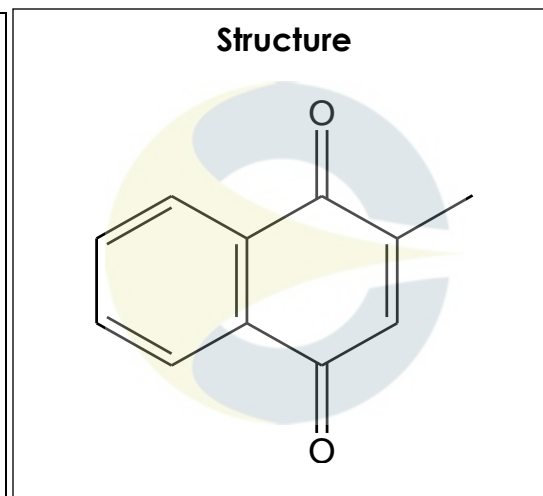


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PRODUCT NAME	Vitamin K3 (Menadione)
PART NUMBER	00022824
STANDARD TYPE	Primary (P)
LOT NUMBER	00022824-757
REPORT NUMBER	CDXA-RSS-1701-02
SAMPLE NUMBER	CDXA-11-1026
DATE OF SAMPLE	02/15/2011
DATE OF RE-EVALUATION	09/10/2015 (1 st); 02/03/2021 (2 nd)
DATE OF REPORT	03/01/2021



CHEMICAL NAMES 2-Methyl-1,4-naphthalenedione; 3-Methyl-1,4-naphthoquinone; Aquinone; Hemodal; Kanone; Kappaxin; Kayquinone; Menadione; Menaquinone 0; Panosine; Thyloquinone

CHEMICAL FORMULA C₁₁H₈O₂

MOLECULAR WEIGHT (MW) 172.18

CHEMICAL FAMILY Vitamins

CAS NUMBER [58-27-5]

EC#(EINECS) 200-372-6

RTECS QL9100000

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	97.6%
HPLC	0.700.10.2.METH22	≥ 90%	97.6%
NMR	99.1-CD-1.0-000122	Conforms to structure	Conforms to structure
Mass Spectrum	Direct Infusion, ESI (+)	Conforms	Conforms
Residual Solvent	99.1-CD-4.0-000115	NA	ND
Water	0.700.12.37	NA	ND
Appearance	NA	NA	Yellow powder

ADJUSTED PURITY: 97.6% IS BASED ON (100 - 0.0 SOLVENTS - 0.0 WATER) X 97.6% HPLC

STORAGE CONDITIONS

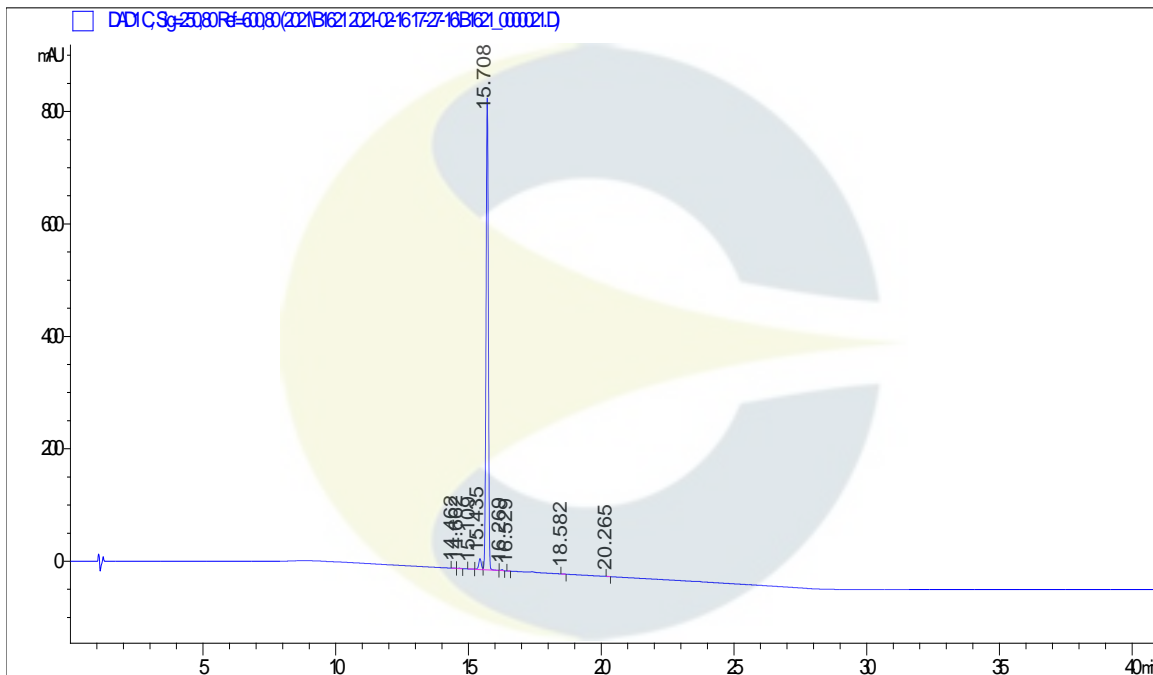
STORAGE Room Temperature in a dry place.

EXPIRATION DATE 02/2026 under the above conditions.

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ANALYTICAL CONDITIONS

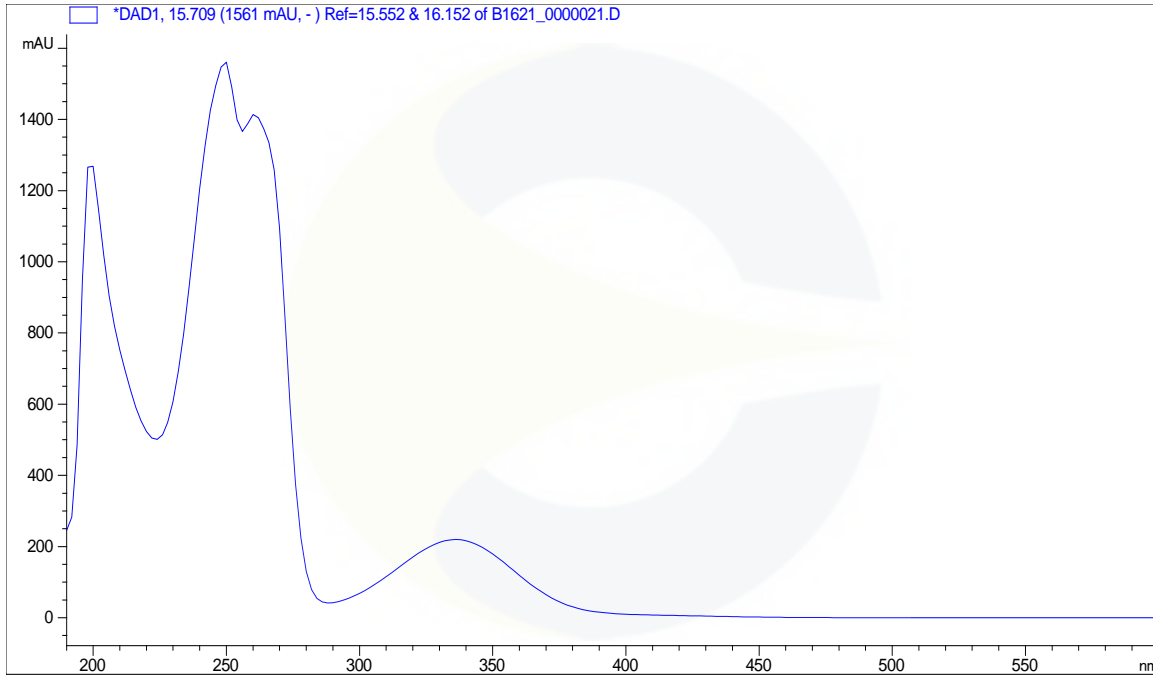
INSTRUMENT	AGILENT 1260 HPLC UV-VIS (DAD); Agilent 1100 Ion Trap
COLUMN	Phenomenex Luna C18(2) 150 x 2.00 mm, 5 µm particle size
MOBILE PHASE	A - 0.1% Trifluoroacetic acid in Ultrapure water, B - Acetonitrile; Isocratic 5% B for 5 minutes, then increasing to 95% B over 20 minutes. Hold at 95% B for 15 minutes.
COLUMN TEMP.	60 °C
FLOW RATE	0.4 mL/minute
INJECTION VOL.	0.4 µL
INJECTION CONC.	1.2 mg/mL in Methanol
DETECTION	250 ± 40 nm

HPLC CHROMATOGRAM OF VITAMIN K3 (MENADIONE) (CDXA-11-1026)


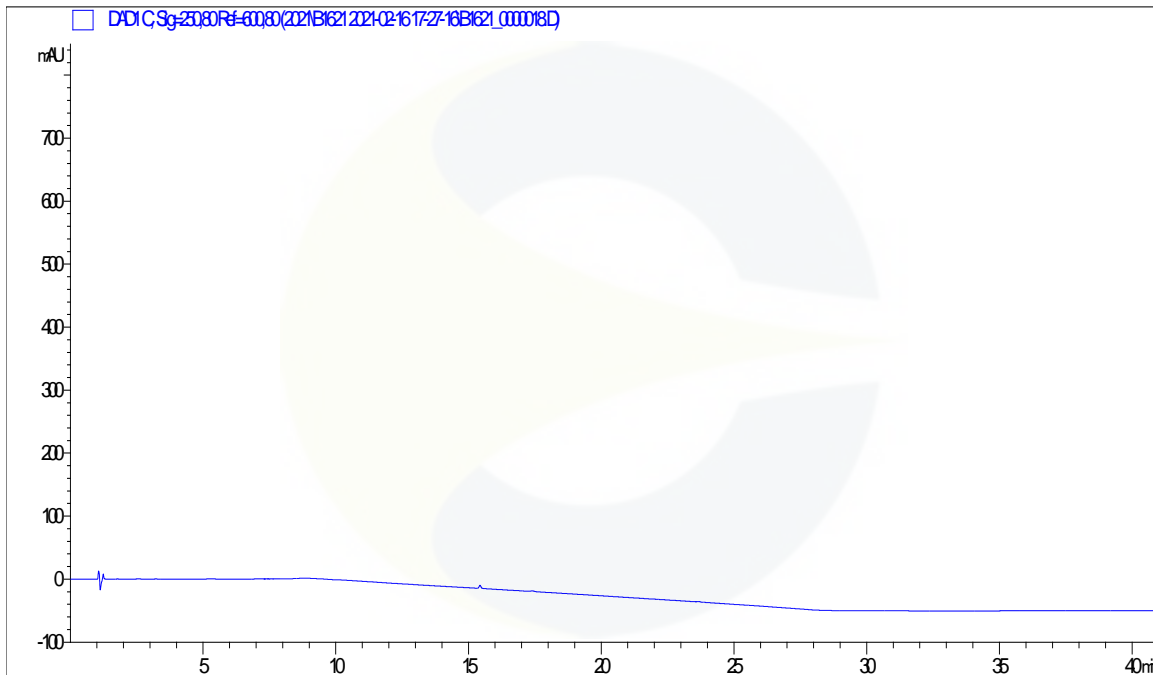
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UV SPECTRUM AT RT = 15.7 MINUTES

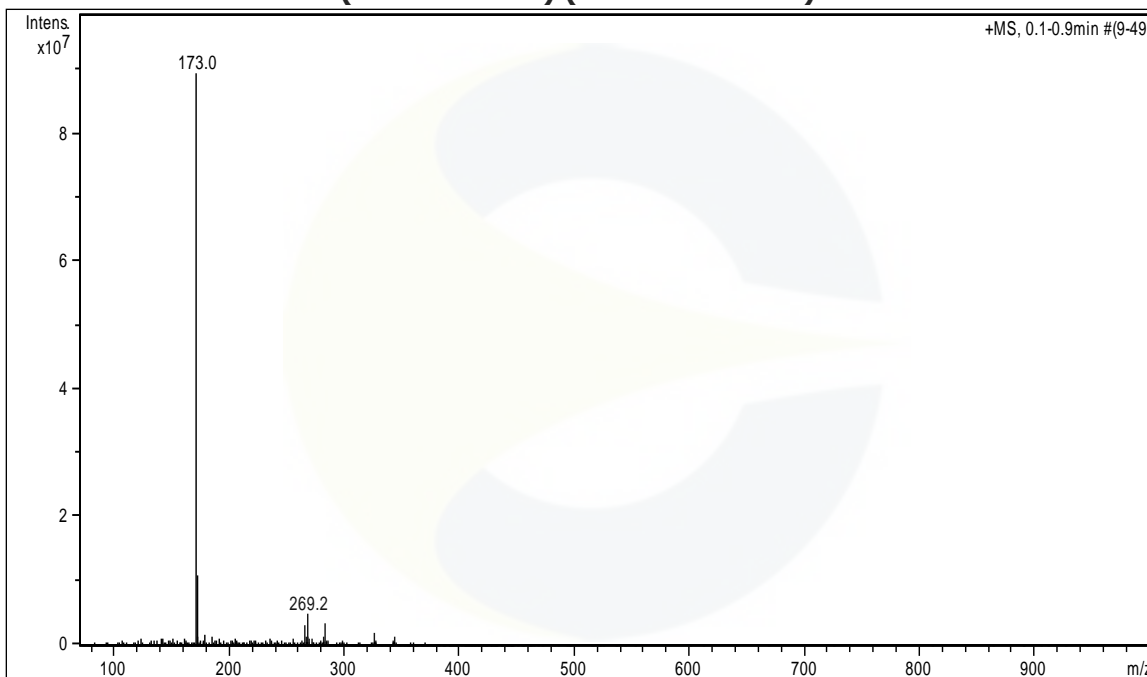


HPLC CHROMATOGRAM OF DILUENT BLANK

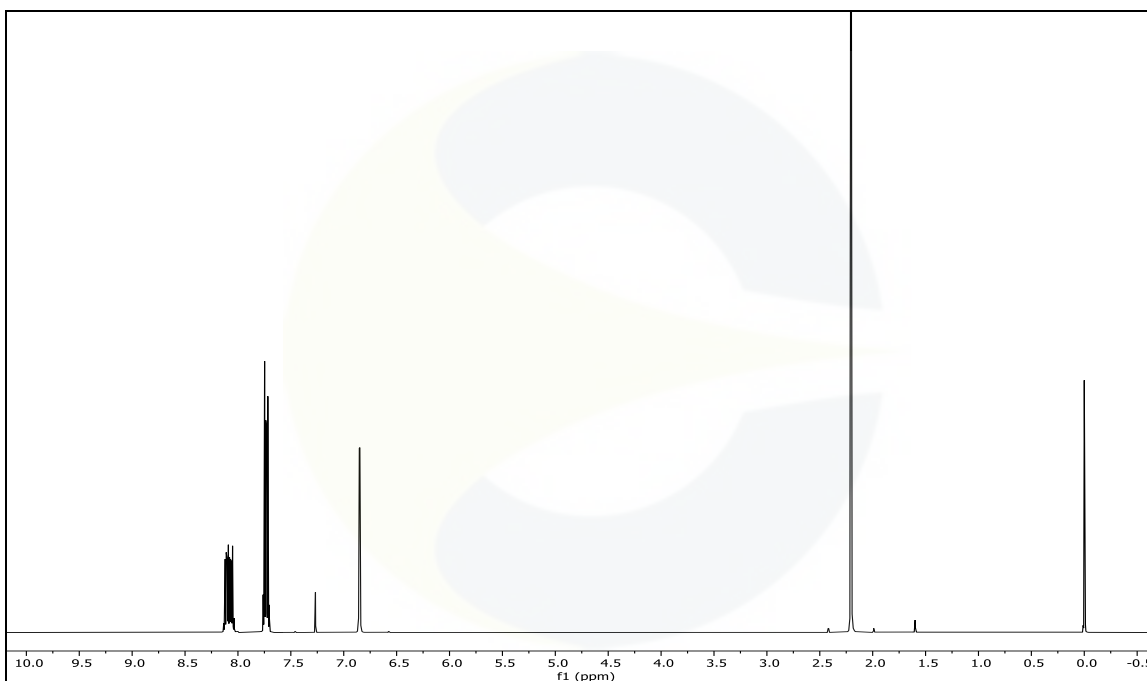


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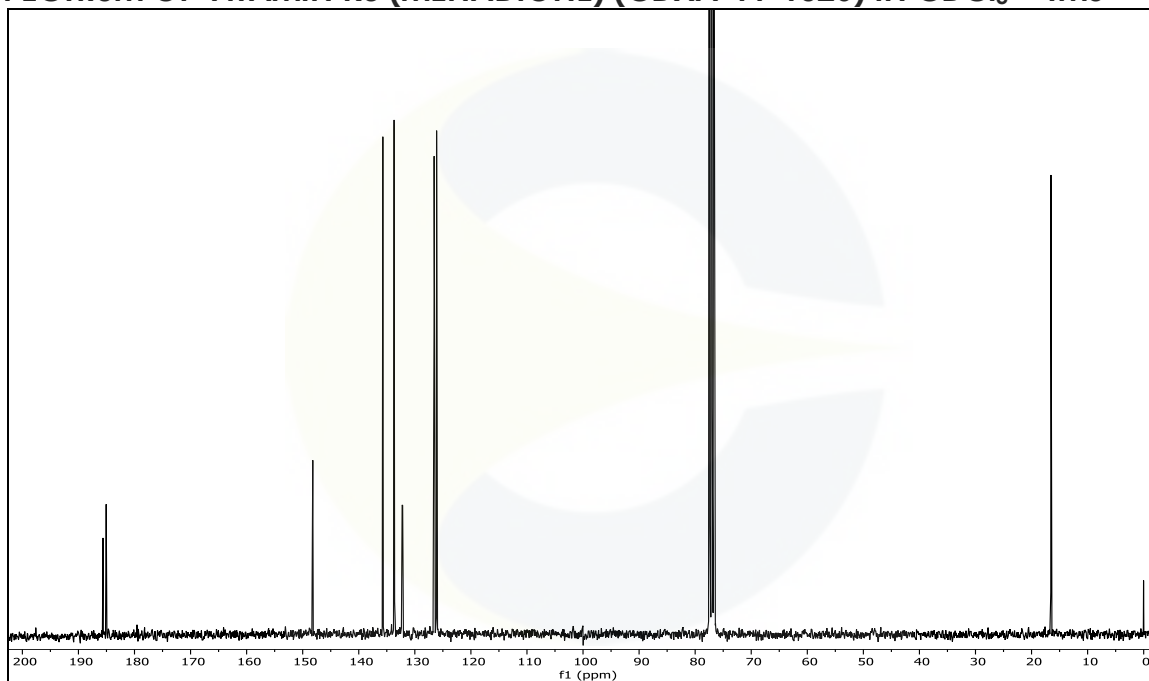
MASS SPECTRUM OF VITAMIN K3 (MENADIONE) (CDXA-11-1026)



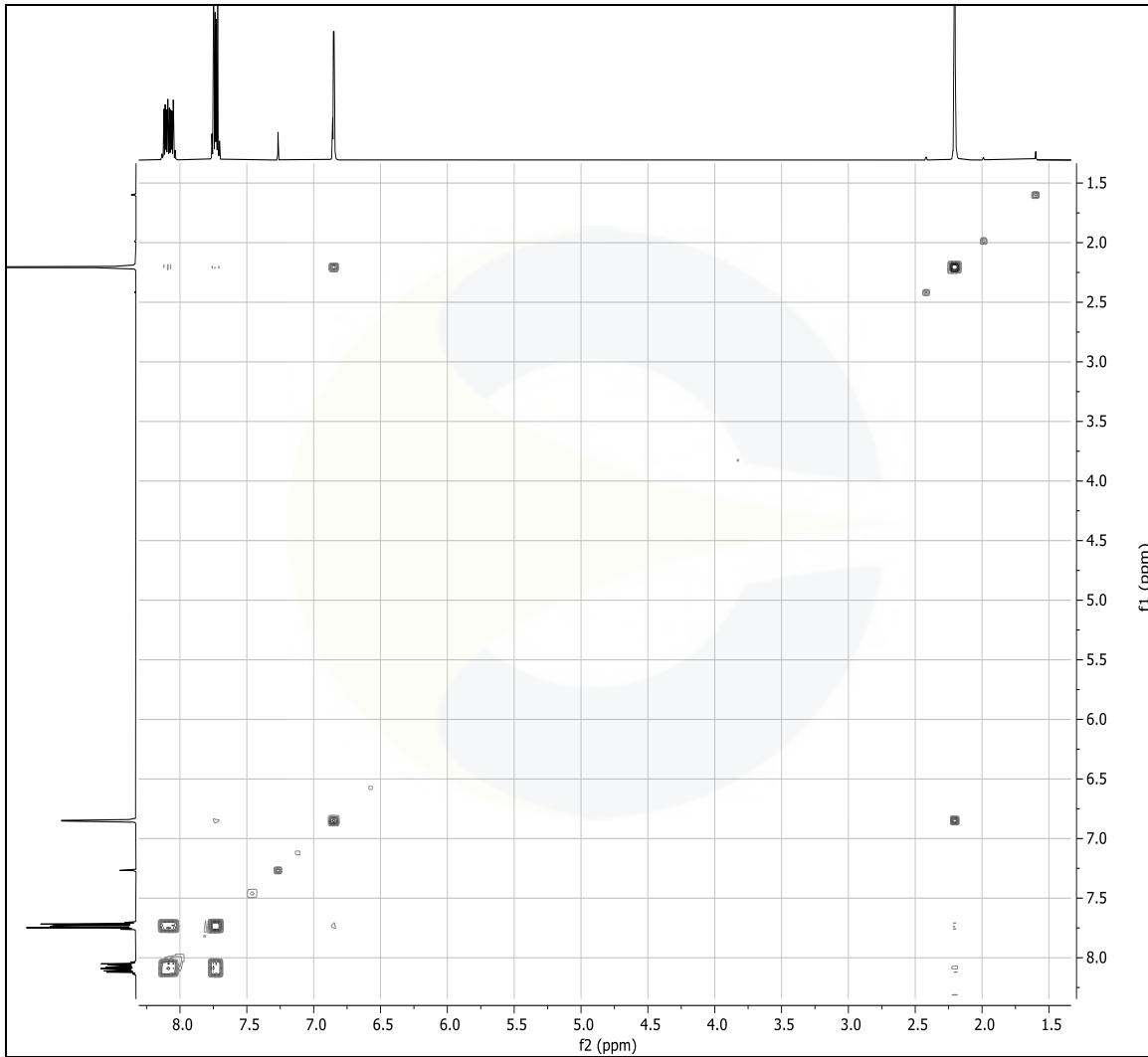
¹H-NMR SPECTRUM OF VITAMIN K3 (MENADIONE) (CDXA-11-1026) IN CDCl₃ + TMS



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¹³C-NMR SPECTRUM OF VITAMIN K3 (MENADIONE) (CDXA-11-1026) IN CDCl₃ + TMS

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COSY-NMR SPECTRUM OF VITAMIN K3 (MENADIONE) (CDXA-11-1026) IN CDCl₃ + TMS

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	04/28/2011	New report
01	09/28/2015	Passed re-evaluation by HPLC, KF. Updated expiration date, chemical names, chemical family, ¹ H NMR and melting point.
02	03/01/2021	Passed second re-evaluation by HPLC, KF, NMR. Updated expiration date, analytical results, analytical conditions, chromatograms, and NMR spectra. Removed melting point.

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