

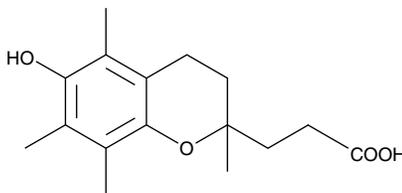
# Product Information



## $\alpha$ -CEHC

Item No. 10007705

**CAS Registry No.:** 4072-32-6  
**Formal Name:** 3,4-dihydro-6-hydroxy-2,5,7,8-tetramethyl-2H-1-benzopyran-2-propanoic acid  
**MF:** C<sub>16</sub>H<sub>22</sub>O<sub>4</sub>  
**FW:** 278.3  
**Purity:** ≥98%  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A crystalline solid  
**UV/Vis.:**  $\lambda_{\text{max}}$ : 205, 298 nm



### Laboratory Procedures

For long term storage, we suggest that  $\alpha$ -CEHC be stored as supplied at -20°C. It should be stable for at least two years.  $\alpha$ -CEHC is supplied as a crystalline solid. A stock solution may be made by dissolving the  $\alpha$ -CEHC in an organic solvent purged with an inert gas.  $\alpha$ -CEHC is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of  $\alpha$ -CEHC in ethanol is approximately 10 mg/ml and 20 mg/ml in DMSO and DMF.

$\alpha$ -CEHC is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers,  $\alpha$ -CEHC should first be dissolved in DMSO and then diluted with the aqueous buffer of choice.  $\alpha$ -CEHC has a solubility of approximately 0.25 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Molecules having vitamin E antioxidant activity include four tocopherols ( $\alpha$ ,  $\beta$ ,  $\delta$ , and  $\gamma$ ) and four tocotrienols ( $\alpha$ ,  $\beta$ ,  $\delta$ , and  $\gamma$ ).<sup>1</sup>  $\alpha$ -Tocopherol is the major lipid soluble antioxidant *in vivo* and protects against lipid peroxidation.<sup>2</sup>  $\alpha$ -CEHC is the major urinary metabolite of  $\alpha$ -tocopherol following vitamin E supplementation.<sup>3</sup> The concentration of  $\alpha$ -CEHC in human serum is in the range of 5-10 pmol/ml but increases significantly up to 200 pmol/ml upon supplementation with RRR- $\alpha$ -tocopherol. About one-third of the  $\alpha$ -CEHC circulating in the blood is present as a glucuronide conjugate.<sup>4</sup>  $\alpha$ -CEHC is excreted when a threshold concentration of 7-9  $\mu$ mol  $\alpha$ -tocopherol/g total lipid in plasma is exceeded. Therefore, excretion of  $\alpha$ -CEHC may be considered to be a marker of optimum vitamin E intake.<sup>5</sup>

### References

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2. Burton, G.W., Joyce, A., and Ingold, K.U. Is vitamin E the only lipid-soluble, chain-breaking antioxidant in human blood plasma and erythrocyte membranes? *Arch. Biochem. Biophys.* **221**(1), 281-290 (1983).
3. Traber, M.G., Elsner, A., and Brigelius-Flohé, R. Synthetic as compared with natural vitamin E is preferentially excreted as  $\alpha$ -CEHC in human urine: Studies using deuterated  $\alpha$ -tocopheryl acetates. *FEBS Lett.* **437**, 145-148 (1998).
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5. Schultz, M., Leist, M., Petrzika, M., *et al.* Novel urinary metabolite of  $\alpha$ -tocopherol, 2,5,7,8-tetramethyl-2-(2'-carboxyethyl)-6-hydroxychroman, as an indicator of an adequate vitamin E supply. *Am. J. Clin. Nutr.* **62**(6), 1527S-34S (1995).

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