

Material Safety Data Sheet (MSDS)

Product Name: Vitamin K2 (Menaquinone-7)

MSDS Generate Date: 20-05-2017

Revision Date: 30-12-2024

Supplier:

Rawpharma Biz Pvt Ltd

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1. Identification of the Substance/Preparation and Company

Product identifier: Vitamin K₂ (Menaquinone-7, MK-7)

Relevant identified uses: Nutraceutical ingredient, dietary supplement intermediate, laboratory reagent.

2. Hazards identification

Classification (GHS): Not classified as hazardous for health or environment under normal handling and use.

Label elements: No label required under GHS for the pure product as supplied.

Other hazards: Dust may cause minor mechanical irritation of eyes, nose, throat. Prolonged inhalation of dust may be irritating. Not combustible under normal conditions but may burn under sustained high heat.

3. Composition / information on ingredients

Substance: Menaquinone-7 (Vitamin K₂) — (technical grade; typical purity depends on supplier / batch).

Impurities / additives: May contain small amounts of carrier or anti-caking agent if supplied as blended powder — check product certificate.

4. First-aid measures

Inhalation: Remove to fresh air. If breathing difficulty occurs, seek medical attention.

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

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If irritation persists, seek medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. If large ingestion or symptoms occur, seek medical attention.

Notes to physician: Treat symptomatically. No specific antidote known.

5. Firefighting measures

Suitable extinguishing media: Water spray, dry chemical, foam, CO₂. Use media appropriate for surrounding fire.

Unsuitable extinguishing media: None known specifically.

Specific hazards from the substance: On combustion may produce CO, CO₂, smoke and unidentified organic decomposition products.

Special protective equipment for firefighters: Self-contained breathing apparatus and full protective clothing.

6. Accidental release measures

Personal precautions: Avoid dust formation. Use personal protective equipment (see Section 8). Remove sources of ignition if dust clouds exist. Avoid breathing dust.

Environmental precautions: Prevent large quantities from entering drains, sewers or waterways.

Methods for containment and cleanup: Sweep up or vacuum (use HEPA or industrial vacuum) and place in suitable labeled waste containers for disposal. Avoid creating dust. Wash

area with water after pick up. Dispose of according to local regulations.

7. Handling and storage

Handling: Avoid inhalation and contact with eyes and skin. Minimize dust generation and accumulation. Use in well-ventilated area. No smoking, eating or drinking in handling area. Ground and bond containers when transferring bulk powder to avoid static accumulation.

Storage: Store in a cool, dry, well-ventilated area away from strong oxidizers and sources of heat/ignition. Keep container tightly closed and protected from light and moisture.

Recommended storage temperature: as specified by supplier (often ambient, cool, dry).

Shelf life: As specified by supplier.

8. Exposure controls / personal protection

Occupational exposure limits: No specific official occupational exposure limit known for MK-7. Follow general dust exposure limits and local regulations. Control airborne dust to lowest possible level.

Engineering controls: Local exhaust ventilation or dust collection recommended when handling powder.

Personal protective equipment (PPE):

- **Respiratory protection:** If airborne dust concentrations exceed exposure limits, use a suitable certified respirator (e.g., N95/FFP2 or better).
 - **Hand protection:** Protective gloves (e.g., nitrile) where skin contact possible.
 - **Eye protection:** Safety goggles or face shield.
 - **Skin protection:** Lab coat or protective clothing to avoid prolonged contact.
Hygiene measures: Wash hands after handling. Do not eat, drink, smoke in work areas.
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9. Physical and chemical properties

Appearance: Off-white to yellowish crystalline powder (appearance depends on grade).

Odor: Characteristic, weak.

pH: Not applicable (solid).

Melting point / freezing point: Data varies with form; consult product certificate.

Boiling point: Not applicable.

Flash point: Not applicable as nonvolatile solid; avoid strong heat.

Solubility: Practically insoluble in water; soluble in organic solvents (e.g., oils, organic solvents)
— see technical sheet.

Specific gravity / density: Refer to technical data.

Partition coefficient (log P): Lipophilic (high log P).

Auto-ignition temperature / decomposition: Not typically self-igniting; may decompose on strong heating.

10. Stability and reactivity

Reactivity: Stable under recommended storage and handling conditions.

Chemical stability: Stable if stored as recommended. Sensitive to strong oxidizers and prolonged exposure to light and heat (may degrade).

Possibility of hazardous reactions: None expected under normal conditions. Avoid strong oxidizing agents.

Conditions to avoid: Excessive heat, open flame, direct sunlight, moisture for long periods.

Incompatible materials: Strong oxidizers, strong acids/bases.

Hazardous decomposition products: Carbon oxides and possibly other decomposition products produced during combustion.

11. Toxicological information

Acute toxicity: No specific human acute toxicity data for MK-7 as a pure substance at typical exposure levels. Low oral toxicity expected in normal use as nutraceutical ingredient.

Skin corrosion / irritation: Practically non-irritant; minor irritation possible on prolonged contact.

Serious eye damage / irritation: May cause mild mechanical irritation.

Respiratory or skin sensitization: Not known to be a respiratory sensitizer; no widespread reports of sensitization, but individual reactions possible.

Chronic effects / repeated exposure: Data limited; typical use levels as a nutrient considered safe within recommended dietary limits.

Carcinogenicity / Mutagenicity / Reproductive toxicity: No conclusive evidence of carcinogenicity or mutagenicity at typical exposures. For regulatory classification consult

updated authoritative sources.

Symptoms / routes of exposure: Irritation of eyes/respiratory tract if dust inhaled; ingestion in large quantities may cause GI upset.

12. Ecological information

Ecotoxicity: Expected to be of low environmental hazard in normal use volumes. No specific aquatic toxicity data included here — test data should be consulted for large releases.

Persistence and degradability: Likely biodegradable under environmental conditions but may persist due to lipophilicity; consult environmental fate studies if required.

Bioaccumulative potential: Lipophilic nature suggests potential for bioaccumulation; percentage and extent depend on concentration and organism.

Mobility in soil: Low water solubility suggests limited mobility in aqueous media but may bind to organic matter.

Other adverse effects: Not considered a persistent organic pollutant or ozone depleting.

13. Disposal considerations

Waste treatment methods: Dispose of in accordance with national and local regulations. Small quantities may be incinerated in an approved facility. Contaminated packaging should be emptied and disposed of or recycled if permitted. Do not dispose into drains or sewers. Consult waste disposal expert for large volumes.

Regulatory considerations: Follow local hazardous waste laws where applicable.

14. Transport information (DETAILED — per user request)

General statement: Vitamin K₂ (Menaquinone-7) in its typical commercial powdered form is **not classified as Dangerous Goods / hazardous for transport** under ADR (road), IMDG (sea), IATA/ICAO (air) in most jurisdictions when transported as a solid ingredient in normal consumer or industrial quantities. However, transport classification may depend on formulation, packaging, concentration, and local regulations — always confirm with the carrier and local competent authorities prior to shipment.

Detailed guidance by transport mode:

A. Road / Rail (ADR / RID):

- **UN Number:** Not applicable / Not assigned (N/A) for non-hazardous product.

- **Proper Shipping Name:** Not regulated; ship as “Non-hazardous substance” or “Vitamin K2 (Menaquinone-7)” as commercial invoice description.
- **Class / Label:** Not classified; no hazardous label required.
- **Packing Group:** N/A.
- **Special provisions / ADR notes:** If shipped in bulk as a powder, take measures to prevent dust release during loading/unloading. Use secure, dry, closed packaging (drums, fiberboard boxes with internal liners, etc.). For ADR compliance verification, include a declaration from the shipper that the product is non-dangerous.

B. Sea transport (IMDG):

- **UN Number / Proper Shipping Name:** N/A — not regulated under IMDG for typical formulation.
- **Class / Packing Group:** N/A.
- **Marine pollutant:** Not classified as marine pollutant. If product contains other hazardous impurities or is formulated in a solvent, re-assess.
- **Stowage / segregation:** Store in a dry cargo hold. Avoid stowage near strong oxidizers or combustible loads that could generate heat.
- **Emergency procedures:** In case of container damage or bulk release at sea, prevent product entering the water column where possible; collect and return to shore for disposal per local regulations.

C. Air transport (IATA / ICAO):

- **UN Number / Proper Shipping Name:** N/A — typically not regulated by IATA for the solid ingredient.
- **Class / Packing Group / Label:** N/A.
- **Air carrier requirements:** Airlines may have packaging and documentation requirements even for non-dangerous goods; confirm with carrier. Avoid loose powder in carry-on cargo; package securely.

D. Limited quantity / excepted amounts / special provisions:

- For small packaged commercial quantities the shipment will normally fall under standard non-dangerous cargo rules. If intended to transport as a solution in flammable solvents, classification must be reassessed.

E. Packaging recommendations:

- Use strong, sealed containers (HDPE drums, lined fiberboard drums, or sealed multi-wall bags inside outer boxes). Inner liners to prevent moisture ingress recommended.

Use cushioning or secondary containment for bulk shipments. Label packages with product name, net weight, batch number, and “Non-hazardous” where appropriate.

F. Handling during transport:

- Avoid rough handling that may rupture packaging and release dust. Keep dry and protected from sunlight/heat. Use pallets and secure with straps to prevent shifting.

G. Documentation and declarations:

- Prepare commercial invoice, packing list, and SDS (this document) with each shipment. Include statement where required: “Not regulated as dangerous goods under ADR/IMDG/IATA” — confirm with the carrier.

H. Emergency response information for transport incidents:

- In case of spillage during transport: isolate area, avoid dust cloud formation, use appropriate PPE (see Section 8), sweep or vacuum spilled material into labeled containers, avoid entry into waterways, notify local authorities if environment affected. For large incidents consult local emergency response teams.

I. Notes / caveats:

- If product is blended or dissolved in a flammable carrier (e.g., organic solvent), the mixture **may** become regulated; in such cases consult the relevant dangerous goods regulations and provide SDS reflecting the formulation. Always confirm final transport classification with competent authority, carrier and up-to-date regulations before shipment.

15. Regulatory information

National regulations: Comply with applicable local and national regulations for food/nutraceutical ingredients, labeling and transport. Vitamin K₂ as a vitamin ingredient is subject to food safety and supplement regulatory frameworks in markets of sale.

Chemical inventories: Manufacturer / supplier should confirm listing on relevant chemical/product inventories (e.g., local substance inventories).

Other regulations: Users must ensure compliance with local workplace safety and environmental requirements.

16. Other information

Disclaimer: The information contained herein is believed to be accurate at the time of preparation. It is supplied in good faith but without warranty, expressed or implied, regarding its

correctness. The recipient must determine suitability for their use of the product and follow local statutory requirements.

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- MSDS are based on the manufacturer's provided information.