

# Menadione (Vitamin K3) SDS/MSDS (Safety Data Sheet)

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

- \* Product Name: Menadione (Vitamin K3)
- \* Catalog Number: S1949
- \* CAS Number: 58-27-5
- \* IUPAC Name: 2-methyl-1,4-naphthalenedione

Relevant identified uses and uses advised against

- \* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
- \* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

- \* Company: Selleck Chemicals
- \* TollFree: +1 877 796-6397
- \* Tel: +1 832 582-8158
- \* Fax: +1 832 582-8590

Emergency telephone number

- \* Emergency phone #: +1 832 582-8158

## 2. HAZARDS IDENTIFICATION

### 2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

- Acute toxicity (oral): Category 4. H302
- Skin irritation: Category 2. H315
- Skin sensitization: Category 1. H317
- Serious eye irritation: Category 2. H319
- Specific target organ toxicity (single exposure): Category 3. H335
- Acute aquatic toxicity: Category 1. H400
- Chronic aquatic toxicity: Category 1. H410

### 2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word

Warning

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hazard statement(s)</b>        | H302: Harmful if swallowed<br>H315: Causes skin irritation<br>H317: May cause an allergic skin reaction<br>H319: Causes serious eye irritation<br>H335: May cause respiratory irritation<br>H400: Very toxic to aquatic life<br>H410: Very toxic to aquatic life with long lasting effects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Precautionary statement(s)</b> | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Prevention</b>                 | P261: Avoid breathing dust/fume/gas/mist/vapors/spray.<br>P264: Wash hands thoroughly after handling.<br>P264+P265: Wash hands thoroughly after handling. Do not touch eyes.<br>P270: Do not eat, drink or smoke when using this product.<br>P271: Use only outdoors or in a well-ventilated area.<br>P272: Contaminated work clothing should not be allowed out of the workplace.<br>P273: Avoid release to the environment.<br>P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.                                                                                                                                                                                                                                                                |
| <b>Response</b>                   | P301+P317: IF SWALLOWED: Get medical help.<br>P302+P352: IF ON SKIN: wash with plenty of water.<br>P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.<br>P305+P351: IF IN EYES: Rinse cautiously with water for several minutes.<br>P319: Get medical help if you feel unwell.<br>P321: Specific treatment (see information on this label and safety datasheet)).<br>P330: Rinse mouth.<br>P332+P317: If skin irritation occurs: Get medical help.<br>P333+P317: If skin irritation or rash occurs: Get medical help.<br>P337+P317: If eye irritation persists: Get medical help.<br>P338: Remove contact lenses, if present and easy to do. Continue rinsing.<br>P362+P364: Take off contaminated clothing and wash it before reuse.<br>P391: Collect spillage. |
| <b>Storage</b>                    | P403+P233: Store in a well-ventilated place. Keep container tightly closed.<br>P405: Store locked up.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Disposal</b>                   | P501: P501 Dispose of contents/ container to an approved waste disposal plant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### 2.3 Other hazards

None.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Product name: Menadione (Vitamin K3)

CAS Number: 58-27-5

PubChem CID: 4055

Molecular formula: C<sub>11</sub>H<sub>8</sub>O<sub>2</sub>

Molecular weight: 172.18 g/mol

IUPAC name: 2-methylnaphthalene-1,4-dione

### **3.2 Mixtures**

Not applicable (pure substance).

## **4. FIRST-AID MEASURES**

### **4.1 Description of first aid measures**

Inhalation: Move to fresh air. Keep at rest in a position comfortable for breathing. Seek medical attention if symptoms persist.

Skin contact: Wash with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation develops.

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention.

### **4.2 Most important symptoms and effects, both acute and delayed**

See Section 11 (Toxicological Information).

### **4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically. Contact a poison control center or physician for severe exposure.

## **5. FIRE-FIGHTING MEASURES**

### **5.1 Extinguishing media**

Suitable: Water spray, dry chemical, carbon dioxide (CO<sub>2</sub>), alcohol-resistant foam.

Unsuitable: None known.

### **5.2 Specific hazards arising from the substance or mixture**

Combustible. Heating may produce toxic fumes.

### **5.3 Advice for firefighters**

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

## **6. ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

### **6.2 Environmental precautions**

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

### **6.3 Methods and materials for containment and cleaning up**

SRP: At the time of review, criteria for land treatment or burial (sanitary landfill) disposal practices are subject to significant revision. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices.

## **7. HANDLING AND STORAGE**

### **7.1 Precautions for safe handling**

Keep protected from light.

### **7.2 Conditions for safe storage, including any incompatibilities**

Keep protected from light.

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Exposure controls**

#### **8.1.1 Occupational exposure limits (OEL)**

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

#### **8.1.2 Appropriate engineering controls**

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

### **8.2 Individual protection measures**

#### **8.2.1 Eye/face protection**

Wear chemical safety goggles.

#### **8.2.2 Skin protection**

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

#### **8.2.3 Respiratory protection**

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

#### **8.2.4 Thermal hazards**

Not applicable.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

a) Appearance: Bright yellow solid with a very mild acrid odor; [Merck Index]

b) Odor: Very faint acrid odor

c) Odor threshold: No data available

- d) pH: Alc soln is neutral to litmus
- e) Melting point/freezing point: 105-107 °C
- f) Initial boiling point and boiling range: No data available
- g) Flash point: No data available
- h) Evaporation rate: No data available
- i) Flammability (solid, gas): No data available
- j) Upper/lower flammability or explosive limits: No data available
- k) Vapor pressure: 0.000188 [mmHg]
- l) Vapor density: No data available
- m) Relative density: No data available
- n) Water solubility: Slightly soluble in ethanol, acetic acid, and ligroin. Soluble in ethyl ether, benzene, chloroform, and sulfuric acid.
- o) Partition coefficient: n-octanol/water: Log P (n-octanol/water): 2.2
- p) Auto-ignition temperature: No data available
- q) Decomposition temperature: No data available
- r) Viscosity: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: No data available

## 9.2 Other information

Topological Polar Surface Area (TPSA): 34.1 Å<sup>2</sup>  
Complexity: 288

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

### 10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

### 10.5 Incompatible materials

Strong oxidizing agents, strong acids, strong bases.

### 10.6 Hazardous decomposition products

Thermal decomposition may produce: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).  
See also Section 5 (Fire-fighting measures) for combustion products.

## 11. TOXICOLOGICAL INFORMATION

## 11.1 Information on toxicological effects

### Acute toxicity:

No acute toxicity data available.

### Skin corrosion/irritation:

Causes skin irritation (H315).

### Serious eye damage/eye irritation:

Causes serious eye irritation (H319).

### Respiratory or skin sensitization:

May cause an allergic skin reaction (H317).

### Germ cell mutagenicity:

No data available.

### Carcinogenicity:

No data available.

### Reproductive toxicity:

No data available.

### Specific target organ toxicity (single exposure):

No data available.

### Specific target organ toxicity (repeated exposure):

No data available.

### Aspiration hazard:

No data available.

## 11.2 Additional information

### Carcinogen classification:

3, not classifiable as to its carcinogenicity to humans. (L135)

### Exposure routes:

Variable and ranges from 10% to 80%

### Signs and symptoms of exposure:

Menadione (vitamin K3), which is not used as a nutritional supplemental form of vitamin K for humans, has been reported to cause adverse reactions, including hemolytic anemia. Large doses have also been reported to cause brain damage.

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

LC50 Pimephales promelas 0.11 mg/l (4 days) /Conditions of bioassay not specified/

/PLANTS/ Vitamin K and its analogs are fungistatic against wide variety of fungi. /Vitamin K/

Menadione's production and use in medicines and animal feed additives may result in its release to the environment through various waste streams. Its former production and use in fungicides may have resulted in its direct release to the environment. If released to air, an estimated vapor pressure of  $1.9 \times 10^{-4}$  mm Hg at 25 °C indicates menadione will exist solely in the vapor phase in the ambient atmosphere. Vapor-phase menadione will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 33 hrs. If released to soil, menadione is expected to have moderate mobility based upon an estimated Koc of 370. Volatilization from moist soil surfaces is not expected to be an important fate process based

upon an estimated Henry's Law constant of  $3.1 \times 10^{-9}$  atm-cu m/mole. If released into water, menadione is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's estimated Henry's Law constant. An estimated BCF of 1.4 suggests the potential for bioconcentration in aquatic organisms is low. Hydrolysis is expected to be an important environmental fate process since this compound is destroyed b

## **12.2 Persistence and degradability**

No data available.

## **12.3 Bioaccumulative potential**

Log P (n-octanol/water): 2.2

Low potential for bioaccumulation (Log P < 3).

## **12.4 Mobility in soil**

No data available.

## **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available.

## **12.6 Other adverse effects**

This substance is classified as hazardous to the aquatic environment.

# **13. DISPOSAL CONSIDERATIONS**

## **13.1 Waste treatment methods**

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

# **14. TRANSPORT INFORMATION**

## **14.1 UN number**

Not regulated as dangerous goods (research quantities typically exempt).

## **14.2 UN proper shipping name**

Not subject to transport regulations (small quantities for research use).

## **14.3 Transport hazard class(es)**

Not classified as dangerous goods for transport (research quantities).

## **14.4 Packing group**

Not applicable (not regulated as dangerous goods in typical research quantities).

## **14.5 Environmental hazards**

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

## **14.6 Special precautions for user**

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

#### **14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

### **15. REGULATORY INFORMATION**

#### **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered (REACH Active)

##### **SARA 302 Components:**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

##### **SARA 313 Components:**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

##### **SARA 311/312 Hazards:**

Acute (short-term) health hazard

Environmental hazard

##### **Massachusetts Right To Know Components:**

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

##### **Pennsylvania Right To Know Components:**

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

##### **New Jersey Right To Know Components:**

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

##### **California Prop. 65 Components:**

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

##### **Other regulatory listings:**

- The Australian Inventory of Industrial Chemicals: Chemical: 1,4-Naphthalenedione, 2-methyl-
- FDA Requirements: The Approved Drug Products with Therapeutic Equivalence Evaluations List identifies discontinued drug products. Menadione is included on this list.

#### **15.2 Chemical safety assessment**

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

### **16. OTHER INFORMATION**

Revision Date: 2026/09/08

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product.

Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or

contact with the product.