

MATERIAL SAFETY DATA SHEET

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Version 1.4

Section 1 - Product and Company Information

Product Name 3,3'-METHYLENE-BIS(4-HYDROXYCOUMARIN)
Product Number M1390
Brand SIGMA

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
3,3'-METHYLENE-BIS(4-HYDROXYCOUMARIN)	66-76-2	No

Formula C19H12O6
Synonyms Acadyl * Acavyl * Antitrombosin * Baracoumin *
2H-1-Benzopyran-2-one,
3,3'-methylenebis(4-hydroxy- (9CI) *
Bishydroxycoumarin *
Bis(4-hydroxycoumarin-3-yl)methane * Cuma * Cumid
* Dicoumarin * Dicoumarol * Dicuman * Dicumarine
* Dicumarol * Dicumol *
Di-(4-hydroxy-3-coumarinyl)methane *
Di-4-hydroxy-3,3'-methylenedicoumarin * Dufalone
* Dwukumarol (Polish) * Melitoxin *
3,3'-Methylen-bis(4-hydroxy-coumarine) (Dutch) *
3,3'-Methylen-bis(4-hydroxy-coumarin) (German) *
3,3'-Methylenebis(4-hydroxy-2H-1-benzopyran-2-one
* 3,3'-Methylenebis(4-hydroxy-1,2-benzopyrone) *
3,3'-Methylenebis(4-hydroxycoumarin) *
3,3'-Methylene-bis(4-hydroxycoumarine) (French) *
3,3'-Metilen-bis(4-idrossi-cumarina) (Italian) *
NC 034 * Temparin * Trombosan

RTECS Number: GN7875000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic. Dangerous for the environment.
Toxic if swallowed. Toxic: danger of serious damage to health by
prolonged exposure if swallowed. Toxic to aquatic organisms, may
cause long-term adverse effects in the aquatic environment.
Calif. Prop. 65 developmental hazard.

HMIS RATING

HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

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

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.

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.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Mechanical exhaust required. 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 N99 (US) or type P2 (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 thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	336.3 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	290.0 - 292.0 °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	
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.

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

Ingestion: Toxic if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral

Rat

250 mg/kg

LD50

Intravenous

Rat

52 MG/KG

LD50

Remarks: Gastrointestinal:Ulceration or bleeding from large intestine. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Ulcerated nasal septum.

Oral

Mouse

233 mg/kg

LD50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Ulcerated nasal septum.

Gastrointestinal:Ulceration or bleeding from large intestine.

Intraperitoneal

Mouse

91 MG/KG

LD50

Remarks: Cardiac:Other changes. Vascular:Pulse pressure increase.

Subcutaneous

Mouse

50 MG/KG

LD50

Intravenous
Mouse
42 MG/KG
LD50

Oral
Rabbit
75 mg/kg
LD50

Intravenous
Rabbit
22 MG/KG
LD50

Intravenous
Guinea pig
59 MG/KG
LD50
Remarks: Gastrointestinal:Ulceration or bleeding from large intestine. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Ulcerated nasal septum.

CHRONIC EXPOSURE - TERATOGEN

Species: Woman
Dose: 110 MG/KG
Route of Application: Oral
Exposure Time: (31-40W PREG)
Result: Effects on Newborn: Other neonatal measures or effects.
Effects on Newborn: Stillbirth. Effects on Embryo or Fetus:
Fetal death.

Species: Woman
Dose: 28 MG/KG
Route of Application: Unreported
Exposure Time: (28-30W PREG)
Result: Specific Developmental Abnormalities: Other
developmental abnormalities. Effects on Embryo or Fetus: Fetal
death.

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 III

Hazard Label: Toxic substances.
PIH: Not PIH

IATA

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

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T-N
Indication of Danger: Toxic. Dangerous for the environment.
R: 22-48/25-51/53
Risk Statements: Harmful if swallowed. Toxic: danger of serious damage to health by prolonged exposure if swallowed. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S: 37-45-61
Safety Statements: Wear suitable gloves. 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: Toxic. Dangerous for the environment.
Risk Statements: Toxic if swallowed. Toxic: danger of serious damage to health by prolonged exposure if swallowed. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements: 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 Statements: Calif. Prop. 65 developmental hazard.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No
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. California Proposition 65: This product is or contains chemical(s) known to the state of California to cause developmental toxicity. California Proposition 65: 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: No
NDSL: Yes

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 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.