

MATERIAL SAFETY DATA SHEET

Hyperforin

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Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Printed: 01/31/2005
Revision: 01/31/2005

Date Created: 10/14/1997

1. Product and Company Identification

Product Code: 75650
Product Name: Hyperforin
Manufacturer Information
Company Name: Cayman Chemical Company
Emergency Contact: Cayman Chemical Company (800)364-9897
Information: Cayman Chemical Company (734)971-3335
Chemical Family: Inhibitor
CAS Number: 11079-53-1
Synonyms: 5-hydroxy-6R-methyl-1R,3,7S-tris(3-methyl-2-butenyl)-5S-(2-methyl-1-oxopropyl)-6R-(4-methyl-3-pentenyl)-bicyclo[3.3.1]non-3-ene-2,9-dione

2. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Percentage	OSHA TWA	ACGIH TWA	Other Limits
1. Hyperforin	11079-53-1	0.01 %	No data.	No data.	No data.
2. Methanol	67-56-1	99.99 %	8H TWA:200 ppm (260 mg/m3)	TWA 200 ppm (262 mg/m3 skin)	No data.
Hazardous Components (Chemical Name)	RTECS #	OSHA STEL	OSHA CEIL	ACGIH STEL	ACGIH CEIL
1. Hyperforin	NA	No data.	No data.	No data.	No data.
2. Methanol	PC1400000	325 mg/m3 skin	No data.	250 ppm (328 mg/m3 skin)	No data.

3. Hazards Identification

Emergency Overview: No data available.

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection

Potential Health Effects (Acute and Chronic): The hazards identified with this product are those associated with the solvent(s). Cannot be made nonpoisonous. Extremely hazardous in case of ingestion. Irritating to eyes, respiratory system and skin. Material is irritating to the mucous membranes and upper respiratory tract. May be fatal if swallowed or inhaled. May be harmful by inhalation, ingestion, or skin absorption. Please refer to Section 11 for behavioral, developmental, embryo, fetal, or paternal chronic effects. Poison. Repeated exposure may cause skin dryness or cracking. The toxicological properties of this compound have not been fully evaluated. Toxic. Toxic if inhaled, absorbed through skin, or swallowed.

LD 50/LC 50: Please refer to Section 11

Signs and Symptoms Of Exposure: Eye inflammation is characterized by redness, watering, and itching. Ingestion can cause: Nausea, headache, vomiting, gastrointestinal disturbances, dizziness, weakness, confusion, drowsiness and unconsciousness. May cause convulsions. Methyl alcohol may be fatal or cause blindness if swallowed. Overexposure can cause: headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better then worsen up to 30 hours later. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

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Medical Conditions Generally Aggravated By Exposure: Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

4. First Aid Measures

Emergency and First Aid Procedures:

If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

Do not give direct mouth-to-mouth if victim ingested or inhaled this substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.

In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

5. Fire Fighting Measures

Flash Pt: 12.00 C Method Used: closed cup

Explosive Limits: LEL: 6% at 25.0 C UEL: 36% at 25.0 C

Autoignition Pt: 464.00 C

Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.
Note: Flammable as diluted in methanol.

Flammable Properties and Hazards: Can release vapors that form explosive mixtures at temperatures at or above the flashpoint.
Container explosion may occur under fire conditions.
Emits toxic fumes under fire conditions.
Flammable Liquid.
Sensitive to static discharge.
Vapors can travel to a source of ignition and flash back.

Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.
Use water spray to cool fire-exposed containers.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled: Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.
After removal, ventilate contaminated area and flush thoroughly with water.
Avoid release into the environment - very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

7. Handling and Storage

Hazard Label Information: Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.
Wash thoroughly after handling.

Precautions To Be Taken in Handling: Avoid breathing (dust, vapor, mist, gas).
Avoid contact with eyes, skin, and clothing.
Avoid prolonged or repeated exposure.
Do not reuse this container.
Keep away from sources of ignition.
Use with adequate ventilation.
Wash thoroughly after handling.

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Precautions To Be Taken in Storing: Store at correct temperature.

8. Exposure Controls/Personal Protection

Protective Equipment Summary - Hazard Label Information: Eye wash station in work area Lab coat Latex disposable gloves Safety glasses Safety shower in work area Vent Hood

Respiratory Equipment (Specify Type): Government approved respirator as conditions warrant.

Eye Protection: Safety glasses

Protective Gloves: Latex disposable gloves

Other Protective Clothing: Lab coat

Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Work/Hygienic/Maintenance Practices: Do not take internally.
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Wash thoroughly after handling.

9. Physical and Chemical Properties

Physical States: [] Gas [X] Liquid [] Solid

Melting Point: No data.

Boiling Point: No data.

Specific Gravity (Water = 1): No data.

Vapor Pressure (vs. Air or mm Hg): 97 MM_HG at 20.0 C

Vapor Density (vs. Air = 1): No data.

Evaporation Rate (vs Butyl Acetate=1): No data.

Solubility in Water: 660 ug/ml* at 25.0 C

Other Solubility Notes: *DMSO:PBS pH 7.2 (1:3), sol. in DMF, DMSO, & EtOH

Percent Volatile: No data.

Formula: C35H52O4

Molecular Weight: 536.80

pH: No data.

Appearance and Odor: A clear, colorless solution

10. Stability and Reactivity

Stability: Unstable [] Stable [X]

Conditions To Avoid - Instability: may react with metallic aluminum and generate hydrogen gas
protect from heat
protect from ignition sources

Incompatibility - Materials To Avoid: acids
acid anhydrides
acid chlorides
alkali metals
metals
nitrates
oxidizing agents
perchlorates
reducing agents
sulfuric acid

Hazardous Decomposition Or Byproducts: carbon dioxide
carbon monoxide
formaldehyde

Hazardous Polymerization: Will occur [] Will not occur [X]

Conditions To Avoid - Hazardous Polymerization: No data available.

11. Toxicological Information

Toxicological Information:

The toxicological effects of this compound have not been thoroughly studied.

Methanol - Toxicity Data:

Oral LDLO (man):6422 mg/kg

Oral LDLO (human):143 mg/kg

Oral LD50 (rat):5628 mg/kg

Skin LD50 (rabbit): 15800 mg/kg

Subcutaneous LD50 (mouse):9800 mg/kg

Inhalation LD50 (rat):64,000 ppm/4H

Intraperitoneal LD50 (rat):7529 mg/kg

Intraperitoneal LD50 (mouse):10765 mg/kg

Intraperitoneal LD50 (rabbit):1826 mg/kg

Methanol - Irritation Data:

Skin (rabbit): 20 mg 24H moderate effect

Eyes (rabbit): 100 mg 24H moderate effect

Chronic Toxicological Effects:

Methanol - Investigated as a teratogen, mutagen, and reproductive effector.

Methanol Chronic Exposure:

Behavioral: Muscle weakness; Ataxia; Coma

Effects on embryo or fetus (fetal death)

Effects on embryo or fetus (fetotoxicity)

Effects on fertility (litter size)

Effects on fertility (pre-implantation mortality)

Effects on fertility (post-implantation mortality)

Effects on newborn (Behavioral)

Effects on newborn (Biochemical and metabolic)

Paternal effects (spermatogenesis)

Paternal effects (testes, epidymis, sperm duct)

Specific developmental abnormalities (cardiovascular (circulatory) system)

Specific developmental abnormalities (central nervous system)

Specific developmental abnormalities (craniofacial, including nose and tongue)

Specific developmental abnormalities (eye, ear)

Specific developmental abnormalities (endocrine system)

Specific developmental abnormalities (musculoskeletal system)

Specific developmental abnormalities (urogenital system)

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.

See actual entry in RTECS for complete information.

Carcinogenicity/Other Information:

No data available.

Carcinogenicity:

NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

Ecological Information:

Avoid release into the environment - very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Runoff from fire control or dilution water may cause pollution.

13. Disposal Considerations

Waste Disposal Method:

Dispose in accordance with local, state and federal regulations.

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14. Transport Information

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name: Methanol
DOT Hazard Class: 3
DOT Hazard Label: FLAMMABLE LIQUID, TOXIC
UN/NA Number: 1230
DOT Packing Group: II
Additional Transport Information: Transport in accordance with local, state, and federal regulations.

15. Regulatory Information

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Hyperforin	11079-53-1	No	No	No	No
2. Methanol	67-56-1	No	Yes 5000 LB	Yes	No

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	CA PROP 65
1. Hyperforin	11079-53-1	No	No	No	No
2. Methanol	67-56-1	HAP	No	No	No

SARA (Superfund Amendments and Reauthorization Act of 1986) Lists:

Sec.302: EPA SARA Title III Section 302 Extremely Hazardous Chemical with TPQ. * indicates 10000 LB TPQ if not volatile.
Sec.304: EPA SARA Title III Section 304: CERCLA Reportable + Sec.302 with Reportable Quantity. ** indicates statutory RQ.
Sec.313: EPA SARA Title III Section 313 Toxic Release Inventory. Note: -Cat indicates a member of a chemical category.
Sec.110: EPA SARA 110 Superfund Site Priority Contaminant List

Other Important Lists:

CWA NPDES: EPA Clean Water Act NPDES Permit Chemical
CAA HAP: EPA Clean Air Act Hazardous Air Pollutant
CAA ODC: EPA Clean Air Act Ozone Depleting Chemical (1=CFC, 2=HCFC)
CA PROP 65: California Proposition 65

TSCA (Toxic Substances Control Act) Lists:

5A(2): Chemical Subject to Significant New Rules (SNURS)
6A: Commercial Chemical Control Rules
8A: Toxic Substances Subject To Information Rules on Production
8A CAIR: Comprehensive Assessment Information Rules - (CAIR)
8A PAIR: Preliminary Assessment Information Rules - (PAIR)
8C: Records of Allegations of Significant Adverse Reactions
8D: Health and Safety Data Reporting Rules
8D TERM: Health and Safety Data Reporting Rule Terminations

16. Other Information

Company Policy or Disclaimer

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