D; LABEL: EXPLOSIVE 1.1D (UN0209)
 Code of Federal Regulations. 49,172.101,92 (CFRGBR);
 DOT-HAZARD: 4.1; LABEL: FLAMMABLE SOLID (UN1356)
 Code of Federal Regulations. 49,172.101,92 (CFRGBR);
 MSHA STANDARD-air: TWA 0.2 ppm (0.5 mg/m³) (skin)
 "Documentation of Threshold Limit Values for Substances in
 Workroom Air." For publisher information, see 85INA8.
 3,270,71 (DTLVS*);
 OSHA PEL (Gen Indu): 8H TWA 1.50 mg/m³ (skin)
 Code of Federal Regulations. 29,1910.1000,94 (CFRGBR);
 OSHA PEL (Construc): 8H TWA 1.50 mg/m³ (skin)
 Code of Federal Regulations. 29,1926.55,94 (CFRGBR);
 OSHA PEL (Shipyard): 8H TWA 1.50 mg/m³ (skin)
 Code of Federal Regulations. 29,1915.1000,93 (CFRGBR);
 OSHA PEL (Fed Cont): 8H TWA 1.50 mg/m³ (skin)
 Code of Federal Regulations. 41,50-204.50,94 (CFRGBR).
 OEL-ARAB Republic of Egypt:TWA 0.5 mg/m³ JAN93.
 OEL-AUSTRALIA:TWA 0.5 mg/m³;Skin JAN93.
 OEL-BELGIUM:TWA 0.5 mg/m³;Skin JAN93.
 OEL-DENMARK:STEL 0.5 mg/m³;Skin JAN93.
 OEL-FINLAND:TWA 0.5 mg/m³;STEL 3 mg/m³;Skin JAN93.
 OEL-FRANCE:TWA 0.5 mg/m³;Skin JAN93.
 OEL-GERMANY:TWA 0.01 ppm (0.1 mg/m³);Skin;Carcinogen JAN93.
 OEL-HUNGARY:TWA 0.3 mg/m³;STEL 0.5 mg/m³;Skin JAN93.
 OEL-THE NETHERLANDS:TWA 0.5 mg/m³;Skin JAN93.
 OEL-THE PHILIPPINES:TWA 1.5 mg/m³;Skin JAN93.
 OEL-RUSSIA:TWA 0.1 mg/m³;STEL 0.5 mg/m³;Skin JAN93.

FIGURE 11. SILVERPLATTER (continued)

OEL-SWITZERLAND:TWA 0.01 ppm (0.1 mg/m³);STEL 0.02 ppm;Skin JAN93.
OEL-TURKEY:TWA 1.5 mg/m³;Skin JAN93.
OEL-UNITED KINGDOM:TWA 0.5 mg/m³;STEL 0.5 mg/m³ JAN93.
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV.
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV
ND: NIOSH REL TO 2,4,6-TRINITROTOLUENE-air: 10H TWA 0.5 mg/m³ (Sk)
National Institute for Occupational Safety and Health, U.
DHHS #92-100,92 (NIOSH*);
NOES 1983: HZD 74550; NIS 2; TNF 10; NOS 1; TNE 31
SL: EPA GENETOX PROGRAM 1988, Positive: Histidine reversion-Ames test
EPA TSCA Section 8(b) CHEMICAL INVENTORY
EPA TSCA Section 8(d) unpublished health/safety studies
On EPA IRIS database
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, OCTOBER 1996
OSHA ANALYTICAL METHOD #44
OD: Also in OHMTADS: 7217371 in acc

FIGURE 12. 2,4-D ON SILVERPLATTER

PC-SPIRS 3.30

RTECS (through October 1996)

RTECS (through October 1996) usage is subject to the terms and conditions of the Subscription and License Agreement and the applicable Copyright and intellectual property protection as dictated by the appropriate laws of your country and/or by International Convention.

1 of 1
Marked Record

AN: AG6825000
 PN: Acetic acid, (2,4-dichlorophenoxy)-
 RN: Current: 94-75-7
 UD: 9610
 MF: C8-H6-Cl2-O3
 MW: 221.04
 WL: QV1OR BG DG
 SY: Acide 2,4-dichloro phenoxyacetique (French);
 Acido(2,4-dicloro-fenossi)-acetico (Italian); Acme amine 4; Acme butyl ester 4;
 Acme LV 4; Agrotect; Amidox; Amoxone; Aqua-Kleen; Barrage; BH 2,4-D;
 Brush-rhap; B-Selektionon; Chipco turf herbicide "D"; Chloroxone; Citrus fix;
 Crop rider; 2,4-D (ACGIH:OSHA); 2,4-D acid; Debroussaillant 600; Decamine;
 Deherban; (2,4-Dichloor-fenoxy)-azijnzuur (Dutch); Dichlorophenoxyacetic acid;
 2,4-Dichlorophenoxyacetic acid; Dichlorophenoxyacetic acid (OSHA);
 2,4-Dichlorophenoxyacetic acid; (2,4-Dichlor-phenoxy)-essigsaeure (German);
 Dicopur; DMA-4; Dormone; 2,4-Dwuchlorofenoksyoctowy kwas (Polish); Emulsamine
 BK; Emulsamine E-3; ENT 8,538; Envert 171; Envert DT; Estone; Farmco;
 Fernimine; Fernoxone; Ferxone; Foredex 75; Hedonal; Hedonal (the herbicide);
 Herbidal; Hivol-44; Ipaner; Kwasu 2,4-dwuchlorofenoksyoctowego (Polish); Kwas
 2,4-dwuchlorofenoksyoctowy (Polish); Kyselina 2,4-dichlorfenoxyoctova (Czech);
 Lawn-keep; Macrondray; Miracle; Monosan; Moxone; Netagrone; Netagrone 600; NSC
 423; Pennamine; Pennamine D; Phenox; Pielik; Plantgard; RCRA waste number U240;
 Rhodia; Spritz-hormin/2,4-D; Spritz-hormit/2,4-D; Superormone concentrate;
 U-5043; U 46DP; Vergemaster; Verton; Verton D; Verton 2D; Vidon 638;
 Weed-Ag-Bar; Weedar-64; Weedatul; Weedez Wonder BAR; Weedone LV4; Weed-rhap;
 Weed TOX; Weedtrol
 CC: Agricultural-Chemical-and-Pesticide (A); Tumorigen (C); Mutagen (M);
 Reproductive-Effector (T); Human-Data (P); Primary-Irritant (S)
 ID:
 skn-rbt 500 mg/24H MLD
 "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku,"
 Marhold, J.V., Institut Pro Vychovu Vedoucicn Pracovniku Chemickeho
 Prumyclu Praha, Czechoslovakia, 1972 -,279,72 (28ZPAK);
 eye-rbt 750 ug/24H SEV
 "Sbornik Vysledku Toxixologickeho Vysetreni Latek A Pripravku,"
 Marhold, J.V., Institut Pro Vychovu Vedoucicn Pracovniku Chemickeho
 Prumyclu Praha, Czechoslovakia, 1972 -,279,72 (28ZPAK)
 ME:
 mmo-sat 250 ug/plate (-S9)
 Mutation Research. 204,615,88 (MUREAV);
 dnr-esc 5 mg/disc
 National Technical Information Service. PB80-133226 (NTIS**);
 dna-esc 20 umol/L
 Mutation Research. 89,95,81 (MUREAV);
 dnr-bcs 5 mg/disc
 National Technical Information Service. PB80-133226 (NTIS**);
 mmo-omi 1 gm/L (-S9)
 Microbios Letters. 5,103,77 (MILEDM);
 mmo-omi 1 gm/L (-S9)
 Microbios Letters. 5,103,77 (MILEDM);
 mmo-omi 1 gm/L (-S9)

FIGURE 12. 2,4-D ON SILVERPLATTER (continued)

Microbios Letters. 5,103,77 (MILEDM);
 mmo-omi 1 gm/L (-S9)
 Microbios Letters. 5,103,77 (MILEDM);
 slt-dmg-orl 5 mmol/L
 Mutation Research. 319,237,93 (MUREAV);
 slt-dmg-mul 10 ppb
 Environmental and Molecular Mutagenesis. 25,148,95 (EMMUEG);
 sln-dmg-orl 25 ppm
 Ecological Bulletins. 27,190,78 (ECBUDQ);
 sln-dmg-unr 1000 ppm/15D
 Ecological Bulletins. 27,182,78 (ECBUDQ);
 mmo-smc 150 mg/L (-S9)
 Ecological Bulletins. 27,193,78 (ECBUDQ);
 mrc-ash 4 umol/L
 Mutation Research. 204,615,88 (MUREAV);
 dnd-sal-spr 1 mmol/L
 Phytochemistry. 11,3135,72 (PYTCAS);
 dns-hmn-fbr 1 umol/L
 Mutation Research. 42,161,77 (MUREAV);
 cyt-hmn-lym 20 ug/L
 Cytology and Genetics (English Translation). 8(3),6,74 (CYGEDX);
 sce-hmn-lym 10 mg/L
 Journal of Heredity. 73,224,82 (JOHEAS);
 cyt-rat-ipr 100 ug/kg
 Cytologia. 52,275,87 (CYTOAN);
 dni-mus-orl 200 mg/kg
 Mutation Research. 55,197,78 (MUREAV);
 cyt-mus-orl 100 mg/kg
 Cytology and Genetics (English Translation). 8(3),6,74 (CYGEDX);
 dni-ham-ovr 1 mmol/L
 Toxicology Letters. 29,137,85 (TOLED5);
 cyt-ham-ovr 2400 mg/L
 Environmental and Molecular Mutagenesis. 10(Suppl 10),1,87 (EMMUEG);
 sce-ham-ovr 167 mg/L
 Environmental and Molecular Mutagenesis. 10(Suppl 10),1,87 (EMMUEG);
 msc-ham-lng 10 umol/L
 Chemico-Biological Interactions. 19,369,77 (CBINAS);
 cyt-ctl-kdy 1 ppm
 In Vitro. 8,416,73 (ITCSAF);
 dnd-mam-lym 1 mmol/L
 Phytochemistry. 11,3135,72 (PYTCAS)
 RE:
 T48 orl-rat TDLo: 220 ug/kg (1-22D preg)
 Gigiena i Sanitariya. 50(10),76,85 (GISAAA);
 T46-T34-T35 orl-rat TDLo: 1 gm/kg (6-15D preg)
 Toxicology and Applied Pharmacology. 22,14,72 (TXAPA9);
 T46 orl-rat TDLo: 125 mg/kg (6-15D preg)
 Food and Cosmetics Toxicology. 9,801,71 (FCTXAV);
 T34-T41-T53 orl-rat TDLo: 500 mg/kg (6-15D preg)
 Food and Cosmetics Toxicology. 9,801,71 (FCTXAV);
 T55-T81 orl-rat TDLo: 500 mg/kg (6-15D preg)
 Food and Cosmetics Toxicology. 9,801,71 (FCTXAV);
 T34-T35-T43 orl-mus TDLo: 707 mg/kg (11-14D preg)
 Archives of Environmental Contamination and Toxicology.
 6,33,77 (AECTCV);
 T26-T31-T42 orl-mus TDLo: 900 mg/kg (6-14D preg)
 National Technical Information Service. PB223-160 (NTIS**);
 T81 orl-mus TDLo: 438 mg/kg (8-12D preg)
 Teratogenesis, Carcinogenesis, and Mutagenesis. 7,7,87 (TCMUD8);
 T35-T41-T31 scu-mus TDLo: 882 mg/kg (6-14D preg)
 National Technical Information Service. PB223-160 (NTIS**);

FIGURE 12. 2,4-D ON SILVERPLATTER (continued)

T34-T42-T43 scu-mus TDLo: 900 mg/kg (6-14D preg)
 National Technical Information Service. PB223-160 (NTIS**);

T24-T26 scu-mus TDLo: 900 mg/kg (6-14D preg)
 National Technical Information Service. PB223-160 (NTIS**);

T26 orl-ham TDLo: 200 mg/kg (7-11D preg)
 Bulletin of Environmental Contamination and Toxicology.
 6,559,71 (BECTA6)

AT:

F24-J25 orl-man TDLo: 2 gm/kg
 Archives of Toxicology. 66,518,92 (ARTODN);

F24-G10-J25 orl-man TDLo: 5714 mg/kg
 Archives of Toxicology. 66,518,92 (ARTODN);

K13-F24-F07 orl-hmn LDLo: 80 mg/kg
 Archives of Pathology. 94,270,72 (ARPAAQ);

F12 orl-man LDLo: 93 mg/kg
 Pharmacological Reviews. 14,225,62 (PAREAQ);

T/E unlistd orl-rat LD50: 375 mg/kg
 Farm Chemicals Handbook. -,C174,91 (FMCHA2);

T/E unlistd skn-rat LD50: 1500 mg/kg
 World Review of Pest Control. 9,119,70 (WRPCA2);

C06-F18-F24 ipr-rat LD50: 666 mg/kg
 Journal of Industrial Hygiene and Toxicology. 29,85,47 (JIHTAB);

T/E unlistd orl-mus LD50: 347 mg/kg
 Roczniki Panstwowego Zakladu Higieny. 31,373,80 (RPZHAW);

T/E unlistd ipr-mus LDLo: 125 mg/kg
 Toxicology and Applied Pharmacology. 23,288,72 (TXAPA9);

F20-F24 orl-dog LD50: 100 mg/kg
 Archives of Environmental Health. 7,202,63 (AEHLAU);

T/E unlistd orl-rbt LDLo: 800 mg/kg
 Archives des Maladies Professionnelles de Medecine du Travail
 et de Securite Sociale. 12,26,51 (AMPMAR);

F19-R10 skn-rbt LD50: 1400 mg/kg
 Quarterly Bulletin--Association of Food and Drug Officials
 of the United States. 16,3,52 (AFDOAQ);

C06-F18-F24 ipr-rbt LD50: 400 mg/kg
 Journal of Industrial Hygiene and Toxicology. 29,85,47 (JIHTAB);

C06-F18-F24 ivn-rbt LD50: 400 mg/kg
 Journal of Industrial Hygiene and Toxicology. 29,85,47 (JIHTAB);

T/E unlistd orl-gpg LD50: 469 mg/kg
 American Journal of Veterinary Research. 15,622,54 (AJVRAH);

C06-F18-F24 ipr-gpg LD50: 666 mg/kg
 Journal of Industrial Hygiene and Toxicology. 29,85,47 (JIHTAB);

T/E unlistd orl-ham LD50: 500 mg/kg
 Toxicology and Applied Pharmacology. 48,A192,79 (TXAPA9);

K05-F07-L03 orl-ckn LD50: 541 mg/kg
 American Journal of Veterinary Research. 15,622,54 (AJVRAH);

T/E unlistd orl-mam LD50: 375 mg/kg
 Science. 165,465,69 (SCIEAS)

MD:

U01 orl-rat TDLo: 13650 mg/kg/13W-C
 Fundamental and Applied Toxicology. 9,423,87 (FAATDF);

F18 orl-rat TDLo: 200 mg/kg/5W-I
 Neurobehavioral Toxicology and Teratology. 5,331,83 (NTOTDY);

D20-F17 orl-rat TDLo: 54750 mg/kg/1Y-C
 Toxicologist. 15,23,95 (TOXID9);

P70-U01-Z01 orl-dog TDLo: 700 mg/kg/90D-I
 AMA Archives of Industrial Hygiene and Occupational Medicine.
 7,61,53 (AMIHBC);

M03-L30-P28 orl-dog TDLo: 1820 mg/kg/52W-C
 Fundamental and Applied Toxicology. 29,78,96 (FAATDF);

Q01-R03-Z01 ivn-dog TDLo: 300 mg/kg/6D-I

FIGURE 12. 2,4-D ON SILVERPLATTER (continued)

Journal of Industrial Hygiene and Toxicology. 29,85,47 (JIHTAB)

TR:

ACGIH TLV-TWA 10 mg/m3
 "Documentation of the Threshold Limit Values and Biological Exposure Indices," 5th ed., Cincinnati, OH, American Conference of Governmental Industrial Hygienists, Inc., 1986
 6,375,91 (85INA8);

IARC Cancer Review: Human Limited Evidence
 IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man. 41,357,86 (IMEMDT);

IARC Cancer Review: Animal Inadequate Evidence
 IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man. 15,111,77 (IMEMDT);

TOXICOLOGY REVIEW
 Residue Reviews. 59,1,75 (RREVAH);

TOXICOLOGY REVIEW
 Deutsche Tieraerztliche Wochenschrift. 80,485,73 (DTTIAF);

TOXICOLOGY REVIEW
 Residue Reviews. 56,107,75 (RREVAH);

TOXICOLOGY REVIEW
 Economie et Medecine Animales. 14,141,73 (ECMAAI);

TOXICOLOGY REVIEW
 Biologico. 40(2),44,74 (BIOGAL);

TOXICOLOGY REVIEW
 Hygiene and Sanitation (USSR). 31(7-9),383,66 (HYSAAV)

SR: EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
 Federal Register. 54,7740,89 (FEREAC);

MSHA STANDARD-air: TWA 10 mg/m3
 "Documentation of Threshold Limit Values for Substances in Workroom Air." For publisher information, see 85INA8.
 3,67,71 (DTLVS*);

OSHA PEL (Gen Indu): 8H TWA 10 mg/m3
 Code of Federal Regulations. 29,1910.1000,94 (CFRGBR);

OSHA PEL (Construc): 8H TWA 10 mg/m3
 Code of Federal Regulations. 29,1926.55,94 (CFRGBR);

OSHA PEL (Shipyard): 8H TWA 10 mg/m3
 Code of Federal Regulations. 29,1915.1000,93 (CFRGBR);

OSHA PEL (Fed Cont): 8H TWA 10 mg/m3
 Code of Federal Regulations. 41,50-204.50,94 (CFRGBR).

OEL-AUSTRALIA:TWA 10 mg/m3 JAN93.
 OEL-AUSTRIA:TWA 10 mg/m3 JAN93.
 OEL-BELGIUM:TWA 10 mg/m3 JAN93.
 OEL-DENMARK:TWA 5 mg/m3 JAN93.
 OEL-FINLAND:TWA 10 mg/m3;STEL 20 mg/m3;Skin JAN93.
 OEL-FRANCE:TWA 10 mg/m3 JAN93.
 AOEL-GERMANY:TWA 10 mg/m3 JAN93.
 OEL-HUNGARY:TWA 1 mg/m3;STEL 2 mg/m3;Skin JAN93.
 OEL-THE NETHERLANDS:TWA 10 mg/m3 JAN93.
 OEL-THE PHILIPPINES:TWA 10 mg/m3 JAN93.
 OEL-POLAND:TWA 7 mg/m3 JAN93.
 OEL-SWITZERLAND:TWA 10 mg/m3;STEL 50 mg/m3 JAN93.
 OEL-THAILAND:TWA 10 mg/m3 JAN93.
 OEL-TURKEY:TWA 10 mg/m3 JAN93.
 OEL-UNITED KINGDOM:TWA 10 mg/m3;STEL 20 mg/m3 JAN93.
 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV.
 OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV

ND: NIOSH REL TO 2,4-D-air: 10H TWA 10 mg/m3
 National Institute for Occupational Safety and Health, U.
 DHHS #92-100,92 (NIOSH*);

NOHS 1974: HZD 24270; NIS 6; TNF 1132; NOS 8; TNE 6266;
 NOES 1983: HZD 24270; NIS 1; TNF 94; NOS 1; TNE 471

FIGURE 12. 2,4-D ON SILVERPLATTER (continued)

SL: EPA GENETOX PROGRAM 1988, Positive: In vivo cytogenetics-nonhuman bone marrow
EPA GENETOX PROGRAM 1988, Positive: In vitro cytogenetics-human lymphocyte
EPA GENETOX PROGRAM 1988, Positive: B subtilis rec assay; E coli polA without S9
EPA GENETOX PROGRAM 1988, Positive: V79 cell culture-gene mutation
EPA GENETOX PROGRAM 1988, Positive: S cerevisiae gene conversion
EPA GENETOX PROGRAM 1988, Negative: D melanogaster-whole sex chrom. loss
EPA GENETOX PROGRAM 1988, Negative: D melanogaster-nondisjunction
EPA GENETOX PROGRAM 1988, Negative: Histidine reversion-Ames test
EPA GENETOX PROGRAM 1988, Negative: D melanogaster Sex-linked lethal
EPA GENETOX PROGRAM 1988, Negative: In vitro UDS-human fibroblast; TRP reversion
EPA GENETOX PROGRAM 1988, Negative: S cerevisiae-homozygosis
EPA GENETOX PROGRAM 1988, Inconclusive: Carcinogenicity-mouse/rat; Mammalian micronucleus
EPA TSCA Section 8(b) CHEMICAL INVENTORY
EPA TSCA Section 8(d) unpublished health/safety studies
On EPA IRIS database
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, OCTOBER 1996
NIOSH Analytical Method, 1994: 2,4-D, 5001
NTP Carcinogenesis studies; on test (prechronic studies), May 1996
OD: Also in OHMTADS: 7215096 in acc; Also in CHRIS: 94-75-7 in rn

RTECS(R)

Topic: Toluene, 2,4,6-trinitro-

1.0 SUBSTANCE IDENTIFICATION

RTECS NUMBER: XU0175000
 CHEMICAL NAME: Toluene, 2,4,6-trinitro-
 CAS NUMBER: 118-96-7
 MOLECULAR FORMULA: C7-H5-N3-O6
 MOLECULAR WEIGHT: 227.15
 WISWESSER NOTATION: WNR B1 CNW ENW
 SUBSTANCE INVESTIGATED AS: Agricultural Chemical, Mutagen,
 Reproductive Effector, Human Data, Primary Irritant
 LAST REVISION DATE: 9601

2.0 SYNONYM(S) / TRADE NAME(S)

1. Benzene, 2-methyl-1,3,5-trinitro-
2. Entsufo
3. NCI-C56155
4. TNT
5. alpha-Tnt
6. TNT (OSHA)
7. TNT, dry or wetted with <30% water, by weight (UN0209) (DOT)
8. TNT-tolite (French)
9. Tolit
10. Tolite
11. 2,4,6-Trinitrotolueen (Dutch)
12. Trinitrotoluene
13. Trinitrotoluene (UN0209) (DOT)
14. Trinitrotoluene, wetted with not <30% water, by weight (UN1356) (DOT)
15. s-Trinitrotoluene
16. sym-Trinitrotoluene
17. 2,4,6-Trinitrotoluene (ACGIH:OSHA)
18. s-Trinitrotoluol
19. sym-Trinitrotoluol
20. 2,4,6-Trinitrotoluol (German)
21. Tritol
22. Triton
23. Trojnitrotoluen (Polish)
24. Trotyl
25. Trotyl oil
26. UN0209 (DOT)
27. UN1356 (DOT)

3.0 HEALTH HAZARD DATA

3.1 ACUTE TOXICITY

3.1.2 LDLO/LCLO - LOWEST PUBLISHED LETHAL DOSE/CONC

A. HUMAN

1. LDLO; ROUTE: Oral; DOSE: 28 gm/kg; TOXIC EFFECTS:
 BEHAVIORAL - Hallucinations, distorted perceptions;
 LUNGS, THORAX, OR RESPIRATION - Cyanosis;
 GASTROINTESTINAL - Other changes; REFERENCE:
 "Toxicology of Drugs and Chemicals," Deichmann, W.B.,

FIGURE 13. TNT ON MICROMEDEX (continued)

RTECS(R)

Topic: Toluene, 2,4,6-trinitro-

New York, Academic Press, Inc., 1969 -:610, 1969.
<CODEN 34ZIAG>

B. RABBIT

1. LDLo; ROUTE: Oral; DOSE: 500 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Convulsions or effect on seizure threshold; GASTROINTESTINAL - Hypermotility, diarrhea; LUNGS, THORAX, OR RESPIRATION - Cyanosis; REFERENCE: Special Report Series--Medical Research Council 58:32, 1921. <CODEN MRCSAB>
2. LDLo; ROUTE: Subcutaneous; DOSE: 500 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Convulsions or effect on seizure threshold; GASTROINTESTINAL - Hypermotility, diarrhea; LUNGS, THORAX, OR RESPIRATION - Cyanosis; REFERENCE: Special Report Series--Medical Research Council 58:32, 1921. <CODEN MRCSAB>

C. CAT

1. LDLo; ROUTE: Oral; DOSE: 1850 mg/kg; TOXIC EFFECTS: LUNGS, THORAX, OR RESPIRATION - Dyspnea; LUNGS, THORAX, OR RESPIRATION - Cyanosis; SKIN AND APPENDAGES - Dermatitis, allergic; REFERENCE: Special Report Series--Medical Research Council 58:32, 1921. <CODEN MRCSAB>
 2. LDLo; ROUTE: Subcutaneous; DOSE: 200 mg/kg; TOXIC EFFECTS: LUNGS, THORAX, OR RESPIRATION - Dyspnea; LUNGS, THORAX, OR RESPIRATION - Cyanosis; SKIN AND APPENDAGES - Dermatitis, allergic; REFERENCE: Special Report Series--Medical Research Council 58:32, 1921. <CODEN MRCSAB>
- 3.1.3 LD50/LC50 - LETHAL DOSE/CONC 50% KILL

A. RAT

1. LD50; ROUTE: Oral; DOSE: 795 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Somnolence (general depressed activity); BEHAVIORAL - Tremor; BEHAVIORAL - Convulsions or effect on seizure threshold; REFERENCE: Journal of Toxicology and Environmental Health 9:565, 1982. <CODEN JTEHD6>

B. MOUSE

1. LD50; ROUTE: Oral; DOSE: 660 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Somnolence (general depressed activity); BEHAVIORAL - Tremor; BEHAVIORAL - Convulsions or effect on seizure threshold; REFERENCE: Journal of Toxicology and Environmental Health 9:565, 1982. <CODEN JTEHD6>

3.2 IRRITATION

3.2.1 SKIN - STANDARD DRAIZE TEST

A. RABBIT

1. ROUTE: Skin; DOSE: 500 mg/24H; REACTION: mild; REFERENCE: National Technical Information Service AD-B011-150. <CODEN NTIS**>

3.3 REPRODUCTIVE EFFECTS

A. RAT

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 13. TNT ON MICROMEDEX (continued)

RTECS(R)

Topic: Toluene, 2,4,6-trinitro-

1. ROUTE: Oral; DOSE: 5376 mg/kg; DURATION: male 28D prior to mating; TOXIC EFFECTS: PATERNAL EFFECTS - Testes, epididymis, sperm duct; REFERENCE: Journal of Toxicology and Environmental Health 9:565, 1982. <CODEN JTEHD6>
- 3.4 GENETIC EFFECTS
 - 3.4.6 MUTATIONS IN MICROORGANISMS
 - A. BACTERIA - S TYPHIMURIUM
 1. DOSE: 10 ug/plate (+/-S9); REFERENCE: National Technical Information Service AD-A080-146. <CODEN NTIS**>
 - 3.4.7 MUTATIONS IN MAMMALIAN SOMATIC CELLS
 - A. MOUSE
 1. CELL TYPE: lymphocyte; DOSE: 40 mg/L; REFERENCE: Cancer Letters 20:103, 1983. <CODEN CALEDQ>
 - 3.4.12 BODY FLUID ASSAY
 - A. RAT
 1. INDICATOR ORGANISM: BACTERIA - S TYPHIMURIUM; DOSE: 50 mg/kg; REFERENCE: Mutation Research 262:167, 1991. <CODEN MUREAV>
 - 3.6 OTHER MULTIPLE DOSE TOXICITY DATA
 - A. RAT
 1. ROUTE: Oral; DOSE: 7200 mg/kg/6W-I; TOXIC EFFECTS: LIVER - Other changes; BLOOD - Changes in serum composition; DEATH - Changes in testicular weight; REFERENCE: Toxicology Letters 55:343, 1991. <CODEN TOLED5>
 2. ROUTE: Oral; DOSE: 11375 mg/kg/13W-C; TOXIC EFFECTS: BEHAVIORAL - Food intake (animal); BLOOD - Normocytic anemia; NUTRITIONAL AND GROSS METABOLIC - Weight loss or decreased weight gain; REFERENCE: Toxicology 32:253, 1984. <CODEN TXCYAC>
 3. ROUTE: Oral; DOSE: 3 gm/kg/30D-I; TOXIC EFFECTS: LIVER - Other changes; BIOCHEMICAL - Monoamine oxidase; BIOCHEMICAL - Lipids including transport; REFERENCE: Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases 18(10):57, 1974. <CODEN GTPZAB>
 - B. MOUSE
 1. ROUTE: Oral; DOSE: 11 mg/kg/13W-C; TOXIC EFFECTS: LIVER - Changes in liver weight; ENDOCRINE - Changes in spleen weight; BLOOD - Changes in spleen; REFERENCE: Journal of Toxicology and Environmental Health 9:565, 1982. <CODEN JTEHD6>
 - C. DOG
 1. ROUTE: Oral; DOSE: 182 mg/kg/13W-C; TOXIC EFFECTS: LIVER - Changes in liver weight; BLOOD - Normocytic anemia; NUTRITIONAL AND GROSS METABOLIC - Weight loss or decreased weight gain; REFERENCE: Journal of Toxicology and Environmental Health 9:565, 1982. <CODEN JTEHD6>
 2. ROUTE: Oral; DOSE: 1456 mg/kg/26W-I; TOXIC EFFECTS:

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 13. TNT ON MICROMEDEX (continued)

RTECS(R)

Topic: Toluene, 2,4,6-trinitro-

LIVER - Changes in liver weight; BLOOD - Normocytic anemia; BLOOD - Changes in spleen; REFERENCE: Toxicology 63:233, 1990. <CODEN TXCYAC>

4.0 STANDARDS AND REGULATIONS

1. DOT-HAZARD:EXPLOSIVE 1.1D; LABEL:EXPLOSIVE 1.1D (UN0209) REFERENCE: Code of Federal Regulations 49:172.101, 1992. <CODEN CFRGBR>
2. DOT-HAZARD:4.1; LABEL:FLAMMABLE SOLID (UN1356) REFERENCE: Code of Federal Regulations 49:172.101, 1992. <CODEN CFRGBR>
3. MSHA STANDARD-air:TWA 0.2 ppm (0.5 mg/m3) (skin) REFERENCE: "Documentation of Threshold Limit Values for Substances in Workroom Air." 3:270, 1971. <CODEN DTLVS*>
4. OSHA PEL (Gen Indu):8H TWA 1.50 mg/m3 (skin) REFERENCE: Code of Federal Regulations 29:1910.1000, 1994. <CODEN CFRGBR>
5. OSHA PEL (Construc):8H TWA 1.50 mg/m3 (skin) REFERENCE: Code of Federal Regulations 29:1926.55, 1994. <CODEN CFRGBR>
6. OSHA PEL (Shipyard):8H TWA 1.50 mg/m3 (skin) REFERENCE: Code of Federal Regulations 29:1915.1000, 1993. <CODEN CFRGBR>
7. OSHA PEL (Fed Cont):8H TWA 1.50 mg/m3 (skin) REFERENCE: Code of Federal Regulations 41:50-204.50, 1994. <CODEN CFRGBR>
8. OEL-ARAB Republic of Egypt:TWA 0.5 mg/m3 JAN93.
9. OEL-AUSTRALIA:TWA 0.5 mg/m3;Skin JAN93.
10. OEL-BELGIUM:TWA 0.5 mg/m3;Skin JAN93.
11. OEL-CZECHOSLOVAKIA:TWA 0.5 mg/m3;STEL 2.5 mg/m3 JAN93.
12. OEL-DENMARK:STEL 0.5 mg/m3;Skin JAN93.
13. OEL-FINLAND:TWA 0.5 mg/m3;STEL 3 mg/m3;Skin JAN93.
14. OEL-FRANCE:TWA 0.5 mg/m3;Skin JAN93.
15. OEL-GERMANY:TWA 0.01 ppm (0.1 mg/m3);Skin;Carcinogen JAN93.
16. OEL-HUNGARY:TWA 0.3 mg/m3;STEL 0.5 mg/m3;Skin JAN93.
17. OEL-THE NETHERLANDS:TWA 0.5 mg/m3;Skin JAN93.
18. OEL-THE PHILIPPINES:TWA 1.5 mg/m3;Skin JAN93.
19. OEL-RUSSIA:TWA 0.1 mg/m3;STEL 0.5 mg/m3;Skin JAN93.
20. OEL-SWITZERLAND:TWA 0.01 ppm (0.1 mg/m3);STEL 0.02 ppm;Skin JAN93.
21. OEL-TURKEY:TWA 1.5 mg/m3;Skin JAN93.
22. OEL-UNITED KINGDOM:TWA 0.5 mg/m3;STEL 0.5 mg/m3 JAN93.
23. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV.
24. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV.

5.0 NIOSH DOCUMENTS

1. NIOSH REL TO 2,4,6-TRINITROTOLUENE-air:10H TWA 0.5 mg/m3 (Sk) REFERENCE: National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda. DHHS #92-100,92. <CODEN NIOSH*>

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 13. TNT ON MICROMEDEX (continued)

RTECS(R)

Topic: Toluene, 2,4,6-trinitro-

2. National Occupational Exposure Survey 1983: Hazard Code 74550; Number of Industries 2; Total Number of Facilities 10; Number of Occupations 1; Total Number of Employees 31.

6.0 REVIEWS

1. ACGIH TLV-TWA 0.5 mg/m³ (skin) REFERENCE: "Documentation of the Threshold Limit Values and Biological Exposure Indices," 5th ed., Cincinnati, OH, American Conference of Governmental Industrial Hygienists, Inc., 1986 6:1652, 1991. <CODEN 85INA8>
2. TOXICOLOGY REVIEW REFERENCE: National Technical Information Service AD778-725. <CODEN NTIS**>
3. TOXICOLOGY REVIEW REFERENCE: CRC Critical Reviews in Toxicology 1(1):93, 1971. <CODEN CRTXB2>
4. TOXICOLOGY REVIEW REFERENCE: Pharmacological Reviews 4:1, 1952. <CODEN PAREAQ>

7.0 STATUS IN U.S.

1. EPA GENETOX PROGRAM 1988, Positive: Histidine reversion-Ames test.
2. EPA TSCA Section 8(b) CHEMICAL INVENTORY.
3. EPA TSCA Section 8(d) unpublished health/safety studies.
4. On EPA IRIS database.
5. EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, APRIL 1996.
6. OSHA ANALYTICAL METHOD #44.

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D MICROMEDEX

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

1.0 SUBSTANCE IDENTIFICATION

RTECS NUMBER: AG6825000

CHEMICAL NAME: Acetic acid, (2,4-dichlorophenoxy)-

CAS NUMBER: 94-75-7

MOLECULAR FORMULA: C8-H6-Cl2-O3

MOLECULAR WEIGHT: 221.04

WISWESSER NOTATION: QV1OR BG DG

SUBSTANCE INVESTIGATED AS: Agricultural Chemical, Tumorigen,
Mutagen, Reproductive Effector, Human Data, Primary
Irritant

LAST REVISION DATE: 9603

2.0 SYNONYM(S) / TRADE NAME(S)

1. Acide 2,4-dichloro phenoxyacetique (French)
2. Acido(2,4-dicloro-fenossi)-acetico (Italian)
3. Acme amine 4
4. Acme butyl ester 4
5. Acme LV 4
6. Agrotect
7. Amidox
8. Amoxone
9. Aqua-Kleen
10. Barrage
11. BH 2,4-D
12. Brush-rhap
13. B-Selektonon
14. Chipco turf herbicide "D"
15. Chloroxone
16. Citrus fix
17. Crop rider
18. 2,4-D (ACGIH:OSHA)
19. 2,4-D acid
20. Debroussillant 600
21. Decamine
22. Deherban
23. (2,4-Dichloor-fenoxy)-azijnzuur (Dutch)
24. Dichlorophenoxyacetic acid
25. 2,4-Dichlorophenoxyacetic acid
26. Dichlorophenoxyacetic acid (OSHA)
27. 2,4-Dichlorphenoxyacetic acid
28. (2,4-Dichlor-phenoxy)-essigsaeure (German)
29. Dicopur
30. DMA-4
31. Dormone
32. 2,4-Dwuchlorofenoksyoctowy kwas (Polish)
33. Emulsamine BK
34. Emulsamine E-3
35. ENT 8,538
36. Envert 171
37. Envert DT

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

- 38. Estone
 - 39. Farmco
 - 40. Fernimine
 - 41. Fernoxone
 - 42. Ferxone
 - 43. Foredex 75
 - 44. Hedonal
 - 45. Hedonal (the herbicide)
 - 46. Herbidal
 - 47. Hivol-44
 - 48. Ipaner
 - 49. Kwasu 2,4-dwuchlorofenoksyoctowego (Polish)
 - 50. Kwas 2,4-dwuchlorofenoksyoctowy (Polish)
 - 51. Kyselina 2,4-dichlorfenoxyoctova (Czech)
 - 52. Lawn-keep
 - 53. Macrondray
 - 54. Miracle
 - 55. Monosan
 - 56. Moxone
 - 57. Netagrone
 - 58. Netagrone 600
 - 59. NSC 423
 - 60. Pennamine
 - 61. Pennamine D
 - 62. Phenox
 - 63. Pielik
 - 64. Plantgard
 - 65. RCRA waste number U240
 - 66. Rhodia
 - 67. Spritz-hormin/2,4-D
 - 68. Spritz-hormit/2,4-D
 - 69. Superormone concentre
 - 70. U-5043
 - 71. U 46DP
 - 72. Vergemaster
 - 73. Verton
 - 74. Verton D
 - 75. Verton 2D
 - 76. Vidon 638
 - 77. Weed-Ag-Bar
 - 78. Weedar-64
 - 79. Weedatul
 - 80. Weedez Wonder BAR
 - 81. Weedone LV4
 - 82. Weed-rhap
 - 83. Weed TOX
 - 84. Weedtrol
- 3.0 HEALTH HAZARD DATA
3.1 ACUTE TOXICITY

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

3.1.1 TDLO/TCLO - LOWEST PUBLISHED TOXIC DOSE/CONC

A. MAN

1. TDLo; ROUTE: Oral; DOSE: 2 gm/kg; TOXIC EFFECTS: BEHAVIORAL - Coma; LUNGS, THORAX, OR RESPIRATION - Respiratory depression; REFERENCE: Archives of Toxicology 66:518, 1992. <CODEN ARTODN>
2. TDLo; ROUTE: Oral; DOSE: 5714 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Coma; CARDIAC - Change in rate; LUNGS, THORAX, OR RESPIRATION - Respiratory depression; REFERENCE: Archives of Toxicology 66:518, 1992. <CODEN ARTODN>

3.1.2 LDLO/LCLO - LOWEST PUBLISHED LETHAL DOSE/CONC

A. HUMAN

1. LDLo; ROUTE: Oral; DOSE: 80 mg/kg; TOXIC EFFECTS: GASTROINTESTINAL - Nausea or vomiting; BEHAVIORAL - Coma; BEHAVIORAL - Somnolence (general depressed activity); REFERENCE: Archives of Pathology 94:270, 1972. <CODEN ARPAAQ>

B. MAN

1. LDLo; ROUTE: Oral; DOSE: 93 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Convulsions or effect on seizure threshold; REFERENCE: Pharmacological Reviews 14:225, 1962. <CODEN PAREAQ>

C. MOUSE

1. LDLo; ROUTE: Intraperitoneal; DOSE: 125 mg/kg; REFERENCE: Toxicology and Applied Pharmacology 23:288, 1972. <CODEN TXAPA9>

D. RABBIT

1. LDLo; ROUTE: Oral; DOSE: 800 mg/kg; REFERENCE: Archives des Maladies Professionnelles de Medecine du Travail et de Securite Sociale 12:26, 1951. <CODEN AMPMAR>

3.1.3 LD50/LC50 - LETHAL DOSE/CONC 50% KILL

A. RAT

1. LD50; ROUTE: Oral; DOSE: 375 mg/kg; REFERENCE: Farm Chemicals Handbook -:C174, 1991. <CODEN FMCHA2>
2. LD50; ROUTE: Skin; DOSE: 1500 mg/kg; REFERENCE: World Review of Pest Control 9:119, 1970. <CODEN WRPCA2>
3. LD50; ROUTE: Intraperitoneal; DOSE: 666 mg/kg; TOXIC EFFECTS: PERIPHERAL NERVE AND SENSATION - Spastic parapysis with or without sensory change; BEHAVIORAL - Muscle weakness; BEHAVIORAL - Coma; REFERENCE: Journal of Industrial Hygiene and Toxicology 29:85, 1947. <CODEN JIHTAB>

B. MOUSE

1. LD50; ROUTE: Oral; DOSE: 347 mg/kg; REFERENCE: Roczniki Panstwowego Zakladu Higieny 31:373, 1980. <CODEN RPZHAW>

C. RABBIT

1. LD50; ROUTE: Skin; DOSE: 1400 mg/kg; TOXIC EFFECTS:

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

- BEHAVIORAL - Ataxia; SKIN AND APPENDAGES - Primary irritation; REFERENCE: Quarterly Bulletin--Association of Food and Drug Officials of the United States 16:3, 1952. <CODEN AFDOAQ>
2. LD50; ROUTE: Intraperitoneal; DOSE: 400 mg/kg; TOXIC EFFECTS: PERIPHERAL NERVE AND SENSATION - Spastic parapysis with or without sensory change; BEHAVIORAL - Muscle weakness; BEHAVIORAL - Coma; REFERENCE: Journal of Industrial Hygiene and Toxicology 29:85, 1947. <CODEN JIHTAB>
 3. LD50; ROUTE: Intravenous; DOSE: 400 mg/kg; TOXIC EFFECTS: PERIPHERAL NERVE AND SENSATION - Spastic parapysis with or without sensory change; BEHAVIORAL - Muscle weakness; BEHAVIORAL - Coma; REFERENCE: Journal of Industrial Hygiene and Toxicology 29:85, 1947. <CODEN JIHTAB>
- D. GUINEA PIG
1. LD50; ROUTE: Oral; DOSE: 469 mg/kg; REFERENCE: American Journal of Veterinary Research 15:622, 1954. <CODEN AJVRAH>
 2. LD50; ROUTE: Intraperitoneal; DOSE: 666 mg/kg; TOXIC EFFECTS: PERIPHERAL NERVE AND SENSATION - Spastic parapysis with or without sensory change; BEHAVIORAL - Muscle weakness; BEHAVIORAL - Coma; REFERENCE: Journal of Industrial Hygiene and Toxicology 29:85, 1947. <CODEN JIHTAB>
- E. HAMSTER
1. LD50; ROUTE: Oral; DOSE: 500 mg/kg; REFERENCE: Toxicology and Applied Pharmacology 48:A192, 1979. <CODEN TXAPA9>
- F. DOG
1. LD50; ROUTE: Oral; DOSE: 100 mg/kg; TOXIC EFFECTS: BEHAVIORAL - Stiffness; BEHAVIORAL - Coma; REFERENCE: Archives of Environmental Health 7:202, 1963. <CODEN AEHLAU>
- G. MAMMAL - UNSPECIFIED SPECIES
1. LD50; ROUTE: Oral; DOSE: 375 mg/kg; REFERENCE: Science 165:465, 1969. <CODEN SCIEAS>
- H. CHICKEN
1. LD50; ROUTE: Oral; DOSE: 541 mg/kg; TOXIC EFFECTS: GASTROINTESTINAL - Gastritis; BEHAVIORAL - Somnolence (general depressed activity); LIVER - Fatty liver degeneration; REFERENCE: American Journal of Veterinary Research 15:622, 1954. <CODEN AJVRAH>
- 3.2 IRRITATION
- 3.2.1 SKIN - STANDARD DRAIZE TEST
- A. RABBIT
1. ROUTE: Skin; DOSE: 500 mg/24H; REACTION: mild; REFERENCE: "Sbornik Vysledku Toxixologickeho Vysetreni

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

Latek A Pripravku," Marhold, J.V., Institut Pro Vychovu
Vedoucicn Pracovniku Chemickeho Prumyclu Praha,
Czechoslovakia, 1972 -:279, 1972. <CODEN 28ZPAK>

3.2.4 EYE - STANDARD DRAIZE TEST

A. RABBIT

1. ROUTE: Eye; DOSE: 750 ug/24H; REACTION: severe;
REFERENCE: "Sbornik Vysledku Toxixologickeho Vysetreni
Latek A Pripravku," Marhold, J.V., Institut Pro Vychovu
Vedoucicn Pracovniku Chemickeho Prumyclu Praha,
Czechoslovakia, 1972 -:279, 1972. <CODEN 28ZPAK>

3.3 REPRODUCTIVE EFFECTS

A. RAT

1. ROUTE: Oral; DOSE: 220 ug/kg; DURATION: female 1-22D of
pregnancy; TOXIC EFFECTS: SPECIFIC DEVELOPMENTAL
ABNORMALITIES - Blood and lymphatic systems (including
spleen and marrow); REFERENCE: Gigiena i Sanitariya
50(10):76, 1985. <CODEN GISAAA>
2. ROUTE: Oral; DOSE: 1 gm/kg; DURATION: female 6-15D of
pregnancy; TOXIC EFFECTS: SPECIFIC DEVELOPMENTAL
ABNORMALITIES - Musculoskeletal system; EFFECTS ON
EMBRYO OR FETUS - Fetotoxicity; EFFECTS ON EMBRYO OR
FETUS - Fetal death; REFERENCE: Toxicology and Applied
Pharmacology 22:14, 1972. <CODEN TXAPA9>
3. ROUTE: Oral; DOSE: 125 mg/kg; DURATION: female 6-15D of
pregnancy; TOXIC EFFECTS: SPECIFIC DEVELOPMENTAL
ABNORMALITIES - Musculoskeletal system; REFERENCE: Food
and Cosmetics Toxicology 9:801, 1971. <CODEN FCTXAV>
4. ROUTE: Oral; DOSE: 500 mg/kg; DURATION: female 6-15D of
pregnancy; TOXIC EFFECTS: EFFECTS ON EMBRYO OR FETUS -
Fetotoxicity; SPECIFIC DEVELOPMENTAL ABNORMALITIES -
Central nervous system; SPECIFIC DEVELOPMENTAL
ABNORMALITIES - Urogenital system; REFERENCE: Food and
Cosmetics Toxicology 9:801, 1971. <CODEN FCTXAV>
5. ROUTE: Oral; DOSE: 500 mg/kg; DURATION: female 6-15D of
pregnancy; TOXIC EFFECTS: SPECIFIC DEVELOPMENTAL
ABNORMALITIES - Homeostasis; EFFECTS ON NEWBORN - Growth
statistics; REFERENCE: Food and Cosmetics Toxicology
9:801, 1971. <CODEN FCTXAV>

B. MOUSE

1. ROUTE: Oral; DOSE: 707 mg/kg; DURATION: female 11-14D of
pregnancy; TOXIC EFFECTS: EFFECTS ON EMBRYO OR FETUS -
Fetotoxicity; EFFECTS ON EMBRYO OR FETUS - Fetal death;
SPECIFIC DEVELOPMENTAL ABNORMALITIES - Craniofacial
(including nose and tongue); REFERENCE: Archives of
Environmental Contamination and Toxicology 6:33, 1977.
<CODEN AECTCV>
2. ROUTE: Oral; DOSE: 900 mg/kg; DURATION: female 6-14D of
pregnancy; TOXIC EFFECTS: EFFECTS ON FERTILITY - Litter
size; EFFECTS ON EMBRYO OR FETUS - Extra embryonic

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

- structures; SPECIFIC DEVELOPMENTAL ABNORMALITIES - Eye, ear; REFERENCE: National Technical Information Service PB223-160. <CODEN NTIS**>
3. ROUTE: Oral; DOSE: 438 mg/kg; DURATION: female 8-12D of pregnancy; TOXIC EFFECTS: EFFECTS ON NEWBORN - Growth statistics; REFERENCE: Teratogenesis, Carcinogenesis, and Mutagenesis 7:7, 1987. <CODEN TCMUD8>
 4. ROUTE: Subcutaneous; DOSE: 882 mg/kg; DURATION: female 6-14D of pregnancy; TOXIC EFFECTS: EFFECTS ON EMBRYO OR FETUS - Fetal death; SPECIFIC DEVELOPMENTAL ABNORMALITIES - Central nervous system; EFFECTS ON EMBRYO OR FETUS - Extra embryonic structures; REFERENCE: National Technical Information Service PB223-160. <CODEN NTIS**>
 5. ROUTE: Subcutaneous; DOSE: 900 mg/kg; DURATION: female 6-14D of pregnancy; TOXIC EFFECTS: EFFECTS ON EMBRYO OR FETUS - Fetotoxicity; SPECIFIC DEVELOPMENTAL ABNORMALITIES - Eye, ear; SPECIFIC DEVELOPMENTAL ABNORMALITIES - Craniofacial (including nose and tongue); REFERENCE: National Technical Information Service PB223-160. <CODEN NTIS**>
 6. ROUTE: Subcutaneous; DOSE: 900 mg/kg; DURATION: female 6-14D of pregnancy; TOXIC EFFECTS: EFFECTS ON FERTILITY - Pre-implantation mortality; EFFECTS ON FERTILITY - Litter size; REFERENCE: National Technical Information Service PB223-160. <CODEN NTIS**>
- C. HAMSTER
1. ROUTE: Oral; DOSE: 200 mg/kg; DURATION: female 7-11D of pregnancy; TOXIC EFFECTS: EFFECTS ON FERTILITY - Litter size; REFERENCE: Bulletin of Environmental Contamination and Toxicology 6:559, 1971. <CODEN BECTA6>
- 3.4 GENETIC EFFECTS
- 3.4.1 DNA DAMAGE
- A. MAMMAL - UNSPECIFIED SPECIES
1. CELL TYPE: lymphocyte; DOSE: 1 mmol/L; REFERENCE: Phytochemistry. An International Journal of Plant Biochemistry 11:3135, 1972. <CODEN PYTCAS>
- B. FISH - SALMON
1. CELL TYPE: sperm; DOSE: 1 mmol/L; REFERENCE: Phytochemistry. An International Journal of Plant Biochemistry 11:3135, 1972. <CODEN PYTCAS>
- 3.4.2 DNA REPAIR
- A. BACTERIA - B SUBTILIS
1. DOSE: 5 mg/disc; REFERENCE: National Technical Information Service PB80-133226. <CODEN NTIS**>
- B. BACTERIA - E COLI
1. DOSE: 5 mg/disc; REFERENCE: National Technical Information Service PB80-133226. <CODEN NTIS**>
- 3.4.3 UNSCHEDULED DNA SYNTHESIS

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

- A. HUMAN
 - 1. CELL TYPE: fibroblast; DOSE: 1 umol/L; REFERENCE: Mutation Research 42:161, 1977. <CODEN MUREAV>
- 3.4.4 DNA INHIBITION
 - A. MOUSE
 - 1. ROUTE: Oral; DOSE: 200 mg/kg; REFERENCE: Mutation Research 55:197, 1978. <CODEN MUREAV>
 - B. HAMSTER
 - 1. CELL TYPE: ovary; DOSE: 1 mmol/L; REFERENCE: Toxicology Letters 29:137, 1985. <CODEN TOLED5>
- 3.4.5 DNA ADDUCT
 - A. BACTERIA - E COLI
 - 1. DOSE: 20 umol/L; REFERENCE: Mutation Research 89:95, 1981. <CODEN MUREAV>
- 3.4.6 MUTATIONS IN MICROORGANISMS
 - A. BACTERIA - S TYPHIMURIUM
 - 1. DOSE: 250 ug/plate (-S9); REFERENCE: Mutation Research 204:615, 1988. <CODEN MUREAV>
 - B. YEAST - S CEREVISIAE
 - 1. DOSE: 150 mg/L (-S9); REFERENCE: Ecological Bulletins 27:193, 1978. <CODEN ECBUDQ>
 - C. OTHER MICROORGANISMS
 - 1. DOSE: 1 gm/L (-S9); REFERENCE: Microbios Letters 5:103, 1977. <CODEN MILEDM>
 - 2. DOSE: 1 gm/L (-S9); REFERENCE: Microbios Letters 5:103, 1977. <CODEN MILEDM>
 - 3. DOSE: 1 gm/L (-S9); REFERENCE: Microbios Letters 5:103, 1977. <CODEN MILEDM>
 - 4. DOSE: 1 gm/L (-S9); REFERENCE: Microbios Letters 5:103, 1977. <CODEN MILEDM>
- 3.4.7 MUTATIONS IN MAMMALIAN SOMATIC CELLS
 - A. HAMSTER
 - 1. CELL TYPE: lung; DOSE: 10 umol/L; REFERENCE: Chemico-Biological Interactions 19:369, 1977. <CODEN CBINAS>
- 3.4.8 CYTOGENETIC ANALYSIS
 - A. HUMAN
 - 1. CELL TYPE: lymphocyte; DOSE: 20 ug/L; REFERENCE: Cytology and Genetics 8(3):6, 1974. <CODEN CYGEDX>
 - B. RAT
 - 1. ROUTE: Intraperitoneal; DOSE: 100 ug/kg; REFERENCE: Cytologia 52:275, 1987. <CODEN CYTOAN>
 - C. MOUSE
 - 1. ROUTE: Oral; DOSE: 100 mg/kg; REFERENCE: Cytology and Genetics 8(3):6, 1974. <CODEN CYGEDX>
 - D. HAMSTER
 - 1. CELL TYPE: ovary; DOSE: 2400 mg/L; REFERENCE: Environmental and Molecular Mutagenesis 10(Suppl 10):1, 1987. <CODEN EMMUEG>

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

- E. CATTLE
 - 1. CELL TYPE: kidney; DOSE: 1 ppm; REFERENCE: In Vitro 8:416, 1973. <CODEN ITCSAF>
- 3.4.9 SISTER CHROMATID EXCHANGE
 - A. HUMAN
 - 1. CELL TYPE: lymphocyte; DOSE: 10 mg/L; REFERENCE: Journal of Heredity 73:224, 1982. <CODEN JOHEA8>
 - B. HAMSTER
 - 1. CELL TYPE: ovary; DOSE: 167 mg/L; REFERENCE: Environmental and Molecular Mutagenesis 10(Suppl 10):1, 1987. <CODEN EMMUEG>
- 3.4.14 SPECIFIC LOCUS TEST
 - A. INSECTS - D MELANOGASTER
 - 1. ROUTE: Oral; DOSE: 5 mmol/L; REFERENCE: Mutation Research 319:237, 1993. <CODEN MUREAV>
 - 2. ROUTE: Multiple routes; DOSE: 10 ppb; REFERENCE: Environmental and Molecular Mutagenesis 25:148, 1995. <CODEN EMMUEG>
 - 3.4.15 GENE CONVERSION/MITOTIC RECOMBINATION
 - A. MOLD - A NIDULANS
 - 1. DOSE: 4 umol/L; REFERENCE: Mutation Research 204:615, 1988. <CODEN MUREAV>
 - 3.4.16 SEX CHROMOSOME LOSS/NONDISJUNCTION
 - A. INSECTS - D MELANOGASTER
 - 1. ROUTE: Oral; DOSE: 25 ppm; REFERENCE: Ecological Bulletins 27:190, 1978. <CODEN ECBUDQ>
 - 2. ROUTE: Unreported; DOSE: 1000 ppm/15D; REFERENCE: Ecological Bulletins 27:182, 1978. <CODEN ECBUDQ>
- 3.6 OTHER MULTIPLE DOSE TOXICITY DATA
 - A. RAT
 - 1. ROUTE: Oral; DOSE: 13650 mg/kg/13W-C; TOXIC EFFECTS: NUTRITIONAL AND GROSS METABOLIC - Weight loss or decreased weight gain; REFERENCE: Fundamental and Applied Toxicology 9:423, 1987. <CODEN FAATDF>
 - 2. ROUTE: Oral; DOSE: 200 mg/kg/5W-I; TOXIC EFFECTS: BEHAVIORAL - Muscle weakness; REFERENCE: Neurobehavioral Toxicology and Teratology 5:331, 1983. <CODEN NTOTDY>
 - 3. ROUTE: Oral; DOSE: 54750 mg/kg/1Y-C; TOXIC EFFECTS: SENSE ORGANS AND SPECIAL SENSES - Retinal changes (pigmentary deposition, retinitis, other); BEHAVIORAL - Change in motor activity (specific assay); REFERENCE: Toxicologist 15:23, 1995. <CODEN TOXID9>
 - B. DOG
 - 1. ROUTE: Oral; DOSE: 700 mg/kg/90D-I; TOXIC EFFECTS: BLOOD - Changes in other cell count; NUTRITIONAL AND GROSS METABOLIC - Weight loss or decreased weight gain; DEATH; REFERENCE: AMA Archives of Industrial Hygiene and Occupational Medicine 7:61, 1953. <CODEN AMIHBC>
 - 2. ROUTE: Intravenous; DOSE: 300 mg/kg/6D-I; TOXIC EFFECTS:

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

MUSCULOSKELITAL - Changes in teeth and supporting structures; SKIN AND APPENDAGES - Dermatitis, other; DEATH; REFERENCE: Journal of Industrial Hygiene and Toxicology 29:85, 1947. <CODEN JIHTAB>

4.0 STANDARDS AND REGULATIONS

1. EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION REFERENCE: Federal Register 54:7740, 1989. <CODEN PEREAC>
2. MSHA STANDARD-air:TWA 10 mg/m3 REFERENCE: "Documentation of Threshold Limit Values for Substances in Workroom Air." 3:67, 1971. <CODEN DTLVS*>
3. OSHA PEL (Gen Indu):8H TWA 10 mg/m3 REFERENCE: Code of Federal Regulations 29:1910.1000, 1994. <CODEN CFRGBR>
4. OSHA PEL (Construc):8H TWA 10 mg/m3 REFERENCE: Code of Federal Regulations 29:1926.55, 1994. <CODEN CFRGBR>
5. OSHA PEL (Shipyard):8H TWA 10 mg/m3 REFERENCE: Code of Federal Regulations 29:1915.1000, 1993. <CODEN CFRGBR>
6. OSHA PEL (Fed Cont):8H TWA 10 mg/m3 REFERENCE: Code of Federal Regulations 41:50-204.50, 1994. <CODEN CFRGBR>
7. OEL-AUSTRALIA:TWA 10 mg/m3 JAN93.
8. OEL-AUSTRIA:TWA 10 mg/m3 JAN93.
9. OEL-BELGIUM:TWA 10 mg/m3 JAN93.
10. OEL-DENMARK:TWA 5 mg/m3 JAN93.
11. OEL-FINLAND:TWA 10 mg/m3;STEL 20 mg/m3;Skin JAN93.
12. OEL-FRANCE:TWA 10 mg/m3 JAN93.
13. OEL-GERMANY:TWA 10 mg/m3 JAN93.
14. OEL-HUNGARY:TWA 1 mg/m3;STEL 2 mg/m3;Skin JAN93.
15. OEL-THE NETHERLANDS:TWA 10 mg/m3 JAN93.
16. OEL-THE PHILIPPINES:TWA 10 mg/m3 JAN93.
17. OEL-POLAND:TWA 7 mg/m3 JAN93.
18. OEL-SWITZERLAND:TWA 10 mg/m3;STEL 50 mg/m3 JAN93.
19. OEL-THAILAND:TWA 10 mg/m3 JAN93.
20. OEL-TURKEY:TWA 10 mg/m3 JAN93.
21. OEL-UNITED KINGDOM:TWA 10 mg/m3;STEL 20 mg/m3 JAN93.
22. OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV.
23. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV.

5.0 NIOSH DOCUMENTS

1. NIOSH REL TO 2,4-D-air:10H TWA 10 mg/m3 REFERENCE: National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda. DHHS #92-100,92. <CODEN NIOSH*>
2. National Occupational Hazard Survey 1974: Hazard Code 24270; Number of Industries 6; Total Number of Facilities 1132; Number of Occupations 8; Total Number of Employees 6266.
3. National Occupational Exposure Survey 1983: Hazard Code 24270; Number of Industries 1; Total Number of Facilities 94; Number of Occupations 1; Total Number of Employees 471.

6.0 REVIEWS

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

1. ACGIH TLV-TWA 10 mg/m3 REFERENCE: "Documentation of the Threshold Limit Values and Biological Exposure Indices," 5th ed., Cincinnati, OH, American Conference of Governmental Industrial Hygienists, Inc., 1986 6:375, 1991. <CODEN 85IN8>
2. IARC Cancer Review:Human Limited Evidence REFERENCE: IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man 41:357, 1986. <CODEN IMEMDT>
3. IARC Cancer Review:Animal Inadequate Evidence REFERENCE: IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man 15:111, 1977. <CODEN IMEMDT>
4. TOXICOLOGY REVIEW REFERENCE: Residue Reviews 59:1, 1975. <CODEN RREVAH>
5. TOXICOLOGY REVIEW REFERENCE: Deutsche Tieraerztliche Wochenschrift 80:485, 1973. <CODEN DTTIAP>
6. TOXICOLOGY REVIEW REFERENCE: Residue Reviews 56:107, 1975. <CODEN RREVAH>
7. TOXICOLOGY REVIEW REFERENCE: Economie et Medecine Animales 14:141, 1973. <CODEN ECMAAI>
8. TOXICOLOGY REVIEW REFERENCE: Biologico 40(2):44, 1974. <CODEN BIOGAL>
9. TOXICOLOGY REVIEW REFERENCE: Hygiene and Sanitation 31(7-9):383, 1966. <CODEN HYSAAV>
- 7.0 STATUS IN U.S.
 1. EPA GENETOX PROGRAM 1988, Positive: In vivo cytogenetics-nonhuman bone marrow.
 2. EPA GENETOX PROGRAM 1988, Positive: In vitro cytogenetics-human lymphocyte.
 3. EPA GENETOX PROGRAM 1988, Positive: B subtilis rec assay; E coli pola without S9.
 4. EPA GENETOX PROGRAM 1988, Positive: V79 cell culture-gene mutation.
 5. EPA GENETOX PROGRAM 1988, Positive: S cerevisiae gene conversion.
 6. EPA GENETOX PROGRAM 1988, Negative: D melanogaster-whole sex chrom. loss.
 7. EPA GENETOX PROGRAM 1988, Negative: D melanogaster-nondisjunction.
 8. EPA GENETOX PROGRAM 1988, Negative: Histidine reversion-Ames test.
 9. EPA GENETOX PROGRAM 1988, Negative: D melanogaster Sex-linked lethal.
 10. EPA GENETOX PROGRAM 1988, Negative: In vitro UDS-human fibroblast; TRP reversion.
 11. EPA GENETOX PROGRAM 1988, Negative: S cerevisiae-homozygosis.
 12. EPA GENETOX PROGRAM 1988, Inconclusive: Carcinogenicity-mouse/rat; Mammalian micronucleus.
 13. EPA TSCA Section 8(b) CHEMICAL INVENTORY.

FIGURE 14. 2,4-D ON MICROMEDEX (continued)

RTECS(R)

Topic: Acetic acid, (2,4-dichlorophenoxy)-

14. EPA TSCA Section 8(d) unpublished health/safety studies.
15. On EPA IRIS database.
16. EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, APRIL 1996.
17. NIOSH Analytical Method, 1994: 2,4-D, 5001.
18. NTP Carcinogenesis Studies; on test (prechronic studies), February 1996.

Produced by Micromedex, Inc. Vol. 30 Expires 10/31/96

