

Section 1 - Product and Company Information

Product Name RETINOL PALMITATE ALL TRANS
Product Number R1512
Brand SIGMA
Company Sigma-Aldrich Canada, Ltd
Address 2149 Winston Park Drive
Oakville ON L6H 6J8 CA
Technical Phone: 9058299500
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Emergency Phone: 800-424-9300

Section 2 - Composition/Information on Ingredient

Substance Name RETINOL PALMITATE ALL TRANS CAS # 79-81-2 SARA 313 No
Formula C36H60O2
Synonyms Aquasol A * Arovit * Optovit-A * Retinol palmitate * Retinyl palmitate * Vitamin A palmitate
RTCS Number: VM860000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Harmful.
Possible risk of harm to the unborn child.

HMS 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

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
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
Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Do not breathe mist. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.
Store at 2-8°C

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Use only in a chemical fume hood. Safety shower and eye bath.

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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 respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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: Clear liquid
Color: Very deep brown-yellow
Form: Viscous

Property	Value	At Temperature or Pressure
Molecular Weight	524.9 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	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatility	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A - not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Conditions of Instability: Light sensitive. May decompose on exposure to air. May decompose on exposure to light.
Materials to Avoid: Copper, Copper alloys, Peroxides Iron and iron salts., Strong oxidizing agents

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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 Absorption: May cause skin irritation.
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.

SIGNS AND SYMPTOMS OF EXPOSURE
Exposure can cause: Dermatitis. Nausea, headache, and vomiting.

CONDITIONS AGGRAVATED BY EXPOSURE
The toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral
Rat
7910 mg/kg
LD50

Oral
Mouse
6060 mg/kg
LD50

Intraperitoneal
Mouse
4760 MG/KG
LD50
Remarks: Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Behavioral:Somnolence (general depressed activity). Gastrointestinal:Hypermotility, diarrhea.

CHRONIC EXPOSURE - TERATOGEN
Result: May cause congenital malformation in the fetus.

Species: Rat
Dose: 248 MG/KG
Route of Application: Oral
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Central nervous system.

Species: Rat
Dose: 275 MG/KG
Route of Application: Oral
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Eye, ear. Specific Developmental Abnormalities: Central nervous system.

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Species: Rat
Dose: 275 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (11D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Rat
Dose: 82500 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat
Dose: 413 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material).

Species: Rat
Dose: 275 MG/KG
Route of Application: Subcutaneous
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Eye, ear.

Species: Rat
Dose: 275 MG/KG
Route of Application: Subcutaneous
Exposure Time: (12D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 262 MG/KG
Route of Application: Oral
Exposure Time: (11D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Species: Mouse
Dose: 1321 MG/KG
Route of Application: Oral
Exposure Time: (8-13D PREG)
Result: Specific Developmental Abnormalities: Urogenital system. Specific Developmental Abnormalities: Gastrointestinal system. Specific Developmental Abnormalities: Cardiovascular (circulatory) system.

Species: Mouse
Dose: 220 MG/KG
Route of Application: Oral
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 330 MG/KG
Route of Application: Oral
Exposure Time: (11D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

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Species: Mouse
Dose: 28 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 220 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse
Dose: 330 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system. Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Effects on Embryo or Fetus: Fetal death.

Species: Rabbit
Dose: 28 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Rabbit
Dose: 110 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (10D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mammal
Dose: 2750 UG/KG
Route of Application: Intraperitoneal
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Eye, ear.

Species: Mammal
Dose: 2750 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (13D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system.

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 2750 UG/L
Cell Type: fibroblast
Mutation test: Sister chromatid exchange

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CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 13750 UG/KG
Route of Application: Oral
Exposure Time: (35W PRE)
Result: Maternal Effects: Ovaries, fallopian tubes. Effects on Fertility: Other measures of fertility

Species: Rat
Dose: 36 MG/KG
Route of Application: Oral
Exposure Time: (26D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.

Species: Rat
Dose: 16500 UG/KG
Route of Application: Oral
Exposure Time: (8-10D PREG)
Result: Effects on Newborn: Behavioral.

Species: Rat
Dose: 206 MG/KG
Route of Application: Oral
Exposure Time: (8D PREG)
Result: Effects on Embryo or Fetus: Fetal death. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species: Rat
Dose: 440 MG/KG
Route of Application: Oral
Exposure Time: (9D 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: Extra embryonic structures (e.g., placenta, umbilical cord).

Species: Rat
Dose: 138 MG/KG
Route of Application: Oral
Exposure Time: (16D PRE)
Result: Maternal Effects: Uterus, cervix, vagina.

Species: Rat
Dose: 1350 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (11-15D PREG)
Result: Effects on Newborn: Behavioral.

Species: Rat
Dose: 275 MG/KG
Route of Application: Subcutaneous
Exposure Time: (7D 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: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Central nervous system.

Species: Rat
Dose: 660 MG/KG
Route of Application: Oral
Exposure Time: (9D PREG)
Result: Specific Developmental Abnormalities: Skin and skin appendages. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
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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: Xn
Indication of Danger: Harmful.
R: 63
Risk Statements: Possible risk of harm to the unborn child.
S: 36/37
Safety Statements: Wear suitable protective clothing and gloves.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Harmful.
Risk Statements: Possible risk of harm to the unborn child.
Safety Statements: Wear suitable protective clothing and gloves.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No
TSCA INVENTORY ITEM: Yes
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

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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. Copyright 2009 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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