SPECIFICATION SHEET

Tocobest™TPGS-N
D-alpha-Tocopheryl Polyethylene Glycol 1000 Succinate

CAS: 9002-96-4
Chemical Formula: C_{33}H_{54}O_{5} \cdot (C_{2}H_{4}O)_{n} \approx 23
Molecular Weight: N.A.
INCI name: Tocofersolan
Synonym: Tocopherosolan

GENERAL CHARACTERISTICS
Description: D-alpha-Tocopheryl Polyethylene Glycol 1000 Succinate, also called Natural Vitamin E Polyethylene Glycol Succinate, water-soluble natural Vitamin E, TPGS-N, or Tocofersolan, etc., is a product of natural Vitamin E. It is an esterified product of natural Vitamin E acid succinate and polyethylene glycol. TPGS-N is soluble completely in water and produces a clarified and transparency solution. The maximum solubility of TPGS-N is 20%.
Appearance: White to yellowish waxy solid

ANALYTICAL CHARACTERISTICS
Identification: GC: The retention time for the major peak of the test solution corresponds to that in the standard solution, as obtained in the test for content.
Water solubility: Meet the requirements
Specific optical rotation: Min +24°
Acidity: Max 0.27ml
Assay (as D-alpha-tocopherol): Min 25%
Free D-alpha-tocopherol: Max 1.5%
Heavy metals: Max 10ppm
Arsenic: Max 3ppm
Pb*: Max 2ppm
Hg*: Max 0.1ppm
Cd*: Max 1ppm
*Perform the test regularly
MICROBIAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total plate count</td>
<td>Max 1000 CFU/g</td>
</tr>
<tr>
<td>Total yeast &amp; mold</td>
<td>Max 100 CFU/g</td>
</tr>
<tr>
<td>Coliforms</td>
<td>Max 30 MPN/100g</td>
</tr>
<tr>
<td><em>Salmonella</em></td>
<td>Negative/25g</td>
</tr>
<tr>
<td><em>Staphylococcus</em></td>
<td>Negative/1g</td>
</tr>
</tbody>
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COMPENDIAL REQUIREMENTS

The TPGS-N contained in this product meets all requirements of the relevant monographs of USP when tested according to these compendia.

INGREDIENTS

Pure D-alpha-Tocopheryl Polyethylene Glycol 1000 Succinate

LABELING

In the United States and the European Union: Tocobest™ Vitamin E

TPGS-N

USES RECOMMENDATIONS

For fortification of food and drink, especially for the food with transparent appearance, also suitable for manufacturing soft-shell capsules.

HANDLING RECOMMENDATIONS

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents. Keep container tightly closed. Keep container in a cool, well-ventilated area.

PACKING & SHELF LIFE

<table>
<thead>
<tr>
<th>Package</th>
<th>25kg/drum, or 1kg/tin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf life</td>
<td>2 years if sealed and stored properly.</td>
</tr>
<tr>
<td>Storage</td>
<td>It should be protected from light, heat, oxygen and moisture. Keep the container tightly closed. Once opened, use contents quickly</td>
</tr>
</tbody>
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