SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Prostaglandin E_2, approx. 99% TLC
Product Number P5640
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
PROSTAGLANDIN E(2)	363-24-6	No	206-656-6	

Formula C20H32O5
Synonyms (5Z,11-alpha,13E,15S)-11,15-Dihydroxy-9-oxoprosta-5,13-dien-1-oic acid, Dinoprostone, 5-Heptenoic acid, 7-(3-hydroxy-2-(3-hydroxy-1-octenyl)-5-oxocyclopentyl)-, 5-Heptenoic acid, 7-(3-hydroxy-2-(3-hydroxy-1-octenyl)-5-oxocyclopentyl)-, l-, 7-(3-Hydroxy-2-(3-hydroxy-1-octenyl)-5-oxocyclopentyl)-5-heptenoic acid, l-7-(3-Hydroxy-2-(3-hydroxy-1-octenyl)-5-oxocyclopentyl)-5-heptenoic acid, PGE2, l-PGE2, Prosta-5,13-dien-1-oic acid, 11,15-dihydroxy-9-oxo-, (5Z,11-alpha,13E,15S)- (9CI), Prostaglandin E2, l-Prostaglandin E2, (15S)-Prostaglandin E2, Prostin, Prostin E2, U-12062

Section 3 - Hazards Identification

Emergency Overview
Toxic.
May impair fertility. Harmful if swallowed.
Target organ(s): Smooth muscle.

HMIS Rating
Health: 2* Flammability: 0 Reactivity: 1

NFPA Rating
Health: 2 Flammability: 0 Reactivity: 1

*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.

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.

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. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Storage
Suitable
Keep tightly closed. Store at -20°C

Special Requirements
Light sensitive.

Section 8 - Exposure Controls / PPE

Engineering Controls
Mechanical exhaust required. 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 thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance

Physical State	Color	Form
Solid	White	Powder

Molecular Weight: 352.5 AMU

pH	N/A
BP/BP Range	N/A
MP/MP Range	N/A
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

Solubility
Solvent: 10 mg/ml acetone, clear, colorless

N/A = not available

Section 10 - Stability and Reactivity

Stability
Stable
Stable.
Materials to Avoid
Acids, Bases.

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
Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion
Harmful if swallowed.

Target Organ(s) or System(s)
Smooth muscle.

Signs and Symptoms of Exposure
Exposure can cause: Nausea, headache, and vomiting. Other effects include diarrhea, flushing, shivering and dizziness.

RTECS Number: UK8000000

Toxicity Data

Oral - Rat: 500 mg/kg (LD50)
Remarks: Behavioral:Somnolence (general depressed activity).
Gastrointestinal:Hypermotility, diarrhea.
Skin and Appendages: Other: Hair.

Subcutaneous - Rat: 31600 UG/KG (LD50)
Remarks: Gastrointestinal:Hypermotility, diarrhea.
Skin and Appendages:Skin: After systemic exposure: Dermatitis, other
Skin and Appendages: Other: Hair.

Intravenous - Rat: 59500 UG/KG (LD50)
Remarks: Behavioral:Somnolence (general depressed activity).
Gastrointestinal:Hypermotility, diarrhea.
Skin and Appendages: Other: Hair.

Oral - Mouse: 750 mg/kg (LD50)
Remarks: Behavioral:Somnolence (general depressed activity).
Gastrointestinal:Hypermotility, diarrhea.
Skin and Appendages: Other: Hair.

Subcutaneous - Mouse: 19700 UG/KG (LD50)
Remarks: Gastrointestinal:Hypermotility, diarrhea.
Skin and Appendages:Skin: After systemic exposure: Dermatitis, other
Skin and Appendages: Other: Hair.

Intravenous - Mouse: 23200 UG/KG (LD50)
Remarks: Behavioral:Somnolence (general depressed activity).
Gastrointestinal:Hypermotility, diarrhea.
Skin and Appendages: Other: Hair.

Intraperitoneal - Hamster: 1 MG/KG (LD50)

Chronic Exposure - Teratogen

Species	*Dose*	*Route of Application*	*Exposure Time*
Rat	6 MG/KG	Intraperitoneal	(12-15D PREG)
Result:Specific Developmental Abnormalities: Homeostasis			
Rat	75 MG/KG	Intraperitoneal	(6-10D PREG)
Result:Specific Developmental Abnormalities: Central nervous system.			
Specific Developmental Abnormalities: Eye, ear.			

Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Rat	1200 UG/KG	Intraperitoneal	(9-14D PREG)
	Result:Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).		
Rat	6 MG/KG	Intraperitoneal	(12-15D PREG)
	Result:Specific Developmental Abnormalities: Homeostasis Specific Developmental Abnormalities: Other developmental abnormalities.		
Mouse	720 MG/KG	Oral	(7-12D PREG)
	Result:Specific Developmental Abnormalities: Musculoskeletal system.		
Mouse	150 MG/KG	Intraperitoneal	(6-10D PREG)
	Result:Specific Developmental Abnormalities: Musculoskeletal system.		
Mouse	5 MG/KG	Subcutaneous	(16D PREG)
	Result:Effects on Embryo or Fetus: Fetal death.		
Mouse	746 UG/KG	Subcutaneous	(12D PREG)
	Result:Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Eye, ear. Specific Developmental Abnormalities: Urogenital system.		
Mouse	746 UG/KG	Subcutaneous	(12D PREG)
	Result:Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).		
Hamster	200 UG/KG	Intraperitoneal	(8D PREG)
	Result:Specific Developmental Abnormalities: Musculoskeletal system.		
Hamster	500 UG/KG	Intraperitoneal	(8D PREG)
	Result:Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).		
Hamster	1 MG/KG	Intraperitoneal	(8D PREG)
	Result:Effects on Embryo or Fetus: Fetal death.		
Hamster	800 UG/KG	Subcutaneous	(8D PREG)
	Result:Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Central nervous system. Specific Developmental Abnormalities: Musculoskeletal system.		
Hamster	800 UG/KG	Subcutaneous	(8D PREG)
	Result:Specific Developmental Abnormalities: Cardiovascular (circulatory) system. Specific Developmental Abnormalities: Urogenital system. Specific Developmental Abnormalities: Homeostasis		

Chronic Exposure - Mutagen

Species	*Dose*	*Route*		*Mutation test*
Rat	15 UG/KG	Intracerebral		Other mutation test systems
Mouse	100 NMOL/L		Other cell types	Other mutation test systems
Mouse	3 MG/KG	Intraperitoneal		sperm
Guinea pig	1 MG/L		lung	Unscheduled DNA synthesis

Chronic Exposure - Reproductive Hazard

Species	*Dose*	*Route of Application*	*Exposure Time*
	Result: May cause reproductive disorders.		
Woman	200 UG/KG	Oral	(3D POST)
	Result: Maternal Effects: Postpartum.		
Man	1 MG/KG	Oral	(1D MALE)
	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).		
Woman	16800 UG/KG	Intravenous	(10W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	100 NG/KG	Intravenous	(23W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	65 UG/KG	Intravenous	(27W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	14400 NG/KG	Intravenous	(15W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	500 NG/KG	Intravenous	(8W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	400 UG/KG	Intravenous	(16W PREG)
	Result: Maternal Effects: Uterus, cervix, vagina.		
Woman	100 UG/KG	Intraplacental	(15W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	10 UG/KG	Intracervical	(42W PREG)
	Result: Maternal Effects: Uterus, cervix, vagina.		

Woman	48 UG/KG	Intracervical	(14W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	2400 UG/KG	Intravaginal	(14W PREG)
	Result: Effects on Fertility: Abortion.		
Woman	800 UG/KG	Intravaginal	(2W PREG)
	Result: Effects on Fertility: Other measures of fertility		
Rat	1440 MG/KG	Oral	(9-14D PREG)
	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).		
Woman	60 UG/KG	Intravaginal	(41W PREG)
	Result: Effects on Newborn: Stillbirth.		
Rat	3600 UG/KG	Intraperitoneal	(20D PREG)
	Result: Maternal Effects: Parturition.		
Rat	2 MG/KG	Intraperitoneal	(15D PREG)
	Result: Effects on Fertility: Abortion.		
Rat	17500 UG/KG	Subcutaneous	(1-7D 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	30 MG/KG	Subcutaneous	(1-6D PREG)
	Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).		
Rat	32 MG/KG	Subcutaneous	(4-7D PREG)
	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).		
Rat	30 MG/KG	Subcutaneous	(1-5D PREG)
	Result: Effects on Fertility: Other measures of fertility		
Rat	64 MG/KG	Subcutaneous	(4-7D PREG)
	Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).		
Rat	12 MG/KG	Intratesticular	(3D MALE)
	Result: Paternal Effects: Prostate, seminal vessicle, Cowper's gland, accessory glands.		
Rat	4 MG/KG	Intratesticular	(1D MALE)
	Result: Paternal Effects: Testes, epididymis, sperm duct.		
Rat	400 UG/KG	Intratesticular	(1D MALE)
	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).		
Rat	25 UG/KG	Intrauterine	(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).		
Mouse	36 MG/KG	Oral	(7-12D PREG)
	Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death.		
Mouse	1440 MG/KG	Oral	(7-12D PREG)
	Result: Effects on Newborn: Sex ratio.		
Mouse	30 MG/KG	Intraperitoneal	(9-14D 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).		
Mouse	60 MG/KG	Intraperitoneal	(9-14D PREG)
	Result: Effects on Fertility: Abortion.		
Mouse	30 MG/KG	Subcutaneous	(15D MALE)
	Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count).		
Mouse	2 MG/KG	Subcutaneous	(5-6D PREG)
	Result: Effects on Fertility: Other measures of fertility		
Mouse	20 UG/KG	Subcutaneous	(16D PREG)
	Result: Effects on Fertility: Abortion.		
Monkey	18 MG/KG	Subcutaneous	(21-22D PREG)
	Result: Effects on Fertility: Abortion.		
Rabbit	3 MG/KG	Subcutaneous	(1D PREG)
	Result: Effects on Fertility: Other measures of fertility		
Rabbit	22500 UG/KG	Subcutaneous	(1-3D PREG)
	Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).		
Rabbit	2 MG/KG	Intravenous	(1D 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).		
Guinea pig	4 MG/KG	Subcutaneous	(23-24D PREG)
	Result: Effects on Fertility: Abortion.		

Hamster 48 MG/KG Oral (4-6D PREG)
Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).
Hamster 800 UG/KG Subcutaneous (8D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Hamster 1600 UG/KG Subcutaneous (5D PREG)
Result: Effects on Fertility: Other measures of fertility
Hamster 3600 UG/KG Subcutaneous (4-6D PREG)
Result: Maternal Effects: Ovaries, fallopian tubes. Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated).
Cattle, Horse 48 UG/KG Intracervical (33-44D PREG)
Result: Maternal Effects: Uterus, cervix, vagina.
Cattle, Horse 4 UG/KG Intravaginal (1D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.

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.
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
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:** 60 22
May impair fertility. Harmful if swallowed.
Safety Statements **S:** 53 22 26 36/37/39
Avoid exposure - obtain special instructions before use. Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

US Classification and Label Text
Indication of Danger
Toxic.
Risk Statements
May impair fertility. Harmful if swallowed.
Safety Statements
Avoid exposure - obtain special instructions before use. Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.
US Statements
Target organ(s): Smooth muscle.

United States Regulatory Information
SARA Listed: No

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.