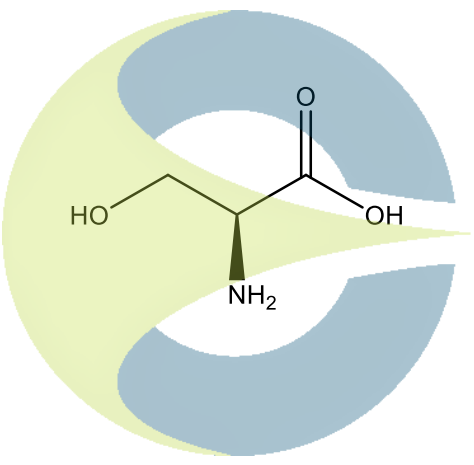


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PRODUCT NAME	L-Serine	Structure 
PART NUMBER	00019163	
STANDARD TYPE	Primary (P)	
LOT NUMBER	00019163-3TA	
REPORT NUMBER	CDXA-RSS-3150-03	
SAMPLE NUMBER	CDXA-08-2490	
DATE OF SAMPLE	10/20/2008	
DATE OF RE-EVALUATION	10/15/2013 (1 st); 08/13/2018 (2 nd); 07/07/2022 (3 rd)	
DATE OF REPORT	08/03/2022	

CHEMICAL NAMES	(S)-2-Amino-3-hydroxypropionic acid; (S)-Serine; (S)- α -Amino- β -hydroxypropionic acid
CHEMICAL FORMULA	C ₃ H ₇ NO ₃
MOLECULAR WEIGHT (MW)	105.09
CHEMICAL FAMILY	Amino acids
CAS NUMBER	[56-45-1]
EC#(EINECS)	200-274-3
RTECS	VT8100000

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	99.1%
HPLC	0.700.10.2.METH22	≥ 90%	99.1%
NMR	0.700.12.4	Conforms to structure	Conforms to structure
Mass Spectrum	Direct Infusion, ESI (-)	Conforms	Conforms
Residual Solvent*	99.1-CD-2.0-000115	NA	ND
Water	0.700.12.37	NA	ND
Appearance	NA	NA	White powder

*Testing performed at an ISO 17025 accredited subcontracted laboratory.

ADJUSTED PURITY: 99.1% IS BASED ON (100 - 0.0 SOLVENTS - 0.0 WATER) X 99.1% HPLC

STORAGE CONDITIONS

STORAGE	Room Temperature in a dry place.
EXPIRATION DATE	07/2027 under the above conditions.

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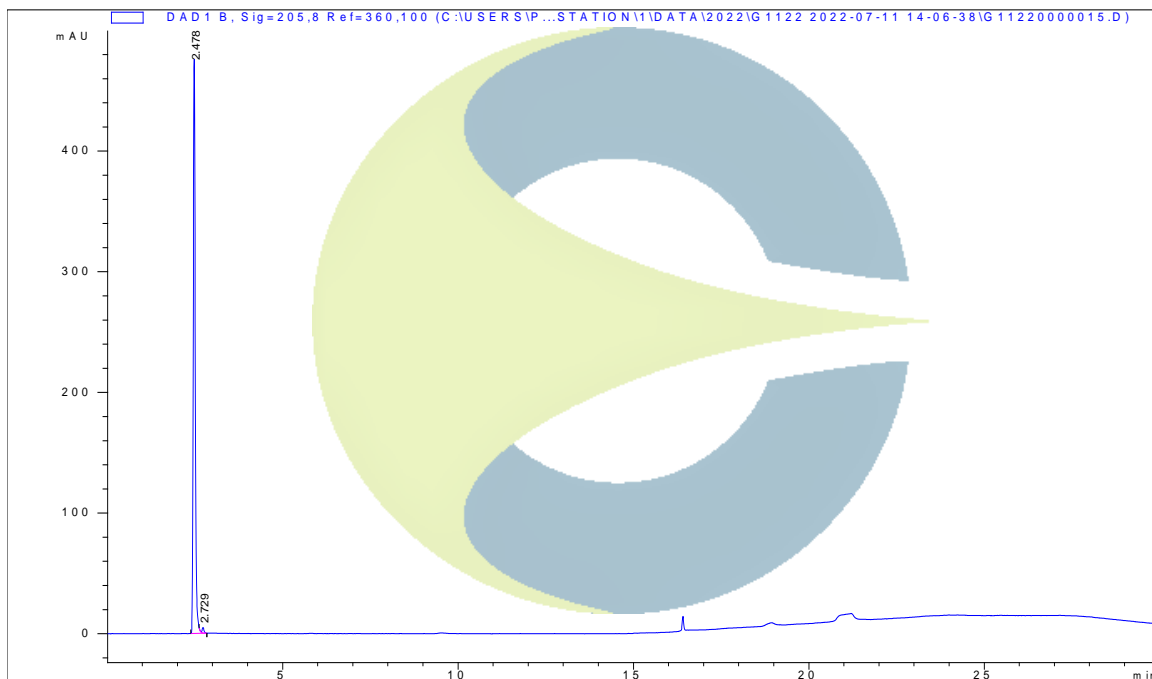
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ANALYTICAL CONDITIONS

INSTRUMENT	AGILENT 1260 HPLC UV-VIS (DAD); FINNIGAN LCQ-DECA
COLUMN	Phenomenex Synergi Hydro RP 250 x 4.6 mm, 4 µm particle size
MOBILE PHASE	A – 10 mM potassium phosphate (aq), pH 2.9, B - Acetonitrile; Isocratic 0% B for 10 minutes, increasing to 30% B over 10 minutes, then hold at 30% B for 4 minutes. Return to starting conditions over 5 minutes
COLUMN TEMP.	22 °C
FLOW RATE	1.0 mL/minute
INJECTION VOL.	10.0 µL
INJECTION CONC.	4.1 mg/mL in high-purity water
DETECTION	205 ± 4 nm

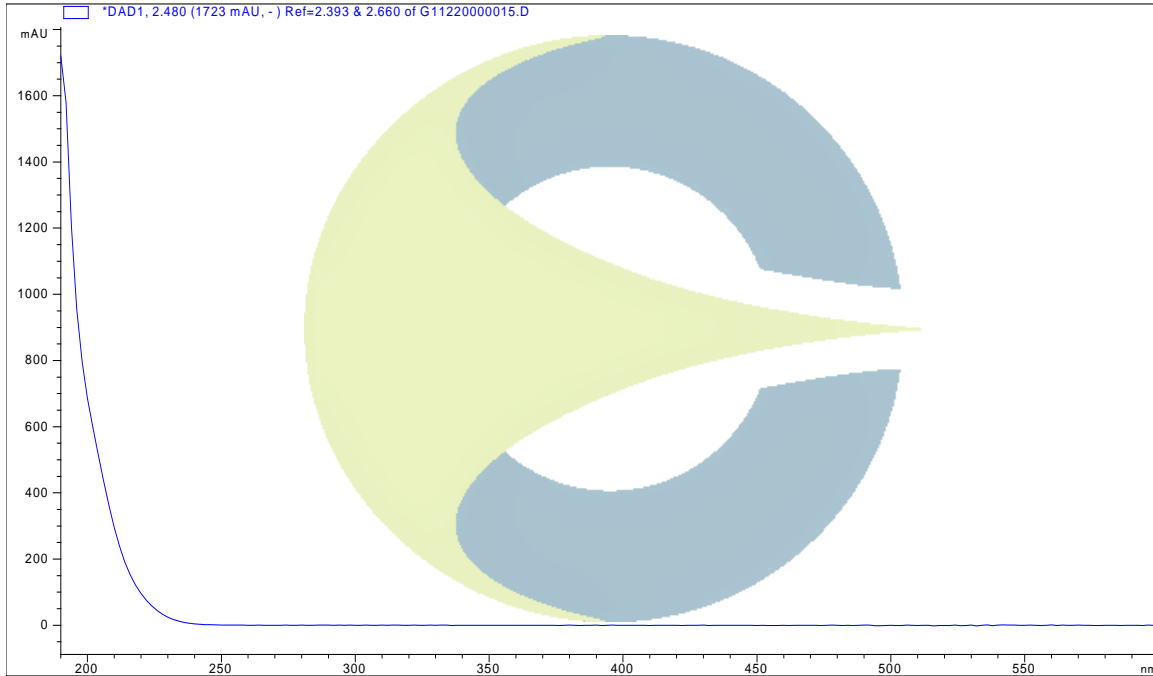
HPLC CHROMATOGRAM OF L-SERINE (CDXA-08-2490)



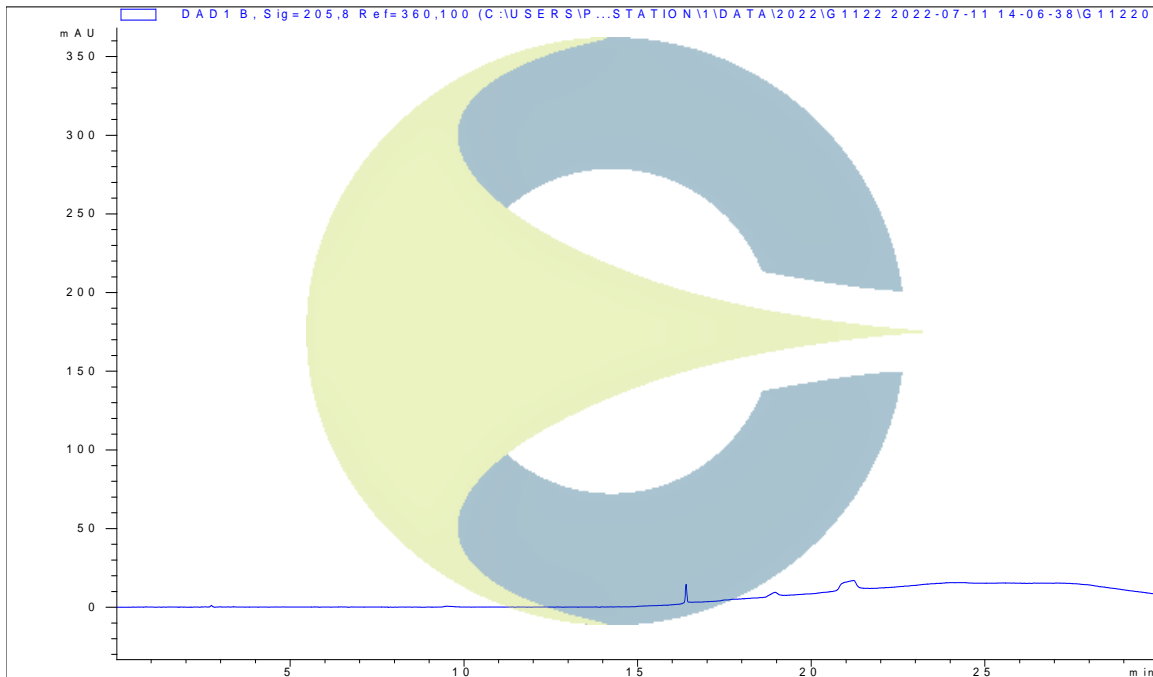
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UV SPECTRUM AT RT = 2.5 MINUTES



HPLC CHROMATOGRAM OF DILUENT BLANK

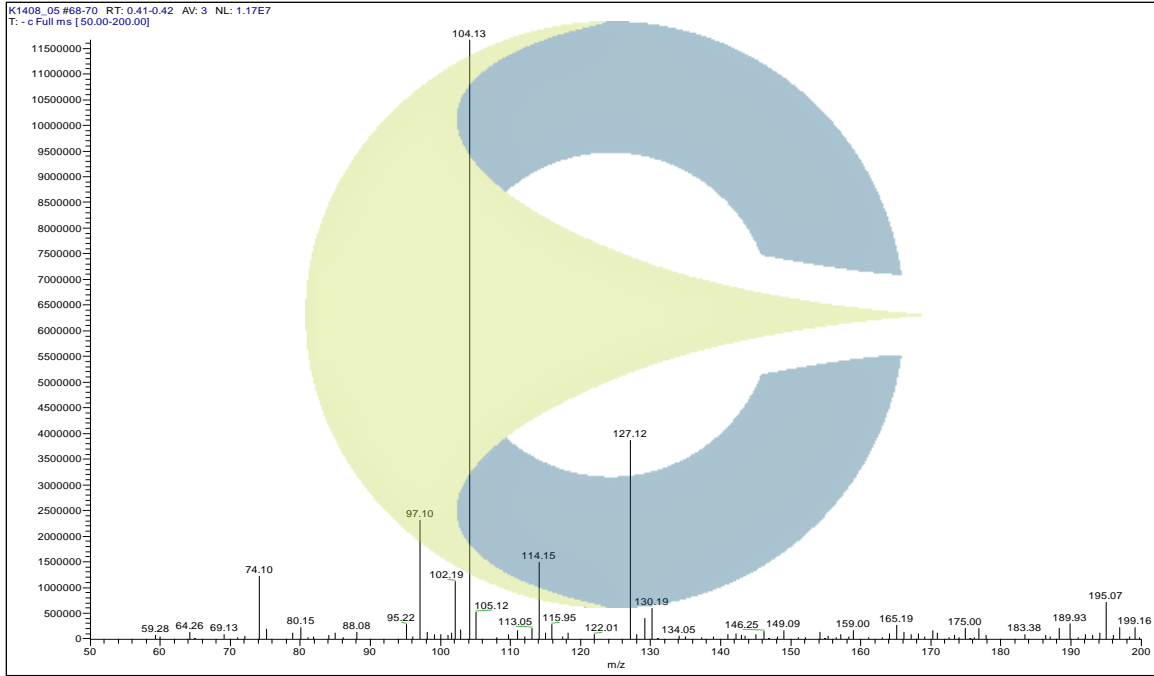


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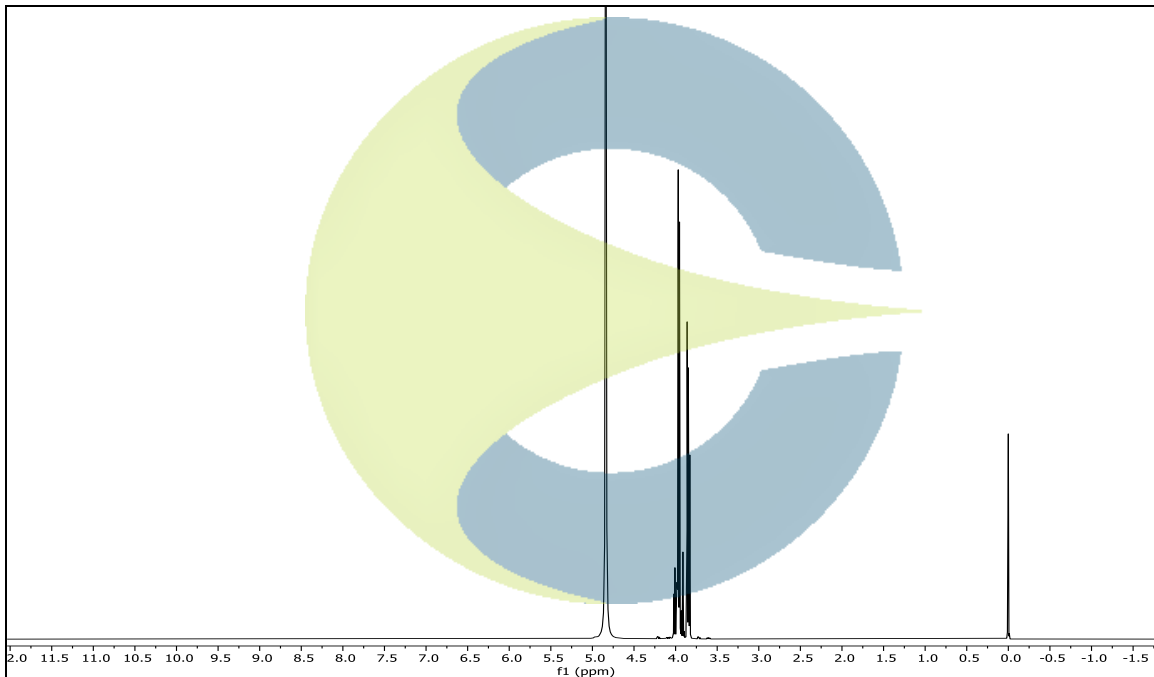
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India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com

MASS SPECTRUM OF L-SERINE (CDXA-08-2490)



¹H-NMR SPECTRUM OF L-SERINE (CDXA-08-2490) IN D₂O+TMSP

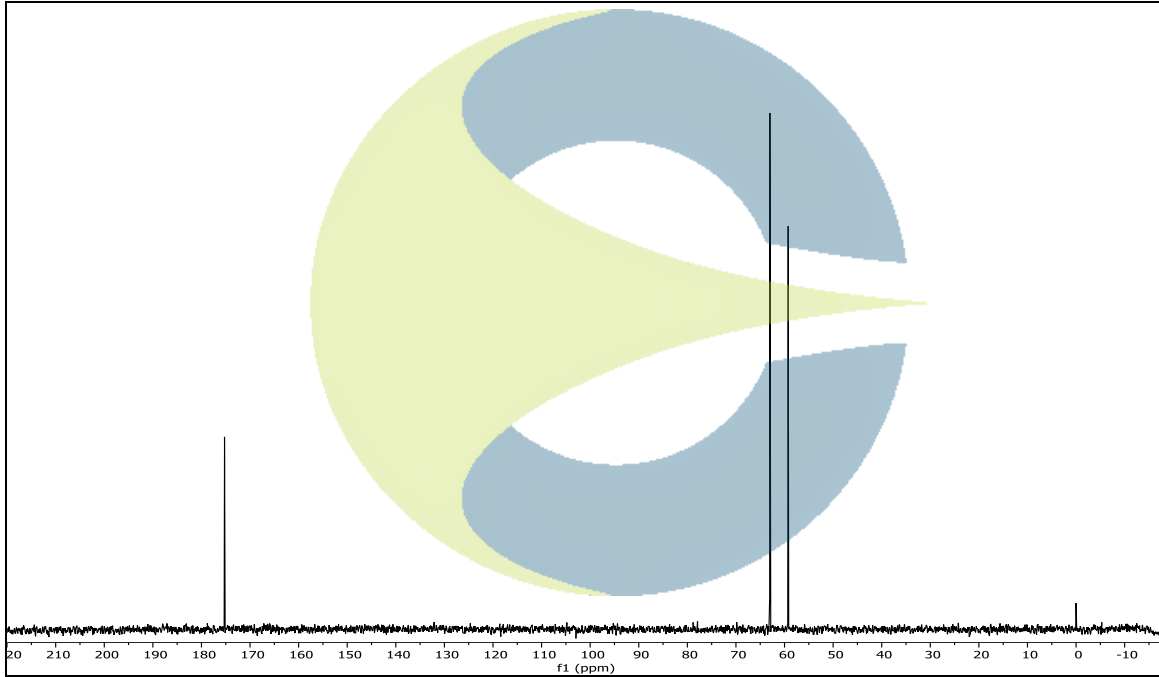


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¹³C-NMR SPECTRUM OF L-SERINE (CDXA-08-2490) IN D₂O+TMSP



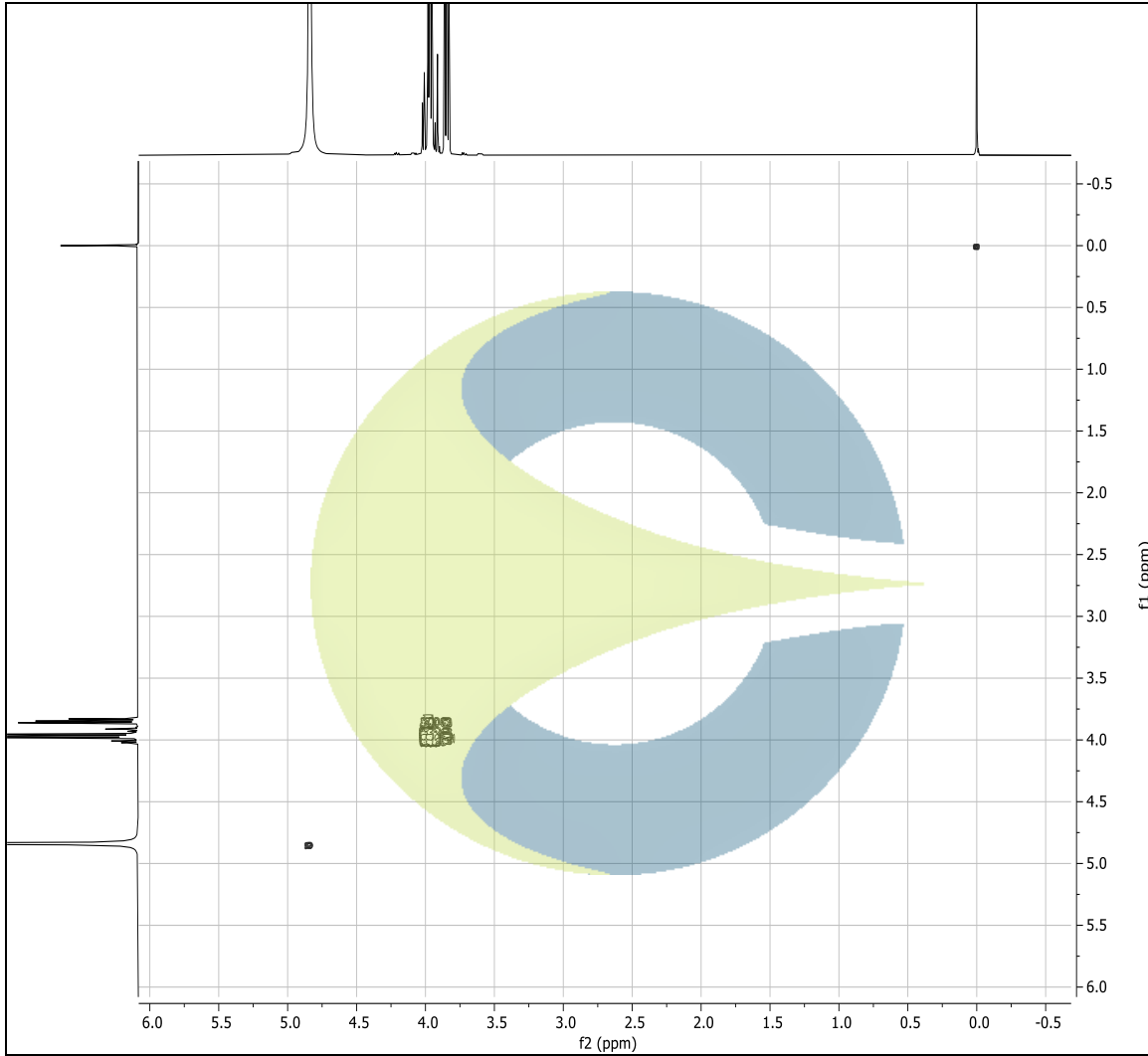
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COSY-NMR SPECTRUM OF L-SERINE (CDXA-08-2490) IN D₂O+TMSP



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REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	08/15/2011	New report
01	11/11/2013	Material passed re-evaluation. Updated expiration date.
02	09/05/2018	Material passed second reevaluation by HPLC and KF. Update analytical conditions, analytical results, chromatograms, and expiration date. Removed melting point.
03	08/03/2022	Passed third re-evaluation by HPLC, KF and NMR. Updated expiration date, analytical conditions, chromatograms, and results

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