



## VITAMIN E TPGS

### FORMULATION

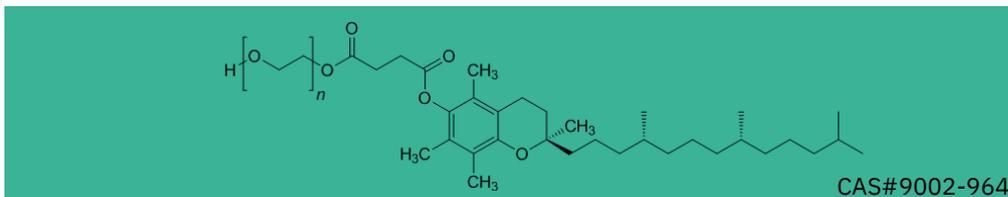
- ▮ Oral
- ▮ Parenteral
- ▮ Topical

*Vitamin E polyethylene Glycol Succinate or Vitamin E TPGS is a surfactant which can be used as emulsifier, drug solubilizer, absorption enhancer, and as a vehicle for lipid-based drug delivery formulations.*

**US-DMF type IV : 034015**

## MAIN STRUCTURE

### D- $\alpha$ -TOCOPHERYL POLYETHYLENE GLYCOL 1000 SUCCINATE



## PROPERTIES OF VITAMIN E TPGS

- ▮ TPGS
- ▮ Tocophersolan
- ▮ Tocofersolan

- ▮ Improving Drug Bioavailability
  - Surfactant, enhance solubilization of poorly water soluble drug
  - Stabilization of amorphous drug
  - Enhances drug permeability by P-glycoprotein efflux inhibition.
- ▮ Emulsion vehicle
- ▮ Functional Ingredient in self-emulsifying formulations
- ▮ Thermal binder in melt granulation/extrusion processing
- ▮ Reducing drug sensitivity on skin or tissues
- ▮ Carrier for wound care and treatment

# VITAMIN E TPGS

- ✓ Chemical Abstract Index name: Vitamin E Polyethylene Glycol Succinate
- ✓ CAS : 9002-96-4
- ✓ Empirical Formula:  $C_{33}H_{54}O_5(C_2H_4O)_n$
- ✓ Molecular Weight: ~ 1513 Da
- ✓ Physical form: solid wax with low melting point.: 36 - 42 °C
- ✓ Color: White to light tan
- ✓ Vitamin E content (d- $\alpha$ -tocopherol) 25 % minimum weight basis; standard range 25-30 %
- ✓ Retest date : 2 years



## APPLICATION FIELD OF VITAMIN E TPGS

Due to its properties, Vitamin E TPGS is used for various applications:

- ◆ Pharmaceutical
- ◆ Nutraceutical
- ◆ Food & Beverage
- ◆ Cosmetic & Personal Care
- ◆ Animal Nutrition

## MORE ABOUT VITAMIN E TPGS

### *Applications & Properties*

Wu, S.H., and Hopkins, W.K. Characteristics of D-alpha tocopheryl PEG 1000 succinate for Applications as an absorption enhancer in drug delivery systems. Pharm. Tech., October 1999, 52-58.

### *On Safety:*

Monice Zondlo Fiume, Final Report on the Safety Assessment of Tocopherol, Tocopheryl Acetate, Tocopheryl Linoleate, Tocopheryl Linoleate/Oleate, Tocopheryl Nicotinate, Tocopheryl Succinate, Dioleoyl Tocopheryl Methylsilanol, Potassium Ascorbyl Tocopheryl Phosphate, and Tocophersolan; International Journal of Toxicology, (2002), 21(Suppl. 3), 51-116.

National Cancer Institute, "One-Year Chronic Oral (Intubation) Study In Dogs and Rats", (National Institute of health, Bethesda M.D., 1994).

Friman, S., Leandersson, P., Tagesson, C., and Svanvik, J. Biliary Excretion of Different Sized Polyethylene Glycols in the Cat. J Hepatology, 1990, 11: 215-220.

Bland, J. and Prestbo, E. Vitamin E : Comparative absorption studies, International Clinical Nutrition review, 1984, 4(2), 82-86.

Krasavage W.J., Terhaar C.J., d-alpha-Tocopheryl poly(ethylene glycol) 1000 succinate. Acute toxicity, subchronic feeding, reproduction, and teratologic studies in the rat Journal of Agricultural and Food Chemistry, (1977), 25(2), 273-8.

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