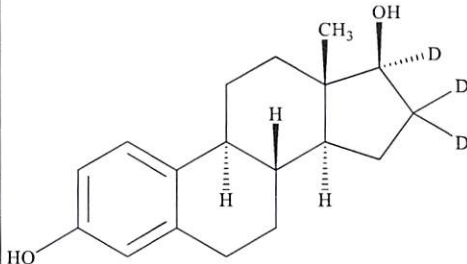


Certificate of Analysis


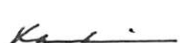
Certificate No.: 20250825011-2

Date: August 25, 2025

Retest date: August 22, 2028

Compound Name:	Estradiol-d₃ (Estradiol Valerate EP Impurity A-d₃, Estradiol Benzoate EP Impurity A-d₃, Estriol EP Impurity D-d₃, Ethinylestradiol EP Impurity D-d₃)	
Synonyms:	(8R,9S,13S,14S,17S)-13-methyl-7,8,9,11,12,13,14,15,16,17-decahydro-6H-cyclopenta[a]phenanthrene-16,16,17-d ₃ -3,17-diol	
TLC Catalogue Number:	E-091	
CAS Number:	79037-37-9	
Alternate CAS Number:	50-28-2 (non-labelled)	
Molecular Weight:	275.41	
Molecular Formula:	C ₁₈ H ₂₁ D ₃ O ₂	
Source:	TLC Pharmaceutical Standards	
Source Lot No.:	3753-010A4	
Storage Conditions:	Store at 2-8 °C	
Solubility:	Methanol, DMSO, DMF	

Test Description	Specifications	Results
Visual Description	White to off-white solid	Conforms
Identification		
IR	Conforms to structure	Conforms
MS	Conforms to structure	Conforms
¹ H NMR	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	99.8%
Impurity (HPLC)	RT 15.70, 0.10%	
Isotopic Enrichment	Not less than 95.0%	97.6%
Optical Rotation	[α] _D ^{20.0} (c=0.59, dioxane): +80.1°	[α] _D ^{20.0} (c=0.54, dioxane): +72.7°
Residual Solvents (NMR)	1.0% methanol	
Assay (qNMR)	Not less than 90.0%	95.1%
Recommendation:	Release. The compound contains 0.2% d ₀ according to its LC-MS.	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		03/11/2026
Approved by:	Quality Assurance		03/11/2026

Attachments: Peak Attribution Table, Assay Calculation, HPLC, IR, MS and NMR spectra.