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SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 01/21/2008
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Version 1.70

Section 1 - Product and Company Information

Product Name Testosterone
Product Number T1500
Brand Sigma Chemical

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 800-325-5832 **Emergency Phone:** 314-776-6555
Fax: 800-325-5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
TESTOSTERONE	58-22-0	No	200-370-5	

Formula C19H28O2
Synonyms Androlin, Androst-4-en-3-one, 17-hydroxy-, (17-beta)-, Andronaq, Androst-4-en-17beta-ol-3-one, delta(sup 4)-Androsten-17(beta)-ol-3-one, Androst-4-en-3-one, 17-beta-hydroxy-, Andrusol, Cristerone T, Geno-cristaux gremy, Homosteron, Homosterone, 17beta-Hydroxy-delta(sup 4)-androsten-3-one, 17-beta-Hydroxyandrost-4-en-3-one, 17-beta-Hydroxy-4-androsten-3-one, 7-beta-Hydroxyandrost-4-en-3-one, Malestrone (amps), Mertestate, Neotestis, Oreton-F, Orquisteron, Perandren, Percutacrine androgenique, Primotest, Pimoteston, Sustanone, Synandrol F, Teslen, Testandrone, Testiculosterone, Testobase, Testopropon, Testosteroid, Testosteron, trans Testosterone, Testosterone hydrate, Testostosterone, Testoviron schering, Testoviron T, Testrone, Testryl, Virormone, Virosterone

Section 3 - Hazards Identification

Emergency Overview
Toxic.
May cause cancer. Possible risk of harm to the unborn child.
Target organ(s): Reproductive system. Calif. Prop. 65 carcinogen.

HMIS Rating
Health: 1* Flammability: 0 Reactivity: 0

NFPA Rating
Health: 1 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 minute 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. Shut off all sources of ignition.

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.

Environmental Precaution(s)
Avoid contaminating water supply. Avoid contaminating sewers and waterways with this material.

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
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or

type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air 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

Physical State

Solid

Molecular Weight	288.43 AMU
pH	N/A
BP/BP Range	N/A
MP/MP Range	152 °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 +133 - +112 (+/-2) Solvent:EtOH10 g/l

Solubility

Solubility in Water: Insoluble.

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)

Reproductive system.

RTECS Number: XA3030000

Toxicity Data

Oral - Mammal: > 5000 mg/kg (LD50)

Chronic Exposure- Carcinogen

Result: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Mouse - Oral: 6240 MG/KG 52D C
Result: Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic Effects: Ovarian tumors.

Mouse - Subcutaneous: 30 MG/KG 5D I
Result: Tumorigenic:Neoplastic by RTECS criteria. Endocrine:Adrenal cortex tumors. Tumorigenic Effects: Other reproductive system tumors.

Mouse - Implant: 400 MG/KG 50D C
Result: Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic Effects: Ovarian tumors.

IARC Carcinogen List

Rating

Group 2A

Chronic Exposure- Teratogen

Species	*Dose*	*Route of Application*	*Exposure Time*
Result:Possible risk of congenital malformation in the fetus.			
Woman	34600 UG/KG	Unreported	(7-13W PREG)
Result:Specific Developmental Abnormalities: Urogenital system.			
Rat	100 MG/KG	Oral	(17-20D PREG)
Result:Specific Developmental Abnormalities: Urogenital system.			
Rat	8 MG/KG	Intramuscular	(13-20D PREG)
Result:Specific Developmental Abnormalities: Skin and skin appendages. Specific Developmental Abnormalities: Urogenital system.			
Guinea pig	86 MG/KG	Subcutaneous	(18-60D PREG)
Result:Specific Developmental Abnormalities: Endocrine system. Specific Developmental Abnormalities: Urogenital system.			
Domestic Animals	6398 UG/KG	Implant	(30-80D PREG)
Result:Specific Developmental Abnormalities: Urogenital system.			
Domestic Animals	6491 UG/KG	Implant	(13-20W PREG)
Result:Effects on Embryo or Fetus: Fetal death.			

Chronic Exposure- Mutagen

Species	Dose		Cell Type	Mutation test
Human	50 UMOL/L		lymphocyte	DNA inhibition
Human	100 UG/L		kidney	DNA inhibition
Human	100 UG/L		kidney	Cytogenetic analysis
Rat	10 MG/KG	Parenteral		Unscheduled DNA synthesis
Rat	100 UMOL/L		liver	DNA inhibition
Mouse	100 UMOL/L		liver	DNA damage
Hamster	5 MG/L		Embryo	Morphological transformation.
Mammal	10 UMOL/L		lymphocyte	DNA damage
Mammal	1 UMOL/L		liver	DNA damage

Chronic Exposure- Reproductive Hazard

Species	Dose	Route of Application	Exposure Time
Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.			
Man	17 MG/KG	Implant	(26W MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count)Paternal Effects: Other effects on male.			
Rat	64 MG/KG	Oral	(10D MALE)
Result: Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.			
Rat	25 MG/KG	Subcutaneous	(17D PREG)
Result: Effects on Newborn: Physical. Effects on Newborn: Delayed effects.			
Rat	7 MG/KG	Subcutaneous	(10-16D PREG)
Result: Effects on Fertility: Abortion.			
Rat	4 MG/KG	Subcutaneous	(9D PREG)
Result: Maternal Effects: Parturition. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).			
Rat	20 MG/KG	Subcutaneous	(5D PREG)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).			
Rat	8400 UG/KG	Subcutaneous	(21D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).Paternal Effects: Testes, epididymis, sperm duct.Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.			
Rat	1400 UG/KG	Subcutaneous	(14D PRE)
Result: Effects on Fertility: Other measures of fertility			
Rat	700 UG/KG	Subcutaneous	(14D PRE)
Result: Maternal Effects: Ovaries, fallopian tubes.Maternal Effects: Uterus, cervix, vagina.			
Rat	60 MG/KG	Intramuscular	(3-7D PREG)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).			
Rat	280 UG/KG	Intramuscular	(14D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.			
Rat	2500 UG/KG	Parenteral	(10D PRE)
Result: Maternal Effects: Ovaries, fallopian tubes.			
Rat	4 MG/KG	Parenteral	(3W MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.			
Rat	8 MG/KG	Parenteral	(3W MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).			
Rat	10440 UG/KG	Implant	(30D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.			
Rat	27 MG/KG	Implant	(90D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count)Paternal Effects: Testes, epididymis, sperm duct.Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).			
Rat	10920 UG/KG	Implant	(91D MALE)
Result: Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.			
Rat	33300 UG/KG	Implant	(15W MALE)
Result: Paternal Effects: Other effects on male.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	24 MG/KG	Intratesticular	(30D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.			

Mouse	15 GM/KG	Oral	(8-12D PREG)
Result: Effects on Newborn: Live birth index (# fetuses per litter; measured after birth)Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).			
Mouse	40 MG/KG	Subcutaneous	(10D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.Maternal Effects: Other effects.			
Mouse	168 MG/KG	Subcutaneous	(3D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.			
Mouse	10 MG/KG	Subcutaneous	(5D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).			
Mouse	4524 MG/KG	Parenteral	(19D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.			
Mouse	9583 NG/KG	Parenteral	(1D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.			
Monkey	1426 UG/KG	Implant	(70D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).			
Rabbit	30 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	6 MG/KG	Unreported	(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).			
Hamster	180 MG/KG	Subcutaneous	(3-8D PREG)
Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).			
Domestic Animals	13333 UG/KG	Subcutaneous	(50D PREG)
Result: Effects on Newborn: Behavioral.			
Domestic Animals	18 UG/KG	Implant	(7-14W PREG)
Result: Effects on Fertility: Mating performance (e.g., # sperm positive females per # females mated; # copulations per # estrus cycles).			

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Contact the Drug Enforcement Administration concerning the disposal of controlled substances.
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 nonhazardous 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 63
May cause cancer. Possible risk of harm to the unborn child.
Safety Statements **S:** 53 36/37 45
Avoid exposure - obtain special instructions before use.Wear suitable protective clothing and gloves.In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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. Possible risk of harm to the unborn child.

Safety Statements

Avoid exposure - obtain special instructions before use.Wear suitable protective clothing and gloves.In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements

Target organ(s): Reproductive system. Calif. Prop. 65 carcinogen.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

United States - State Regulatory Information

California Prop - 65

This product is or contains chemical(s) known to the state of California to cause cancer.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: Yes

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 stateof 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. SigmaAldrich Inc., shall not be held liable for any damage resulting from handling or fom contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.