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SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 09/28/2004
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Version 1.40

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: Alfradiol, Bardiol, Dihydrofollicular hormone, Dihydrofolliculin, Dihydromenformon, Dihydrotheelin, 3,17-beta-Dihydroxyestra-1,3,5(10)-triene, 3,17-beta-Dihydroxy-1,3,5(10)-estratriene, Dihydroxyestrin, 3,17-beta-Dihydroxyestra-1,3,5-triene, 3,17-beta-Dihydroxy-1,3,5(10)-oestratriene, Dihydroxyoestrin, Dimenformon, Dimenformon prolongatum, Diogyn, Diogynets, E(sub 2), 3,17-Epidihydroxyestratriene, Estradiol-17-beta, beta-Estradiol, 3,17-beta-Estradiol, 17-beta-Estradiol, D-3,17-beta-Estradiol, Estraldine, Estra-1,3,5(10)-triene-3,17-beta-diol, 17-beta-Estra-1,3,5(10)-triene-3,17-diol, 1,3,5-Estratriene-3,17-beta-diol, Estrovite, Femestral, Femogen, Gynergon, Gynestrel, Gynoestryl, Lamdiol, Macrodiol, Macrol, Microdiol, Nordiol, NSC-9895, Oestergon, Oestradiol, alpha-Oestradiol, beta-Oestradiol, 3,17-beta-Oestradiol, cis-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, Oestrogynal, 17-beta-OH-estradiol, 17-beta-OH-oestradiol, Ovahormon, Ovasterol, Ovastevol, Ovociclina, Ovocyclin, Ovocycline, Ovocylin, Primofol, Profolid, 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.

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: EtOH/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 (Tenth Report on Carcinogens) has determined that steroidal estrogens are known to be human carcinogens based on sufficient evidence of carcinogenicity in humans, which indicates a causal relationship between exposure to steroidal estrogens and human cancer.

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

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

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

Guinea pig - Subcutaneous: 7 MG/KG 12W 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 or application.

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

Hamster - Implant: 360 MG/KG 15 W I
Result: Tumorigenic: Carcinogenic by RTECS criteria. Kidney, Ureter, 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 82 W C
Result: Tumorigenic: Carcinogenic 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 52 W 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 36 W 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, Ureter, 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		
Human	5 UMOL/L		
Human	10 NMOL/L		
Human	10 UMOL/L		
Human	20 MG/KG		
Human	1 MG/L		
Human	1 MG/L		
Human	20 MG/L		
Rat	21 MG/KG	Oral	6W
Rat	10 NMOL/L		
Rat	10500 NG/KG	Subcutaneous	
Rat	100 MMOL/L		
Rat	18500 UG/KG	Subcutaneous	5D
Rat	10 UG/KG	Parenteral	
Rat	40 UG/KG	Intraperitoneal	
Rat	800 NG/KG	Subcutaneous	4D
Rat	10 MG/KG	Parenteral	
Mouse	100 NMOL/L		
Mouse	10 MG/KG	Intraperitoneal	
Mouse	20 UMOL/L		
Mouse	1190 UG/KG	Subcutaneous	
Mouse	40 UG/KG	Oral	
Mouse	1 MG/L		
Mouse	10 UMOL/L		
Mouse	200 MG/L	Subcutaneous	
Mouse	10 MG/KG	Intraperitoneal	
Mouse	250 MG/KG	Subcutaneous	
Hamster	10 UMOL/L		
Hamster	3 MG/L		
Hamster	200 MG/KG	Subcutaneous	2W
Hamster	6 MG/KG		
Hamster	50 UMOL/L		
Hamster	160 MG/KG	Subcutaneous	20W
Hamster	10 UMOL/L		
Hamster	10 MG/L		
Hamster	50 UMOL/L		
Hamster	40 UMOL/L		
Guinea pig	52 NMOL/L		
Guinea pig	52 NMOL/L		
Domestic Animals	10 UMOL/L		
Mammal	5 NMOL/L		
Rabbit	100 NMOL/L		
Frog	40 MG/KG	Parenteral	
Chicken	25 MG/KG	Intramuscular	

Cell Type	Mutation test
lymphocyte	Micronucleus test
mammary gland	Unscheduled DNA synthesis
lymphocyte	DNA inhibition
fibroblast	Other mutation test systems
lymphocyte	Cytogenetic analysis
lymphocyte	Sister chromatid exchange
fibroblast	SLN
	Morphological transformation.
Other cell types	DNA
	Other mutation test systems
liver	Unscheduled DNA synthesis
	Unscheduled DNA synthesis
	Unscheduled DNA synthesis
	Unscheduled DNA synthesis
	Other mutation test systems
	Cytogenetic analysis
Other cell types	Micronucleus test
	Micronucleus test
fibroblast	Morphological transformation.
	Unscheduled DNA synthesis
	DNA inhibition
Embryo	Cytogenetic analysis
Other cell types	Sister chromatid exchange
	Sister chromatid exchange
	Sister chromatid exchange
	sperm
Embryo	Micronucleus test
Embryo	Morphological transformation.
	DNA damage
Embryo	Other mutation test systems
ovary	Cytogenetic analysis
	Cytogenetic analysis
ovary	Sister chromatid exchange
Embryo	SLN
fibroblast	SLN
lung	SLN
kidney	DNA
lung	DNA
Other cell types	Micronucleus test
lymphocyte	DNA
Other cell types	Unscheduled DNA synthesis
	Unscheduled DNA synthesis
	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). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

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, Horse 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, Horse 900 UG/KG Implant (26W MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.

Cattle, Horse 1 MG/KG Implant (26-47D POST)
Result: Maternal Effects: Menstrual cycle changes or disorders.

Cattle, Horse 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 45
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.

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.