



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name: •-Estradiol, minimum 98%
Product Number: E8875
Brand: Sigma Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052

Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
17B-ESTRADIOL ESTROGEN	50-28-2	No	200-023-8	

Formula: C18H24O2
Synonyms: Altrad, Bardol, Dihydrofollicular hormone, Dihydrofolliculin, Dihydromenformon, Dihydrotheelin, 3,17-beta-Dihydroxyestra-1,3,5(10)-triene, 3,17-beta-Dihydroxy-1,3,5(10)-estradiene, Dihydroxyestrin, 3,17-beta-Dihydroxyestra-1,3,5-triene, 3,17-beta-Dihydroxy-1,3,5(10)-oestradiene, Dihydroxyoestrin, Dimenformon, Dimenformon prolongatum, Diogyn, Diogynets, E(sub 2), 3,17-Epidihydroxyestradiene, Estradiol-17-beta, beta-Estradiol, 3,17-beta-Estradiol, 17-beta-Estradiol, D-3,17-beta-Estradiol, Estradine, Estr-1,3,5(10)-triene-3,17-beta-diol, 17-beta-Estr-1,3,5(10)-triene-3,17-diol, 1,3,5-Estradiene-3,17-beta-diol, Estrone, Femestral, Femogen, Gynergon, Gynestrel, Gynosteryl, Lamdiol, Macrodiol, Macro, Microdiol, Nordiol, NSC-9895, Oestergon, Oestradiol, alpha-Oestradiol, beta-Oestradiol, 3,17-beta-Oestradiol, di-Oestradiol, d-Oestradiol, D-3,17-beta-Oestradiol, Oestradiol R, Oestradiol-17-beta, Oestra-1,3,5(10)-triene-3,17-beta-diol, 17-beta-Oestra-1,3,5(10)-triene-3,17-diol, Oestroglandol, Oestrogynol, 17-beta-OH-estradiol, 17-beta-OH-oestradiol, Ovahomon, Ovastard, Ovasteryl, Ovocidina, Ovocylin, Ovocyline, Ovocylin Edmard, Profold, Progynon, Progynon-DH, Syndiol, Theelin, dihydro-

Section 3 - Hazards Identification

Emergency Overview
Toxic.

May cause cancer.

Target organ(s): Female reproductive system, Male reproductive system.

HMIS Rating
Health: 0* Flammability: 0 Reactivity: 0

NFPA Rating
Health: 0 Flammability: 0 Reactivity: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Extinguishing Media

Suitable

Water spray, Carbon dioxide, dry chemical powder, or appropriate foam

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

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Storage
Suitable
Keep tightly closed.

Section 8 - Exposure Controls / PPE

Engineering Controls
Use only in a chemical fume hood, Safety shower and eye bath.

Personal Protective Equipment
Respiratory
Government approved respirator.
Hand
Compatible chemical-resistant gloves.
Eye
Chemical safety goggles.

General Hygiene Measures
Wash contaminated clothing before reuse. Wash thoroughly after handling.

Section 9 - Physical / Chemical Properties

Appearance	Color	Form
	White	Powder

Molecular Weight: 272.39 AMU

pH	N/A
BP/ BP Range	N/A
MP/ MP Range	176 °C
Freezing Point	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
SG Density	N/A
Bulk Density	N/A
Odor Threshold	N/A
Volatile %	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A
Partition Coefficient	N/A
Decomposition Temp.	N/A
Flash Point °F	N/A
Flash Point °C	N/A
Explosion Limits	N/A

Flammability	N/A
Autoignition Temp	N/A
Optical Rotation	Degree of Rotation: +94 - +79 (+/- 2)

Solvent: B OH H₂O 1:110 g/l

Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity

Stability
Stable
Stable
Materials to Avoid
Strong oxidizing agents.

Hazardous Decomposition Products
Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide.

Hazardous Polymerization
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure
Skin Contact
May cause skin irritation.
Skin Absorption
May be harmful if absorbed through the skin.
Eye Contact
May cause eye irritation.
Inhalation
May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion
May be harmful if swallowed.

Target Organ(s) or System(s)
Female reproductive system Male reproductive system

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: KG2975000

Chronic Exposure - Carcinogen

Result: There is sufficient evidence for the carcinogenicity of b-estradiol in experimental animals. In the absence of adequate data in humans, it is reasonable, for practical purposes, to regard b-estradiol as if it presented a carcinogenic risk to humans. Studies in humans strongly suggest that the administration of estrogens is causally related to an increased incidence of endometrial carcinoma; there is no evidence that b-estradiol is different from other estrogens in this respect. IARC Monograph, volume 21, page 312, 1979. The National Toxicology Program (Toxic Report on Carcinogens) has determined that steroid estrogens are known to be human carcinogens based on sufficient evidence of carcinogenicity in humans, which indicates a causal relationship between exposure to steroid estrogens and human cancer.

Rat - Intraperitoneal: 1400 MG/KG 13 W I
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Endocrine: Tumors.

Rat - Implant: 100 MG/KG 52 W C
Result: Tumorigenic: Carcinogenic by RTECS criteria. Skin and Appendages: Other: Tumors.

Mouse - Oral: 84 MG/KG 20 W C
Result: Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic Effects: Uterine tumors

Guinea pig - Subcutaneous: 7 MG/KG 12 W I
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Uterine tumors

Guinea pig - Implant: 1200 UG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site of application.

Hamster - Implant: 200 MG/KG
Result: Tumorigenic: Cardinogenic by RTECS criteria. Kidney, Uter, Bladder: Kidney tumors.

Hamster - Implant: 360 MG/KG 15W I
Result: Tumorigenic: Cardinogenic by RTECS criteria. Kidney, Uter, Bladder: Kidney tumors.

Guinea pig - Implant: 2400 UG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Uterine tumors

Mouse - Oral: 58 MG/KG 82W C
Result: Tumorigenic: Cardinogenic by RTECS criteria. Skin and Appendages: Other: Tumors.

Guinea pig - Implant: 40 MG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Uterine tumors

Guinea pig - Implant: 100 MG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic Effects: Uterine tumors

Mouse - Oral: 44 MG/KG 52W I
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.
Tumorigenic: Tumor types after systemic administration not seen spontaneously.

Rat - Implant: 62500 UG/KG 36W I
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Endocrine: Tumors. Skin and Appendages: Other: Tumors.

Hamster - Implant: 160 MG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Kidney, Uter, Bladder: Tumors. Lungs, Thorax, or Respiration: Bronchiogenic carcinoma.

Mouse - Implant: 30 MG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Mouse - Implant: 34 MG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

IARC Carcinogen List
Rating
Group 1

NTP Carcinogen List
Rating
Known to be a human carcinogen.
Anticipated to be a carcinogen.

Chronic Exposure - Teratogen			
Species	Dose	Route of Application	Exposure Time
Result: May cause congenital malformation in the fetus.			
Rat	14400 NG/KG	Subcutaneous	(5-16D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).			
Rat	6250 UG/KG	Subcutaneous	(16-20D PREG)
Result: Specific Developmental Abnormalities: Urogenital system.			
Rat	60 MG/KG	Intramuscular	(15-16D PREG)
Result: Specific Developmental Abnormalities: Urogenital system.			
Rat	60 MG/KG	Intramuscular	(19-20D PREG)
Result: Specific Developmental Abnormalities: Endocrine system.			

Chronic Exposure - Mutagen

Species	Dose	Route of Application	Exposure Time	Cell Type	Mutation test
Human	5 UMOL/L			lymphocyte	Micronucleus test.
Human	10 NMOL/L			mammary gland	Unscheduled DNA synthesis
Human	10 UMOL/L			lymphocyte	DNA inhibition
Human	20 MG/KG			fibroblast	Other mutation test systems
Human	1 MG/L			lymphocyte	Cytogenetic analysis
Human	1 MG/L			lymphocyte	Sister chromatid exchange
Human	20 MG/L			fibroblast	SLN
Rat	21 MG/KG	Oral	6W		Morphological transformation.
Rat	10 NMOL/L			Other cell types	DNA
Rat	10500 NG/KG	Subcutaneous			Other mutation test systems
Rat	100 MMOL/L			liver	Unscheduled DNA synthesis
Rat	18500 UG/KG	Subcutaneous	5D		Unscheduled DNA synthesis
Rat	10 UG/KG	Parenteral			Unscheduled DNA synthesis
Rat	40 UG/KG	Intraperitoneal			Unscheduled DNA synthesis
Rat	800 NG/KG	Subcutaneous	4D		Other mutation test systems
Rat	10 MG/KG	Parenteral			Cytogenetic analysis
Mouse	100 NMOL/L			Other cell types	Micronucleus test
Mouse	10 MG/KG	Intraperitoneal			Micronucleus test
Mouse	20 UMOL/L			fibroblast	Morphological transformation.
Mouse	1190 UG/KG	Subcutaneous			Unscheduled DNA synthesis
Mouse	40 UG/KG	Oral			DNA inhibition
Mouse	1 MG/L			Embryo	Cytogenetic analysis
Mouse	10 UMOL/L			Other cell types	Sister chromatid exchange
Mouse	200 MG/L	Subcutaneous			Sister chromatid exchange
Mouse	10 MG/KG	Intraperitoneal			Sister chromatid exchange
Mouse	250 MG/KG	Subcutaneous			sperm
Hamster	10 UMOL/L			Embryo	Micronucleus test
Hamster	3 MG/L			Embryo	Morphological transformation.
Hamster	200 MG/KG	Subcutaneous	2W		DNA damage
Hamster	6 MG/KG			Embryo	Other mutation test systems
Hamster	50 UMOL/L			ovary	Cytogenetic analysis
Hamster	160 MG/KG	Subcutaneous	20W		Cytogenetic analysis
Hamster	10 UMOL/L			ovary	Sister chromatid exchange
Hamster	10 MG/L			Embryo	SLN
Hamster	50 UMOL/L			fibroblast	SLN
Hamster	40 UMOL/L			lung	SLN
Guinea pig	52 NMOL/L			kidney	DNA
Guinea pig	52 NMOL/L			lung	DNA
Domestic Animals	10 UMOL/L			Other cell types	Micronucleus test
Mammal	5 NMOL/L			lymphocyte	DNA
Rabbit	100 NMOL/L			Other cell types	Unscheduled DNA synthesis
Frog	40 MG/KG	Parenteral			Unscheduled DNA synthesis
Chicken	25 MG/KG	Intramuscular			Other mutation test systems

Chronic Exposure - Reproductive Hazard

Species	Dose	Route of Application	Exposure Time
Result: May cause reproductive disorders.			
Woman	4400 UG/KG	Oral	(31W PRE)
Result: Effects on Fertility: Other measures of fertility			
Rat	1 GM/KG	Oral	(4-8D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).			
Effects on Fertility: Abortion.			
Rat	750 UG/KG	Oral	(3D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.			

Rat	875 UG/KG	Oral	(7D PRE)	Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).
Rat	4195 NG/KG	Oral	(1D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Rat	1280 NG/KG	Intraperitoneal	(8D MALE)	Result: Paternal Effects: Other effects on male. Endocrine: Change in LH.
Rat	2400 NG/KG	Subcutaneous	(3D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Rat	205 UG/KG	Subcutaneous	(5D MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct.
Rat	20 UG/KG	Subcutaneous	(4D PRE)	Result: Effects on Fertility: Other measures of fertility
Rat	10500 NG/KG	Subcutaneous	(7D PRE)	Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).
Rat	15300 NG/KG	Subcutaneous	(1-9D PREG)	Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).
Rat	500 UG/KG	Subcutaneous	(1D PRE)	Result: Maternal Effects: Menstrual cycle changes or disorders.
Rat	10 UG/KG	Intravenous	(1D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Rat	2 UG/KG	Intramuscular	(4D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Rat	1800 MG/KG	Intramuscular	(15-20D PREG)	Result: Maternal Effects: Ovaries, fallopian tubes.
Rat	6720 NG/KG	Intramuscular	(14D MALE)	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis , sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.
Rat	70 UG/KG	Intramuscular	(14D PRE)	Result: Maternal Effects: Menstrual cycle changes or disorders. Maternal Effects: Other effects.
Rat	4 UG/KG	Parenteral	(14-17D PREG)	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Rat	1600 UG/KG	Parenteral	(3W MALE)	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis , sperm duct.
Rat	3600 NG/KG	Implant	(90D MALE)	Result: Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.
Rat	437 UG/KG	Implant	(91D MALE)	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis , sperm duct.
Rat	262 UG/KG	Implant	(91D MALE)	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands. Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).
Rat	5 UG/KG	Unreported	(1D PRE)	Result: Effects on Fertility: Other measures of fertility
Rat	25 NG/KG	Intrauterine	(1D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Mouse	219 MG/KG	Oral	(52W PRE)	Result: Maternal Effects: Ovaries, fallopian tubes. Maternal Effects: Uterus, cervix, vagina.
Mouse	667 NG/KG	Oral	(3D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Mouse	4 MG/KG	Intraperitoneal	(5D PRE)	Result: Maternal Effects: Menstrual cycle changes or disorders.
Mouse	10 MG/KG	Subcutaneous	(5D MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands. Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).
Mouse	1 MG/KG	Subcutaneous	(5D MALE)	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).
Mouse	20 MG/KG	Subcutaneous	(19D PREG)	Result: Effects on Newborn: Delayed effects.
Mouse	12 UG/KG	Subcutaneous	(1-3D PREG)	Result: Effects on Fertility: Other measures of fertility

Mouse	14400 NG/KG	Subcutaneous	(4-6D PREG)	Result: Maternal Effects: Uterus, cervix, vagina. Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).
Mouse	204 NG/KG	Subcutaneous	(3D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Mouse	2 UG/KG	Subcutaneous	(1D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Mouse	9600 UG/KG	Parenteral	(4-6D PREG)	Result: Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).
Mouse	4800 UG/KG	Parenteral	(4-6D PREG)	Result: Effects on Fertility: Other measures of fertility
Mouse	4 UG/KG	Parenteral	(1D PRE)	Result: Maternal Effects: Uterus, cervix, vagina.
Mouse	1720 UG/KG	Implant	(16-21D PREG)	Result: Maternal Effects: Parturition. Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).
Monkey	10 MG/KG	Oral	(1-6D PREG)	Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).
Monkey	30 UG/KG/30M	Inhalation	(60D MALE)	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis , sperm duct.
Rabbit	60 UG/KG	Oral	(8D MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.
Rabbit	50 UG/KG	Oral	(1D PRE)	Result: Effects on Fertility: Other measures of fertility
Rabbit	90 UG/KG	Subcutaneous	(6-11D PREG)	Result: Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).
Rabbit	45 MG/KG	Subcutaneous	(1-3D PREG)	Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).
Rabbit	45 UG/KG	Subcutaneous	(5-7D PREG)	Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).
Rabbit	30 UG/KG	Intramuscular	(18-20D PREG)	Result: Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth). Effects on Embryo or Fetus: Fetal death.
Rabbit	5 UG/KG	Intramuscular	(1-3D PREG)	Result: Effects on Fertility: Other measures of fertility
Rabbit	190 UG/KG	Unreported	(1-19D PREG)	Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).
Pig	7692 NG/KG	Parenteral	(9-10D PREG)	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Hamster	90 UG/KG	Subcutaneous	(1-9D PREG)	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Hamster	900 UG/KG	Subcutaneous	(1-9D PREG)	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Hamster	160 MG/KG	Implant	(50W MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct.
Gerbil	15 MG/KG	Subcutaneous	(15D MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct. Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.
Domestic Animals	14 UG/KG	Subcutaneous	(1D PRE)	Result: Effects on Fertility: Other measures of fertility
Cattle	126 UG/KG	Subcutaneous	(48W PRE/1-28D PREG)	Result: Maternal Effects: Menstrual cycle changes or disorders. Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).
Cattle	900 UG/KG	Implant	(26W MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct.
Cattle	1 MG/KG	Implant	(26-47D POST)	Result: Maternal Effects: Menstrual cycle changes or disorders.
Cattle	147 MG/KG	Implant	(82D MALE)	Result: Paternal Effects: Testes, epididymis , sperm duct. Paternal Effects: Other effects on male.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Contact a licensed professional waste disposal service to dispose of this material.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: None
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA
Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU Additional Classification
Symbol of Danger: T
Indication of Danger
Toxic.
Risk Statements R 45
May cause cancer.
Safety Statements S 53/55
Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Classification and Label Text
Indication of Danger
Toxic.
Risk Statements
May cause cancer.
Safety Statements
Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements
Target organ(s): Female reproductive system Male reproductive system

United States Regulatory Information
SARA Listed: No

United States - State Regulatory Information
California Prop - 65
This product is or contains chemical(s) known to the state of California to cause cancer.

Canada Regulatory Information
WHMIS Classification
This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No
NDSL: No

Section 16 - Other Information

Disclaimer
For R&D use only. Not for drug, household or other uses.

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Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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