

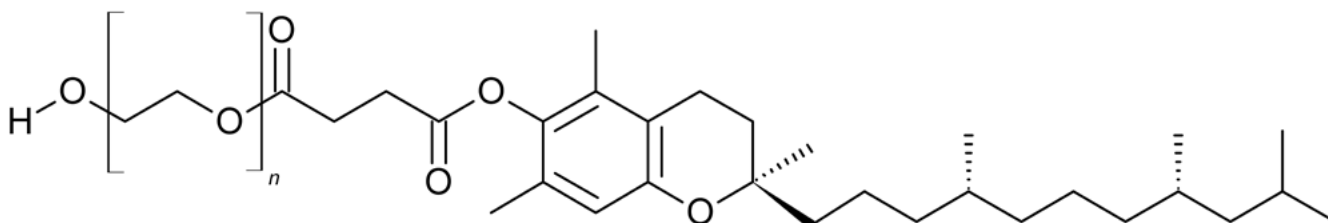
VITAMIN E TPGS

VITAMIN E TPGS comes from the esterification of Vitamin E succinate with PEG 1000. It's a multirole excipient for drug delivery formulations.

CHEMICAL STRUCTURE

Chemical Name: D-α tocopheryl polyethylene glycol 1000 succinate

Synonym/acronym : TPGS, Tocophersolan, Tocothersolan



PROPERTIES OF VITAMIN E TPGS

Oral delivery Applications

- Improves Drug Bioavailability
- Surfactant, enhances solubilization of poorly water soluble drug
- Enhances solubilization of poorly permeable drugs that are water soluble
- Enhances drug permeability by P-glycoprotein efflux inhibition
- Vitamin E bioavailability enhancer
- Controlled delivery application

Functional ingredient in self-emulsifying formulations

Thermal binder in granulation/extrusion processing

Non oral Applications

- Nasal/pulmonary application
- Ophthalmic
- Parenteral
- Dermal (carrier for wound care treatment, reducing drug sensitivity on skin or tissues)

OTHER REGULATORY STATEMENTS AVAILABLE

- GMO, BSE, TSE and other certificates available upon request
- BSE / TSE
- Others certificates available upon request (Residual solvents, elemental impurities ...)



PHYSICAL AND CHEMICAL PROPERTIES

Chemical Abstract Index Name

Poly(oxy-1,2-ethanediyl), α -[4-[[[(2R)-3,4-dihydro-2,5,7,8-tetramethyl-2-[(4R,8R)-4,8,12-trimethyltridecyl]-2H-1-benzopyran-6-yl]oxy]-1,4-dioxobutyl]- ω -hydroxy-

Empirical Formula: $C_{33}O_5H_{54}(CH_2CH_{20}O)_n$

CAS : 9002-96-4

Molecular weight: ~1.5 kDa

Melting Point: 36-42 °C

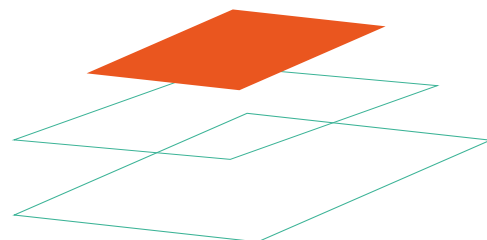
Physical form: waxy solid with low melting point

Color: white to light tan

Vitamin E content (D- α -tocopherol): 25 % minimum weight basis; standard range 25-30 %

SEQENS UNIQUE OFFER

Active DMFs i.e. US type IV (Excipients)
Produced in Europe (Lahr, Germany)
GMP compliant (EU, USFDA)
NF compliant (USP)



MORE ABOUT VITAMIN E TPGS

Application & Properties References

Water soluble cannabinoids. *PCT Int. Appl.* (2021), WO 2021026456 A1 20210211. B. Antharavally, A.R. Oroskar, P. Sharma, A.A. Oroskar

A novel vitamin E TPGS- based formulation enhances chlorhexidine bioavailability in corneal layers. *Pharmaceutics* (2020), 12(7), 642. C. Caruso, A. Porta, A. Tosco, D. Eletto, L. Pacente, S. Bartollino, C. Costagliola

Nanocarriers based on vitamin E- TPGS: Design principle and molecular insights into improving the efficacy of anti-cancer drugs. *International Journal of Pharmaceutics*, (2021), 592, 120045. S. Rathod, P. Bahadur, S. Tiwari

Development and optimization of vitamin E TPGS based PLGA nanoparticles for improved and safe ocular delivery of ketorolac. *Journal of Drug Delivery Science and Technology*, (2021), 61, 102121. M. Warsi

Safety Studies References

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. M. Zondlo Fumie

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