

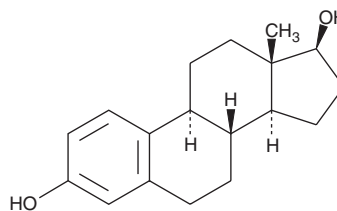
PRODUCT INFORMATION



17 β -Estradiol

Item No. 10006315

CAS Registry No.:	50-28-2
Formal Name:	estra-1,3,5(10)-triene-3,17 β -diol
Synonyms:	E2, Estradiol, β -Estradiol, 17 β -Oestradiol
MF:	C ₁₈ H ₂₄ O ₂
FW:	272.4
Purity:	≥98%
UV/Vis.:	λ_{max} : 281 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

17 β -Estradiol is supplied as a crystalline solid. A stock solution may be made by dissolving the 17 β -estradiol in an organic solvent purged with an inert gas. 17 β -Estradiol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of estradiol in these solvents is approximately 2.5 mg/ml in ethanol and 20 mg/ml in DMSO and DMF.

17 β -Estradiol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 17 β -estradiol should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 17 β -Estradiol has a solubility of 0.2 mg/ml in a 1:4 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

17 β -Estradiol is the major pre-menopausal bioactive estrogen and an active metabolite of testosterone.¹⁻³ It is produced primarily by the ovary, and to a lesser extent, by the adrenals, testes, and adipose tissue, as well as by the placenta during pregnancy.¹ 17 β -Estradiol binds to estrogen receptors localized to the nucleus, cytoplasm, and plasma membrane and induces gene transcription or non-genomic intracellular signaling in a location-dependent manner.² It regulates reproductive development in females and spermatogenesis in males, as well as various non-reproductive processes including lipid and glucose homeostasis, bone mass maintenance, cognition, energy balance, and dilation of blood vessels.^{2,3} 17 β -Estradiol deficiency due to hypogonadism or 17 α -hydroxylase/17,20-lyase deficiency is associated with fatigue, incontinence, osteoporosis, depression, emotional instability, and hot flashes. Formulations containing 17 β -estradiol have been used in the treatment of menopause symptoms and the prevention of osteoporosis.

References

1. Mahboobifard, F., Pourgholami, M.H., Jorjani, M., *et al.* Estrogen as a key regulator of energy homeostasis and metabolic health. *Biomed. Pharmacother.* **156**, 113808 (2022).
2. Kumar, A., Banerjee, A., Sigh, D., *et al.* Estradiol: A steroid with multiple facets. *Horm. Metab. Res.* **50(5)**, 359-374 (2018).
3. Sabah-Negah, S., Hajali, V., Moradi, H.R., *et al.* The impact of estradiol on neurogenesis and cognitive functions in Alzheimer's disease. *Cell Mol. Neurobiol.* **40(3)**, 283-299 (2019).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM