

MATERIAL SAFETY DATA SHEET

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Version 1.6

Section 1 - Product and Company Information

Product Name	WARFARIN PESTANAL (4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)COUMARINE), 250 MG
Product Number	45706
Brand	FLUKA
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
3-(A-ACETONYLBENZYL)4-HYDROXYCOUMARIN	81-81-2	Yes

Formula	C19H16O4
Synonyms	3-(Acetonylbenzyl)-4-hydroxycoumarin * 3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin * Arab Rat Deth * Athrombine-K * Athrombin-K * 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)- (9CI) * Brumolin * Compound 42 * d-Con * CO-Rax * Coumadin * Coumafene * Coumafene * Coumarins * Coumefene * Cov-R-Tox * Dethmor * Dethnel * Eastern states duocide * Fasco fascrat powder * 1-(4'-Hydroxy-3'-coumarinyl)-1-phenyl-3-butanone * 4-Hydroxy-3-(3-oxo-1-phenyl-butyl) coumarine (Dutch) * 4-Hydroxy-3-(3-oxo-1-phenylbutyl)-2H-1-benzopyran- 2-one * 4-Hydroxy-3-(3-oxo-1-phenyl-butyl)-cumarin (German) * 4-Idrossi-3-(3-oxo-1-phenil-butyl)-cumarine (Italian) * Kumader * Kumadu * Kypfarin * Latka 42 (Czech) * Liqua-tox * Mar-frin * Martin's mar-frin * Maveran * Mouse pak * 3-(alpha-Phenyl-beta-acetylaethyl)-4-hydroxycumari n (German) * 3-(alpha-Phenyl-beta-acetylethyl)-4-hydroxycumari n * 3-(1'-Phenyl-2'-acetylethyl)-4-hydroxycoumarin * (Phenyl-1 acetyl-2 ethyl) 3-hydroxy-4 coumarine (French) * Rat-B-gon * Rat-Gard * Rat-Kill * Rat & mice bait * Rat-Mix * Rat-O-cide #2 * Rat-ola * Ratorex * Ratoxin * Ratron * Ratron G * Rats-No-More * Rat-Trol * Rattunal * RCRA waste number P001 * Rodafarin * Ro-Deth * Rodex blox *

Rough & ready mouse mix * Solfarin * Spray-trol
brand roden-trol * Temus W * Twin light rat away
* Vampirinip II * Vampirinip III * W.A.R.F. 42 *
Warfarat * Warfarin (ACGIH:OSHA) * Warfarine
(French) * Warfarin plus * Warfarin Q * Warf
compound 42 * Warficide * Zoocoumarin (Russian) *
warfa

RTECS Number: GN4550000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Toxic (EU).

May cause harm to the unborn child. Harmful in contact with skin.
Very toxic if swallowed. Toxic: danger of serious damage to health
by prolonged exposure if swallowed. Harmful to aquatic organisms,
may cause long-term adverse effects in the aquatic environment.
Calif. Prop. 65 developmental hazard. Target organ(s): Blood.

HMIS RATING

HEALTH: 3*

FLAMMABILITY: 0

REACTIVITY: 0

NFPA RATING

HEALTH: 4

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: 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. 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

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

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.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.1 MG/M3
USA	MSHA Standard-air	TWA	0.1 MG/M3
USA	OSHA.	PEL	8H TWA 0.1 MG/M3
New Zealand	OEL		
Remarks:	check ACGIH TLV		
USA	NIOSH	TWA	0.1 MG/M3

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	308.34 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	162.0 - 164.0 °C	
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	
Volatile%	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	Solubility in Water: Insoluble. Solvent: 50 mg/ml dioxane 50 mg/ml, Acetone Ether	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Strong acids, Strong 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: Harmful if absorbed through 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: May be fatal if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Blood.

SIGNS AND SYMPTOMS OF EXPOSURE

Inhibition of blood coagulation. Abnormal clotting, bruising or bleeding.

TOXICITY DATA

Oral
Human
6.667 mg/kg
LDLO

Oral
Rat
1.6 mg/kg
LD50

Inhalation
Rat
320 mg/m³
LC50

Skin
Rat
1400 mg/kg
LD50
Remarks: Kidney, Ureter, Bladder:Hematuria. Behavioral:Muscle weakness. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Chromodacryorrhea.

Oral
Mouse
3 mg/kg
LD50

Intraperitoneal
Mouse
750 MG/KG
LD50

Intravenous
Mouse
165 MG/KG
LD50

Oral
Dog
3 mg/kg
LD50

Oral
Cat
6 mg/kg
LD50

Oral
Rabbit
800 mg/kg
LD50

Oral
Pig
1 mg/kg
LD50

Oral
Guinea pig
180 mg/kg
LD50

Oral
Chicken
942 mg/kg
LD50
Remarks: Blood: Hemorrhage. Peripheral Nerve and
Sensation: Spastic paralysis with or without sensory change.
Lungs, Thorax, or Respiration: Dyspnea.

CHRONIC EXPOSURE - TERATOGEN

Result: May cause congenital malformation in the fetus.

Species: Woman
Dose: 28 MG/KG
Route of Application: Oral
Exposure Time: (1-20W PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal
system. Specific Developmental Abnormalities: Craniofacial
(including nose and tongue).

Species: Woman
Dose: 8400 UG/KG
Route of Application: Oral
Exposure Time: (1-8W PREG)
Result: Specific Developmental Abnormalities: Craniofacial
(including nose and tongue).

Species: Woman
Dose: 33600 UG/KG
Route of Application: Oral
Exposure Time: (1-32W PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal
system. Specific Developmental Abnormalities: Respiratory
system. Effects on Newborn: Physical.

Species: Woman
Dose: 12 MG/KG
Route of Application: Intramuscular
Exposure Time: (27-31W PREG)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Woman
Dose: 6450 UG/KG
Route of Application: Unreported
Exposure Time: (27-33W PREG)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Rabbit
Dose: 10 MG/KG
Route of Application: Intramuscular
Exposure Time: (8-28D PREG)
Result: Specific Developmental Abnormalities: Other
developmental abnormalities. Effects on Newborn: Stillbirth.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse
Dose: 240 MG/KG
Route of Application: Intravenous
Exposure Time: (2-3D PREG)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

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: Toxic solids, organic, n.o.s.
UN#: 2811
Class: 6.1
Packing Group: Packing Group I
Hazard Label: Toxic substances.

IATA

Proper Shipping Name: Toxic solid, organic, n.o.s.
IATA UN Number: 2811
Hazard Class: 6.1
Packing Group: I

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T
Indication of Danger: Toxic.
R: 61-48/25-52/53
Risk Statements: May cause harm to the unborn child. Also toxic: danger of serious damage to health by prolonged exposure if swallowed. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S: 53-45-61
Safety Statements: Restricted to professional users. Attention - 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). Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Toxic (EU).
Risk Statements: May cause harm to the unborn child. Harmful in contact with skin. Very toxic if swallowed. Toxic: danger of serious damage to health by prolonged exposure if swallowed.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements: Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. After contact with skin, wash immediately with plenty of water. 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: Calif. Prop. 65 developmental hazard. Target organ(s): Blood.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

DEMINIMIS: 1 %

NOTES: This product is subject to SARA section 313 reporting requirements.

TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65

California Prop - 65: This product is or contains chemical(s) known to the state of California to cause developmental toxicity. This product is or contains chemical(s) known to the state of California to cause developmental toxicity.

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 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 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.