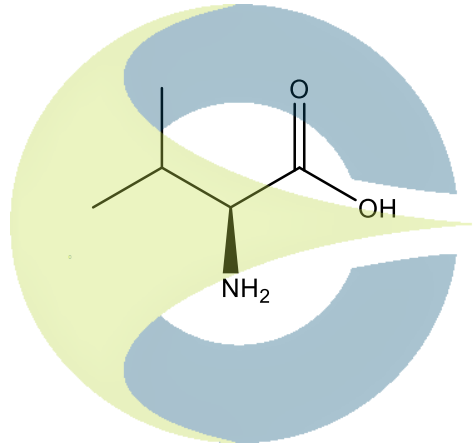


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<b>PRODUCT NAME</b>	L-Valine	<div style="text-align: center;"> <b>Structure</b>   </div>
<b>PART NUMBER</b>	00022102	
<b>STANDARD TYPE</b>	Primary (P)	
<b>LOT NUMBER</b>	00022102-378	
<b>REPORT NUMBER</b>	CDXA-RSS-3156-03	
<b>SAMPLE NUMBER</b>	CDXA-08-2497	
<b>DATE OF SAMPLE</b>	10/20/2008	
<b>DATE OF RE-EVALUATION</b>	10/28/2013 (1 <sup>st</sup> ); 08/15/2018 (2 <sup>nd</sup> ); 07/07/2022 (3 <sup>rd</sup> )	
<b>DATE OF REPORT</b>	08/10/2022	

<b>CHEMICAL NAMES</b>	(S)-2-Amino-3-methylbutanoic acid; 2-Amino-3-methylbutyric acid; L- $\alpha$ -Amino- $\beta$ -methylbutyric acid; Valine
<b>CHEMICAL FORMULA</b>	C <sub>5</sub> H <sub>11</sub> NO <sub>2</sub>
<b>MOLECULAR WEIGHT (MW)</b>	117.15
<b>CHEMICAL FAMILY</b>	Amino acids
<b>CAS NUMBER</b>	[72-18-4]
<b>EC#(EINECS)</b>	200-773-6
<b>RTECS</b>	YV9361000

**ANALYTICAL RESULTS**

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	99.0%
HPLC	0.700.10.2.METH46	≥ 90%	99.0%
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: 99.0% IS BASED ON (100 - 0.0 SOLVENTS - 0.0 WATER) X 99.0% HPLC

**STORAGE CONDITIONS**

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

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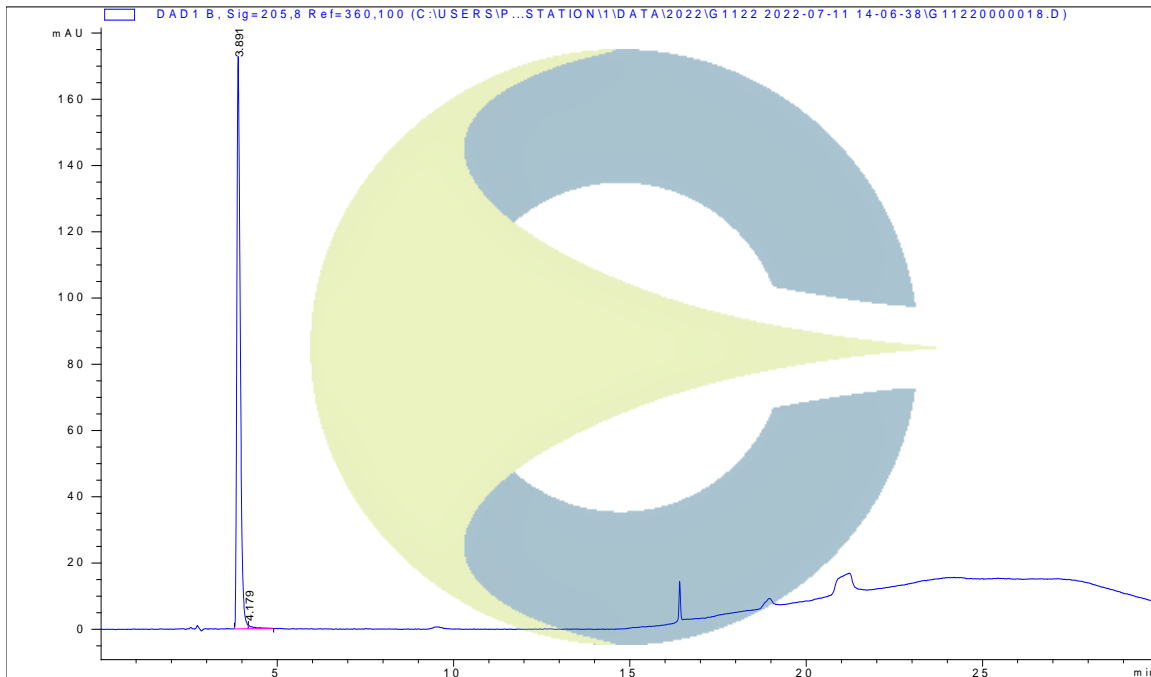
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## ANALYTICAL CONDITIONS

<b>INSTRUMENT</b>	AGILENT 1260 HPLC UV-VIS (DAD); AB-SCIEX 6600 TRIPLE TOF
<b>COLUMN</b>	Phenomenex Synergi Hydro-RP 250 x 4.6mm, 4 µm particle size
<b>MOBILE PHASE</b>	A – 10mM potassium phosphate monobasic, pH 2.89, B - Acetonitrile; Isocratic 0% B for 10 minutes, then increase to 30% B over 10 minutes and hold at 30% B for 4 minutes. Then, decrease to 0% B over 5 minutes.
<b>COLUMN TEMP.</b>	22 °C
<b>FLOW RATE</b>	1.0 mL/minute
<b>INJECTION VOL.</b>	20.0 µL
<b>INJECTION CONC.</b>	1.2 mg/mL in Ultrapure water
<b>DETECTION</b>	205 ± 4 nm

## HPLC CHROMATOGRAM OF L-VALINE (CDXA-08-2497)



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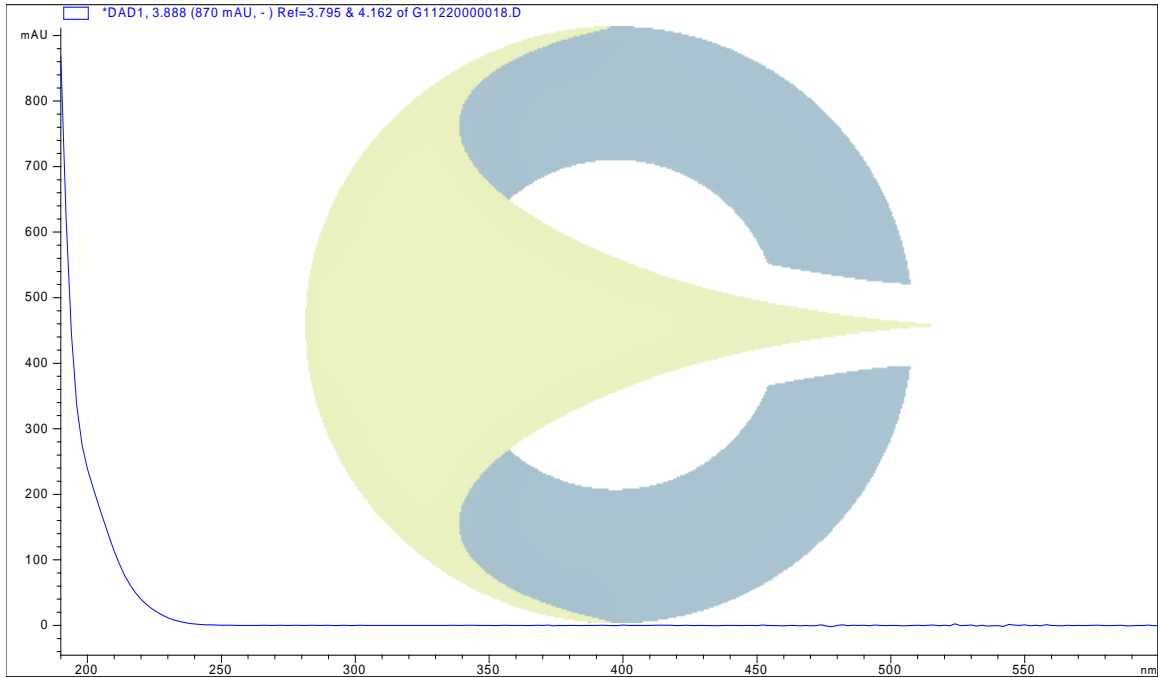
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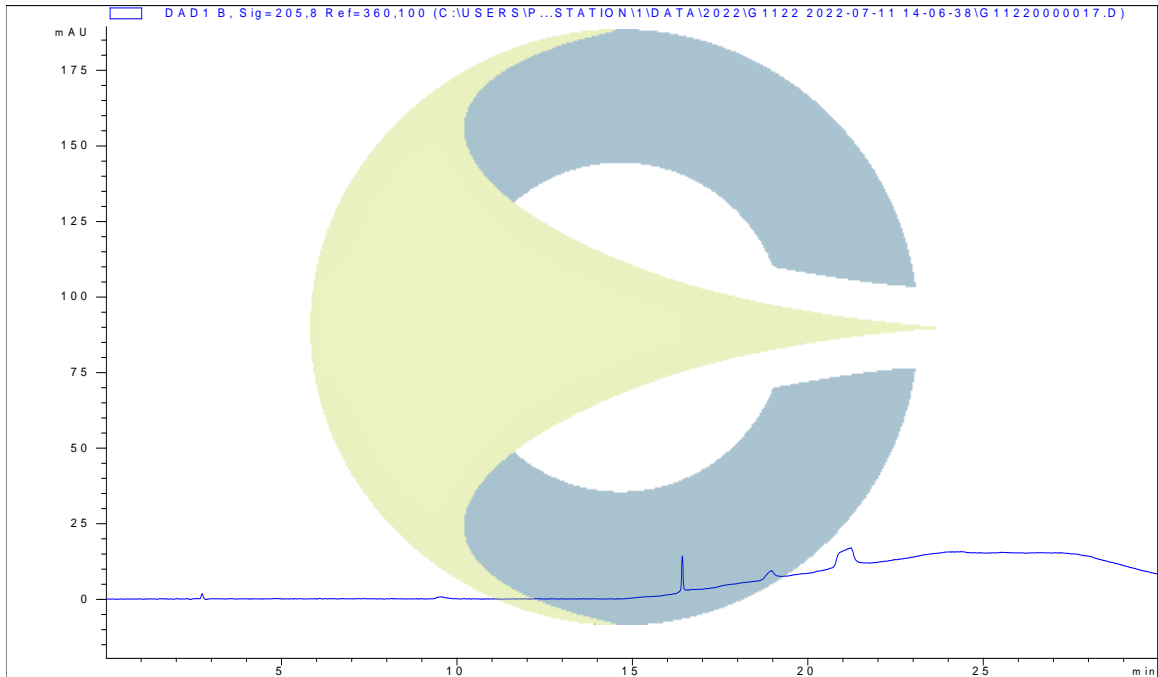
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**UV SPECTRUM AT RT = 3.9 MINUTES**



**HPLC CHROMATOGRAM OF DILUENT BLANK**



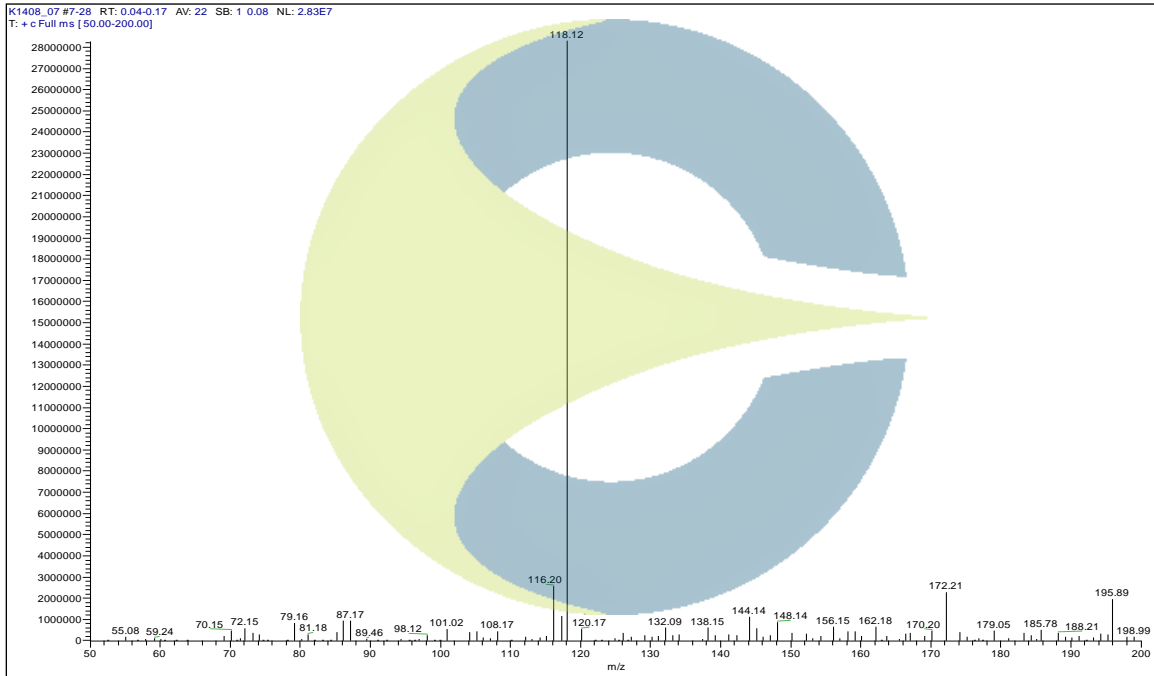
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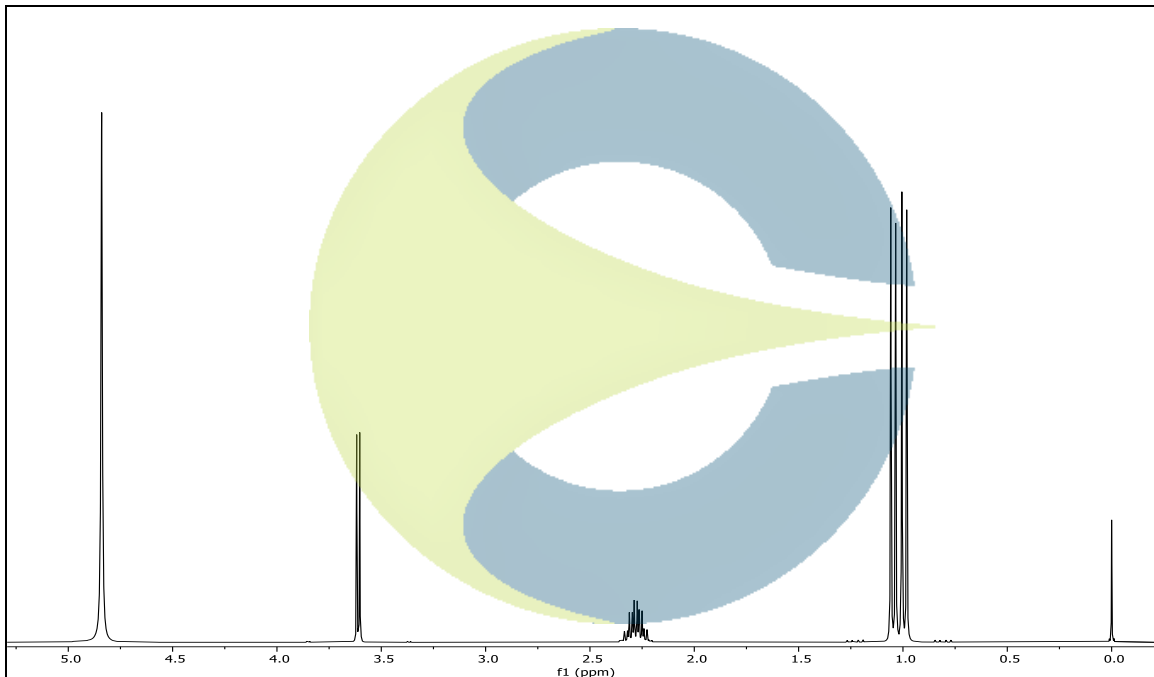
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**SS SPECTRUM OF L-VALINE (CDXA-08-2497)**



**<sup>1</sup>H-NMR SPECTRUM OF L-VALINE (CDXA-08-2497) IN D<sub>2</sub>O + TMSP**



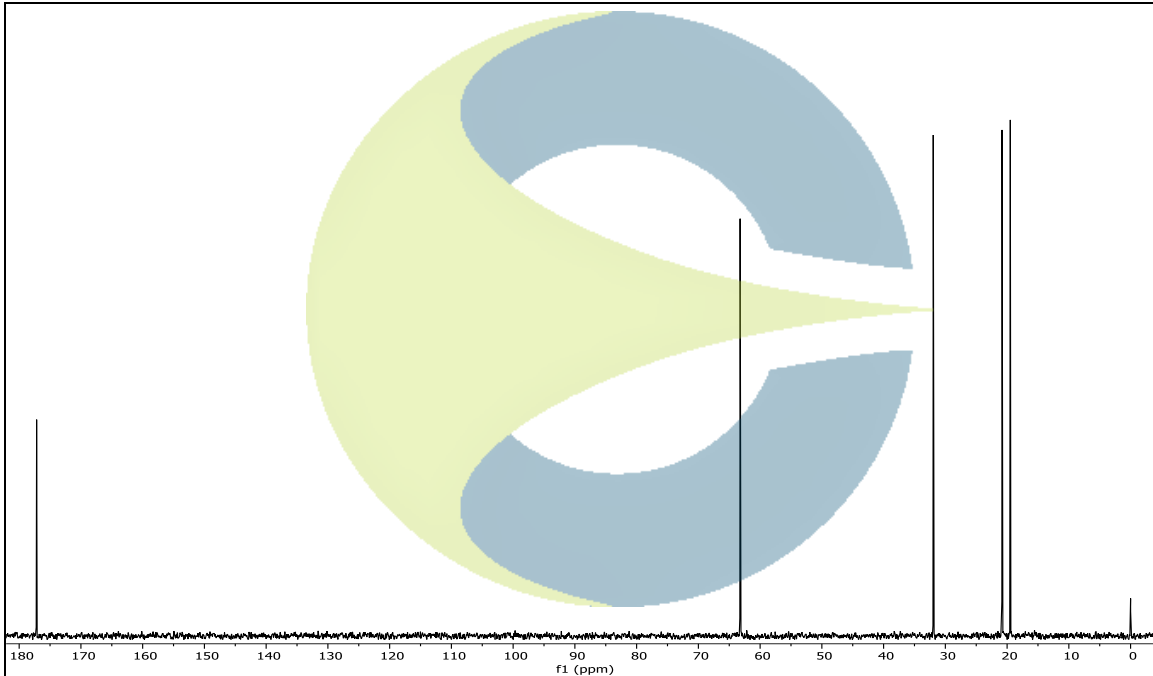
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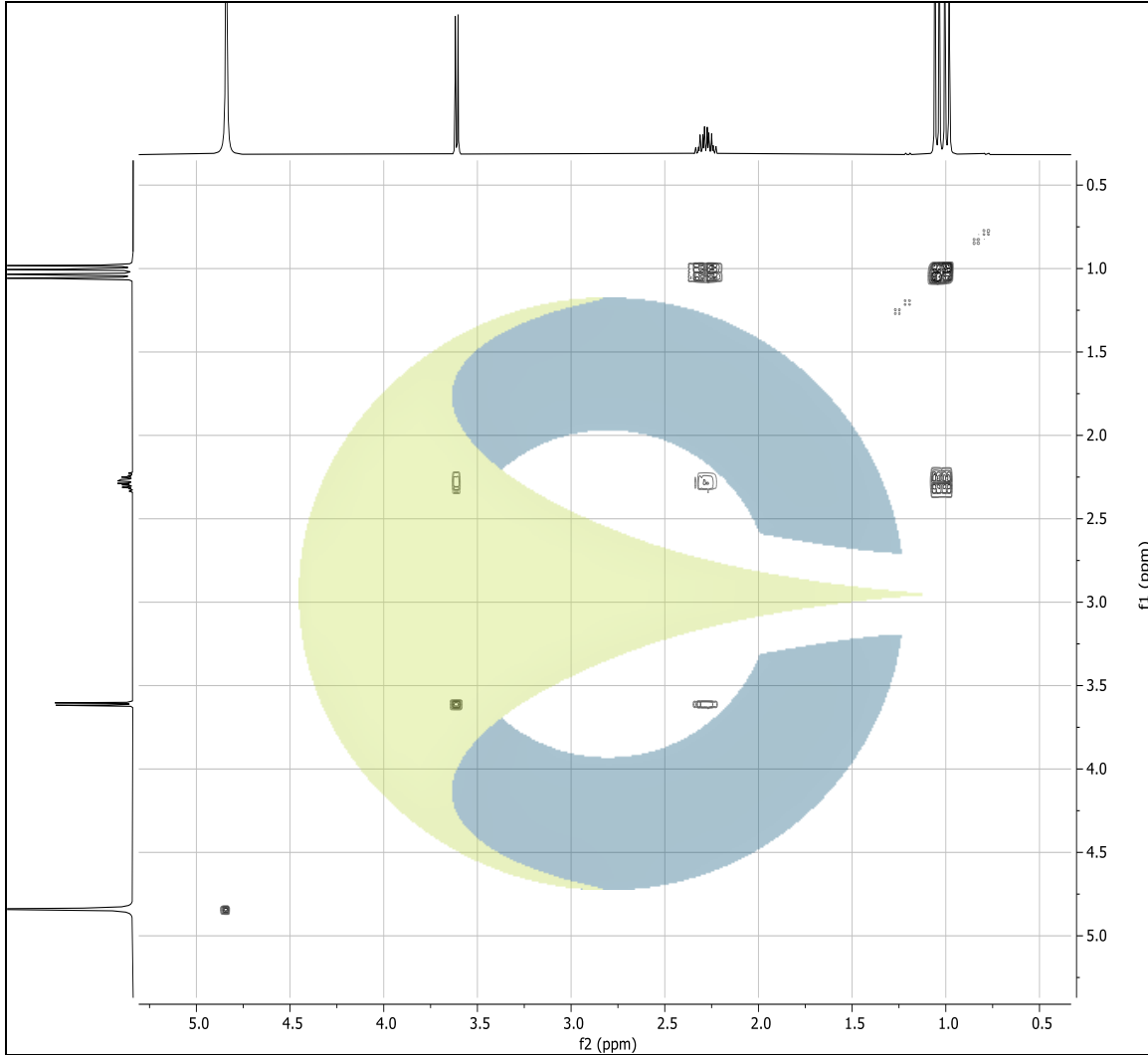
**<sup>13</sup>C-NMR SPECTRUM L-VALINE (CDXA-08-2497) IN D<sub>2</sub>O + TMSP**



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**COSY-NMR SPECTRUM OF L-VALINE (CDXA-08-2497) IN D<sub>2</sub>O + TMSP**

**REVISION HISTORY**

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	8/15/2011	New report
01	11/08/2013	Material passed re-evaluation. Updated expiration date.
02	09/12/2018	Passed second reevaluation by HPLC and KF. Updated analytical results, method, conditions, chromatograms, and expiration date. Removed melting point.
03	08/10/2022	Passed third re-evaluation by HPLC, NMR and KF. Updated expiration date and chromatograms.

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