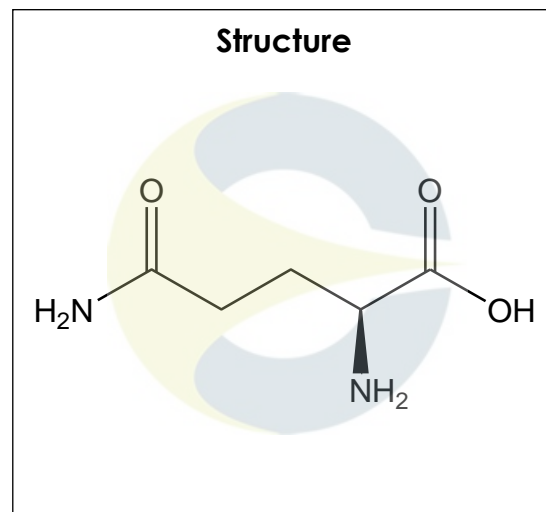


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<b>PRODUCT NAME</b>	L-Glutamine
<b>PART NUMBER</b>	00007311
<b>STANDARD TYPE</b>	Primary (P)
<b>LOT NUMBER</b>	00007311-149
<b>REPORT NUMBER</b>	CDXA-RSS-3151-02
<b>SAMPLE NUMBER</b>	CDXA-08-2492
<b>DATE OF SAMPLE</b>	10/20/2008
<b>DATE OF RE-EVALUATION</b>	04/12/2013(1 <sup>st</sup> ); 05/05/2017(2 <sup>nd</sup> ); 05/14/2021(3 <sup>rd</sup> )
<b>DATE OF REPORT</b>	06/07/2021



<b>CHEMICAL NAMES</b>	(S)-2,5-Diamino-5-oxopentanoic acid; 2-Aminoglutaramic acid; Cebrogen; Glumin; Glutamic acid amide; L-2-Aminoglutaramidic acid; Levoglutamide; Stimulina
<b>CHEMICAL FORMULA</b>	C <sub>5</sub> H <sub>10</sub> N <sub>2</sub> O <sub>3</sub>
<b>MOLECULAR WEIGHT (MW)</b>	146.14
<b>CHEMICAL FAMILY</b>	Amino acids
<b>CAS NUMBER</b>	[56-85-9]
<b>EC#(EINECS)</b>	200-292-1
<b>RTECS</b>	MA2275100

**ANALYTICAL RESULTS**

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	98.6%
HPLC	0.700.10.2.METH46	≥ 90%	98.6%
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

ADJUSTED PURITY: 98.6% IS BASED ON (100 - 0.0 SOLVENTS - 0.0 WATER) X 98.6% HPLC

**STORAGE CONDITIONS**

<b>STORAGE</b>	Room Temperature in a dry place.
<b>EXPIRATION DATE</b>	05/2026 under the above conditions.

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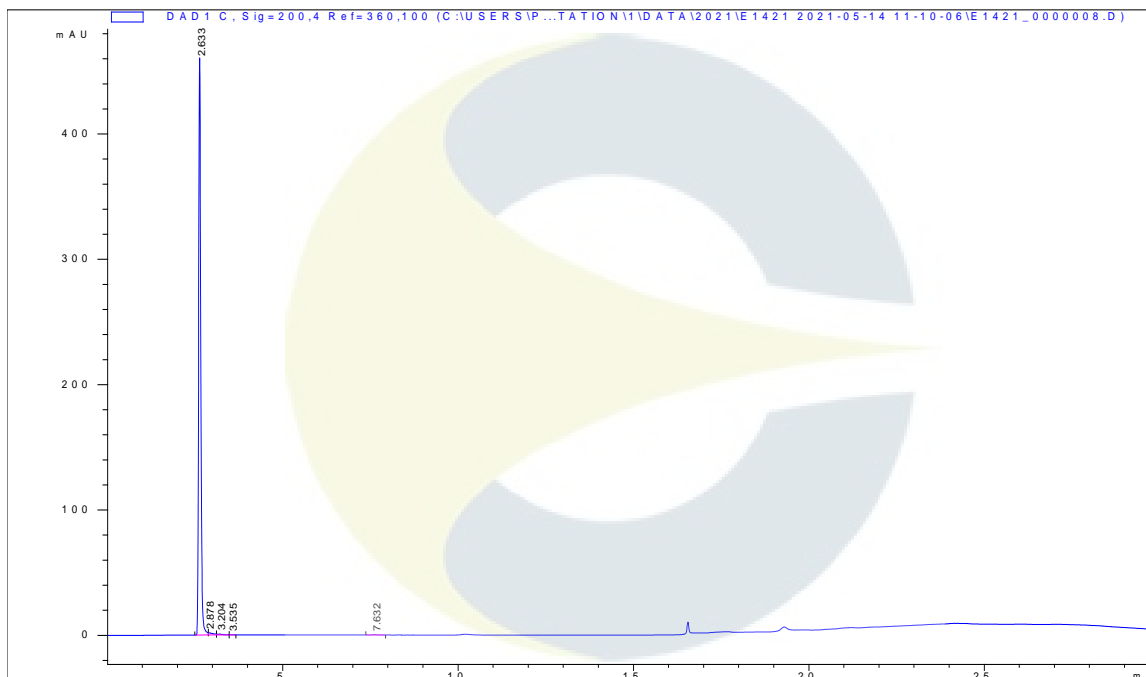
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## ANALYTICAL CONDITIONS

<b>INSTRUMENT</b>	AGILENT 1260 HPLC UV-VIS (DAD) ; FINNIGAN LCQ-DECA
<b>COLUMN</b>	Phenomenex Synergi Hydro-RP 80Å 250 x 4.6 mm, 4 µm particle size
<b>MOBILE PHASE</b>	A – 10 mM KH <sub>2</sub> PO <sub>4</sub> pH 2.9 in Milli-Q water, B - Acetonitrile; Isocratic 5% B for 5 minutes, then increasing to 20% B over 5 minutes, and then increasing to 60% over 10 minutes. Hold at 60% B for 4 minutes.
<b>COLUMN TEMP.</b>	22 °C
<b>FLOW RATE</b>	1.0 mL/minute
<b>INJECTION VOL.</b>	1.0 µL
<b>INJECTION CONC.</b>	4.1 mg/mL in Milli-Q Water
<b>DETECTION</b>	200 ± 2 nm

## HPLC CHROMATOGRAM OF L-GLUTAMINE (CDXA-08-2492)

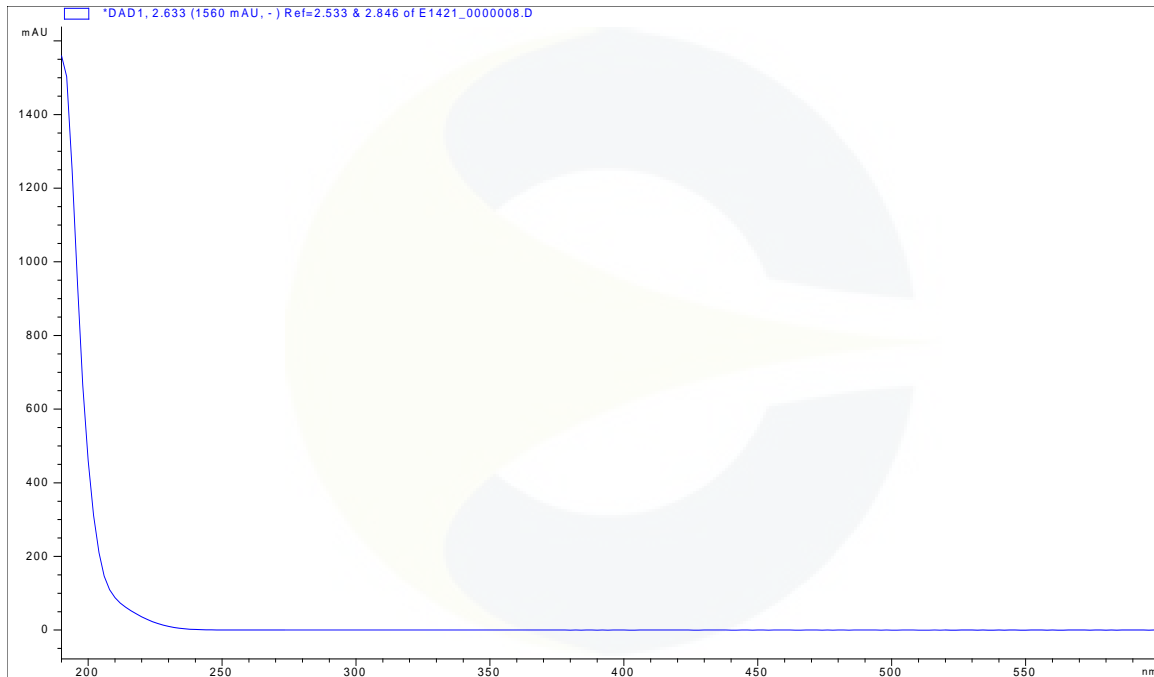


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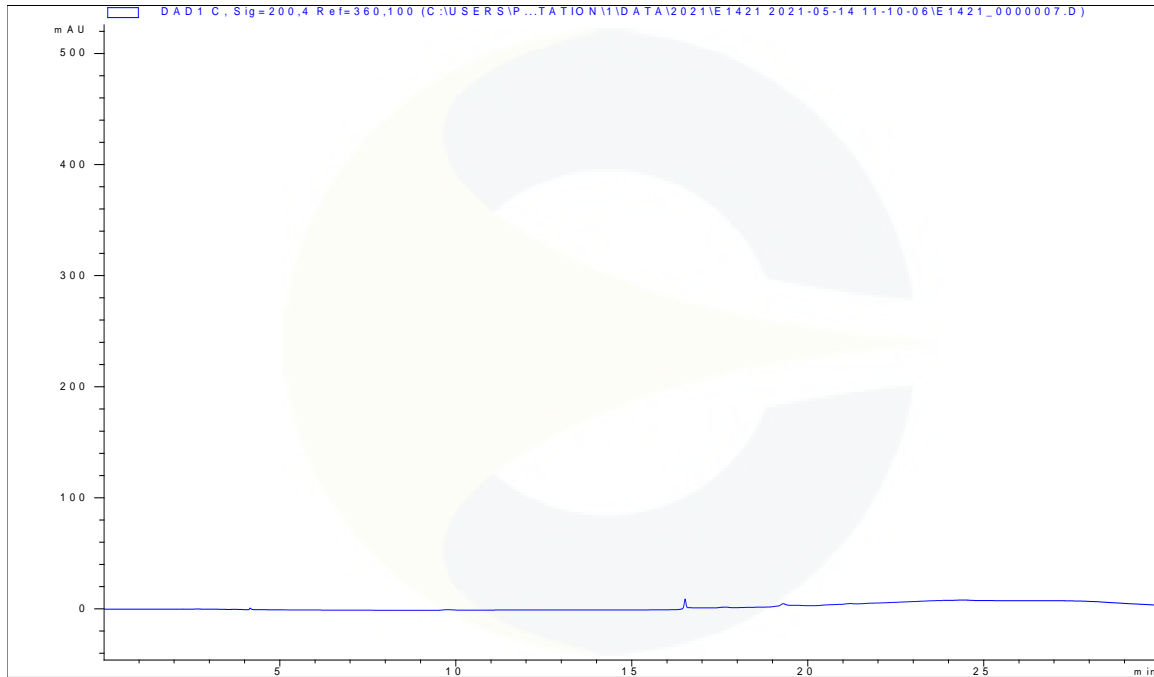
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## UV SPECTRUM AT 2.6 MINUTES



## HPLC CHROMATOGRAM OF DILUENT BLANK



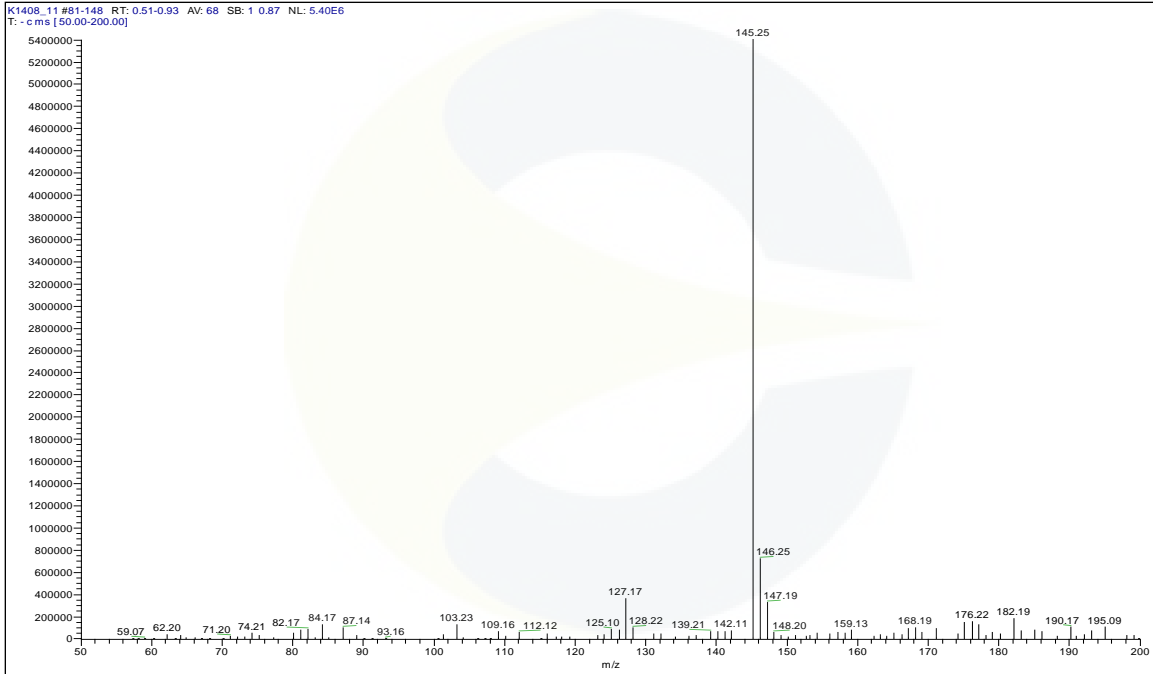
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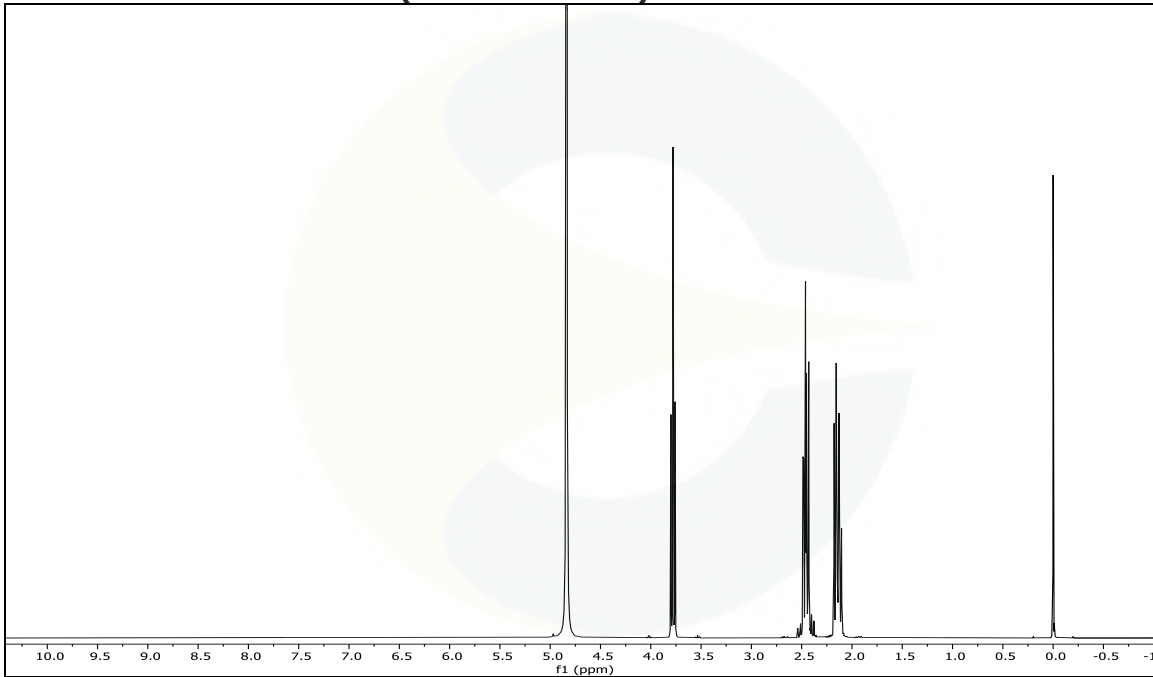
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**MASS SPECTRUM OF L-GLUTAMINE (CDXA-08-2492)**



**<sup>1</sup>H-NMR SPECTRUM OF L-GLUTAMINE (CDXA-08-2492) IN D<sub>2</sub>O + TMSP**

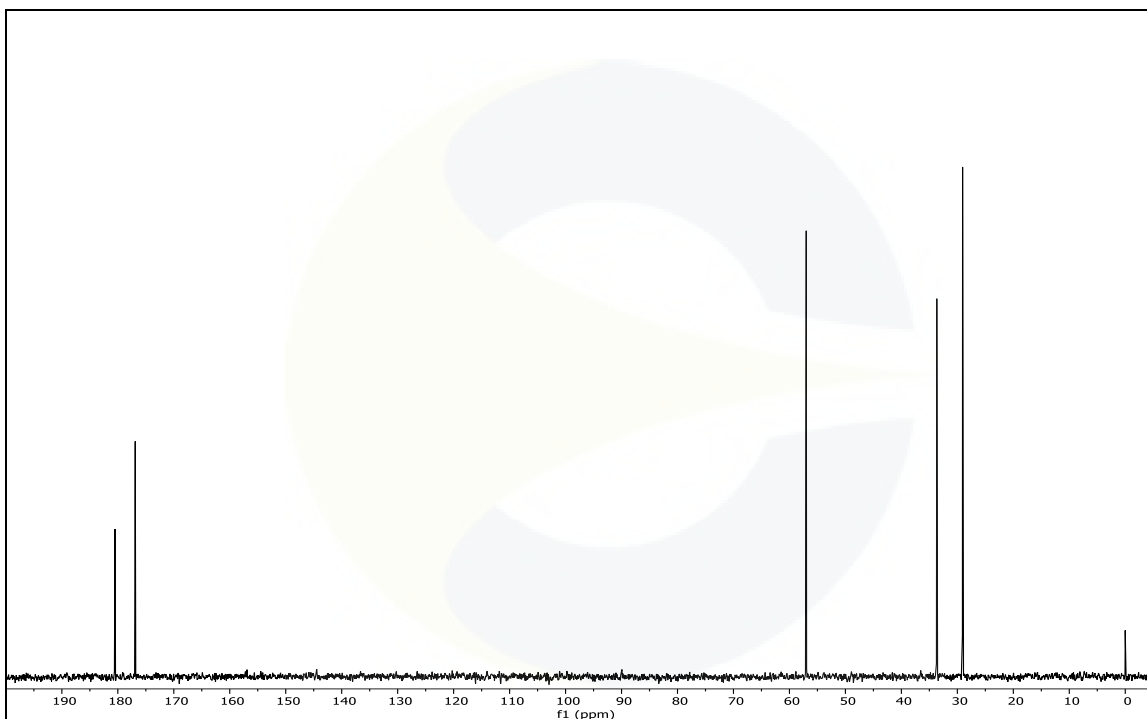


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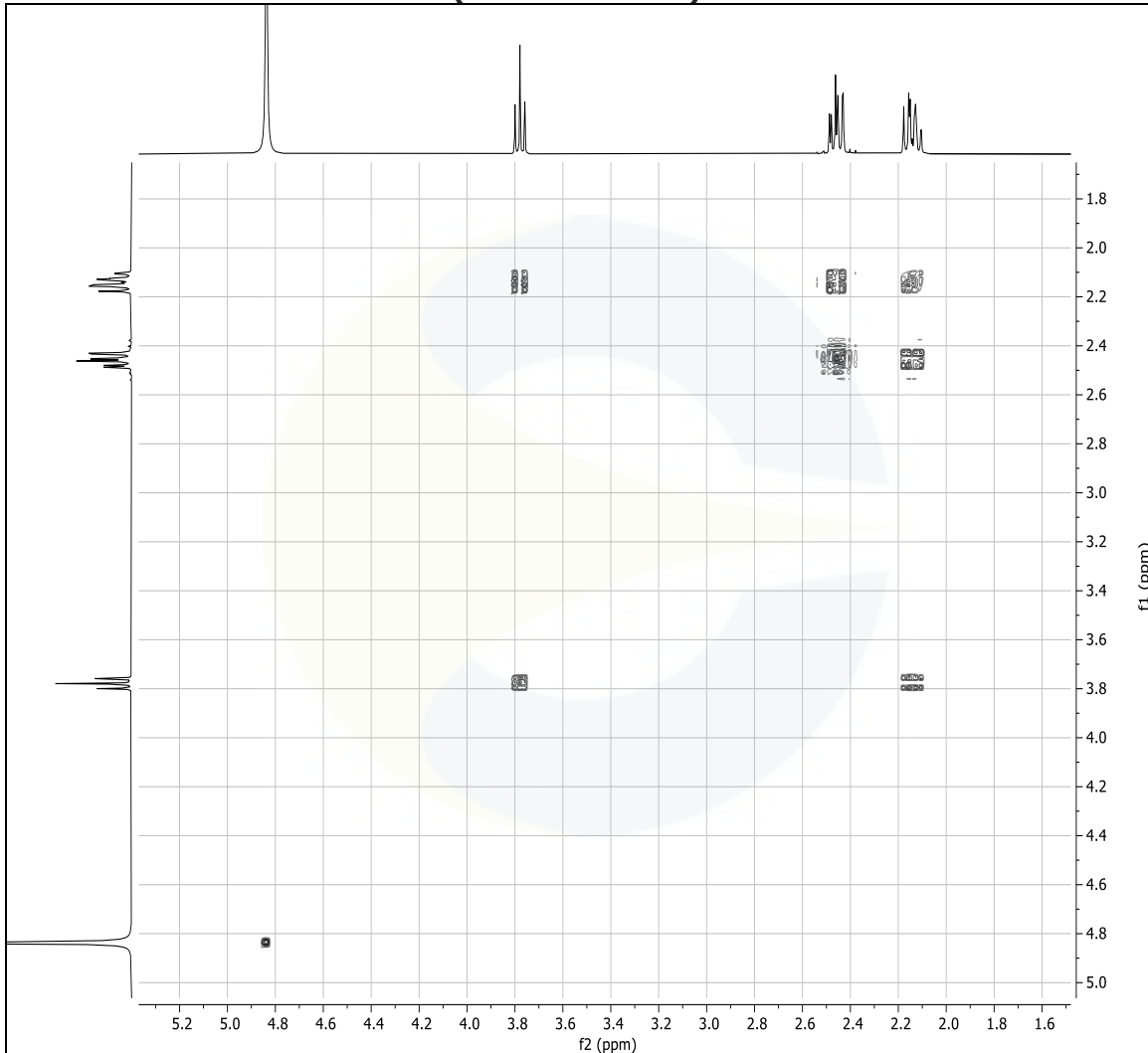
**<sup>13</sup>C-NMR SPECTRUM OF L-GLUTAMINE (CDXA-08-2492) IN D<sub>2</sub>O + TMSP**



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**COSY-NMR SPECTRUM OF L-GLUTAMINE (CDXA-08-2492) IN D<sub>2</sub>O + TMS<sup>+</sup>**

**REVISION HISTORY**

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	04/19/2013	New report and first re-evaluation.
01	05/24/2017	Passed second re-evaluation by HPLC. KF. Updated expiration date, melting point, analytical method, analytical conditions, analytical chromatograms, and results.
02	06/07/2021	Passed third re-evaluation by HPLC, NMR. KF. Updated expiration date, analytical conditions, analytical chromatograms, and results. Removed melting point.

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