

## CERTIFICATE of ANALYSIS

**PRODUCT:** **Vitamin K<sub>1</sub>, USP 37**  
[Phytomenadione; Phylloquinone; 3-Phytylmenadione; 2-Methyl-3-phytyl-1,4-naphthoquinone; Vitamin K1(20)]; C<sub>31</sub>H<sub>46</sub>O<sub>2</sub>  
M.W. 450.7, CAS# [84-80-0]

**PRODUCT NUMBER:** V-1002

**LOT NUMBER:** E1272

**APPEARANCE:** Clear, yellow to amber, very viscous, odorless or practically odorless liquid, having a specific gravity of about 0.967.

**SOLUBILITY:** Soluble in dehydrated alcohol, benzene, chloroform, ether, or vegetable oils; slightly soluble in alcohol; insoluble in water. **STABLE IN AIR, BUT DECOMPOSES FROM EXPOSURE TO SUNLIGHT!**

|  | <u>SPECIFICATIONS:</u>   | <u>RESULTS:</u> |
|--|--|-----------------|
| <b>IDENTIFICATION:</b><br>(Infrared & Ultraviolet) | Absorptivities don't differ by more than 3.0%  | Conforms        |
| <b>ASSAY:</b>                                      | 97.0% - 103.0%   | 98.7%           |
| <b>Z ISOMER CONTENT:</b>                           | ≤21.0%   | 13.8%           |
| <b>LIMIT of MENADIONE:</b>                         | No purple or blue color occurs after dropping it in to the solution of Ammonia hydroxide and alcohol | Conforms        |
| <b>REFRACTIVE INDEX:</b>                           | 1.523 ~ 1.526  | 1.526           |
| <b>REACTION:</b>                                   | A 50 mg/mL solution of phytonadione in dehydrated alcohol is neutral to litmus                       | Conforms        |
| <b>REFERENCE STANDARD:</b>                         | USP 37 specifications  |                 |
| <b>COUNTRY OF ORIGIN:</b>                          | China  |                 |
| <b>STORAGE &amp; HANDLING:</b>                     | Store at +4°C. Store under inert gas.<br><b>PROTECT FROM AIR and LIGHT!</b>                          |                 |

CAUTION: For research use only. Not for human or drug use. The pharmacological and toxicological properties of this product have not been fully investigated. Use caution when handling. Do not use this compound if you are not fully trained or are unaware of the hazards involved.

Verified: ND