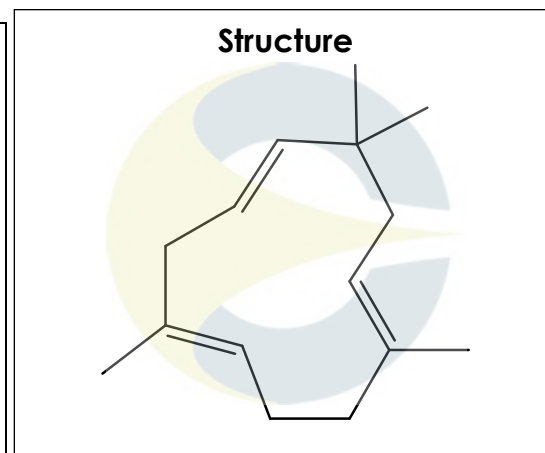


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PRODUCT NAME	alpha-Humulene
PART NUMBER	00008333
STANDARD TYPE	Primary (P)
LOT NUMBER	00008333-01B
REPORT NUMBER	CDXA-RSS-9589-00
SAMPLE NUMBER	CDXP-21-00853
DATE OF SAMPLE	11/19/2021
DATE OF REPORT	12/20/2021



CHEMICAL NAMES	(1E,4E,8E)-2,6,6,9-Tetramethyl-1,4,8-cycloundecatriene; (±)-α-Humulene; α-Caryophyllene
CHEMICAL FORMULA	C ₁₅ H ₂₄
MOLECULAR WEIGHT (MW)	204.35
CHEMICAL FAMILY	Sesquiterpenes
CAS NUMBER	[6753-98-6]
EC#(EINECS)	229-816-7
RTECS	GZ4817500

ANALYTICAL RESULTS

TEST	METHOD	SPECIFICATION	RESULT
Adjusted Purity	NA	≥ 85%	96.7%
GC	0.700.10.2.METH140	≥ 90%	96.8%
NMR	0.700.12.4	Conforms to structure	Conforms to structure
Mass Spectrum	0.700.10.2.METH140	Conforms	Conforms
Residual Solvent*	USP <467>	NA	Acetone: 1110 ppm
Water	0.700.12.37	NA	ND
Appearance	NA	NA	Clear liquid

*Testing performed at an ISO 17025 accredited subcontracted laboratory.

ADJUSTED PURITY: 96.7% IS BASED ON (100 - 0.1 SOLVENTS - 0.0 WATER) X 96.8% GC

STORAGE CONDITIONS

STORAGE	+4 °C in a dry place.
EXPIRATION DATE	11/2026 under the above conditions.



Digitally signed by
Elizabeth Hughes
 Date: 2021.12.20
 14:50:37 -07'00'

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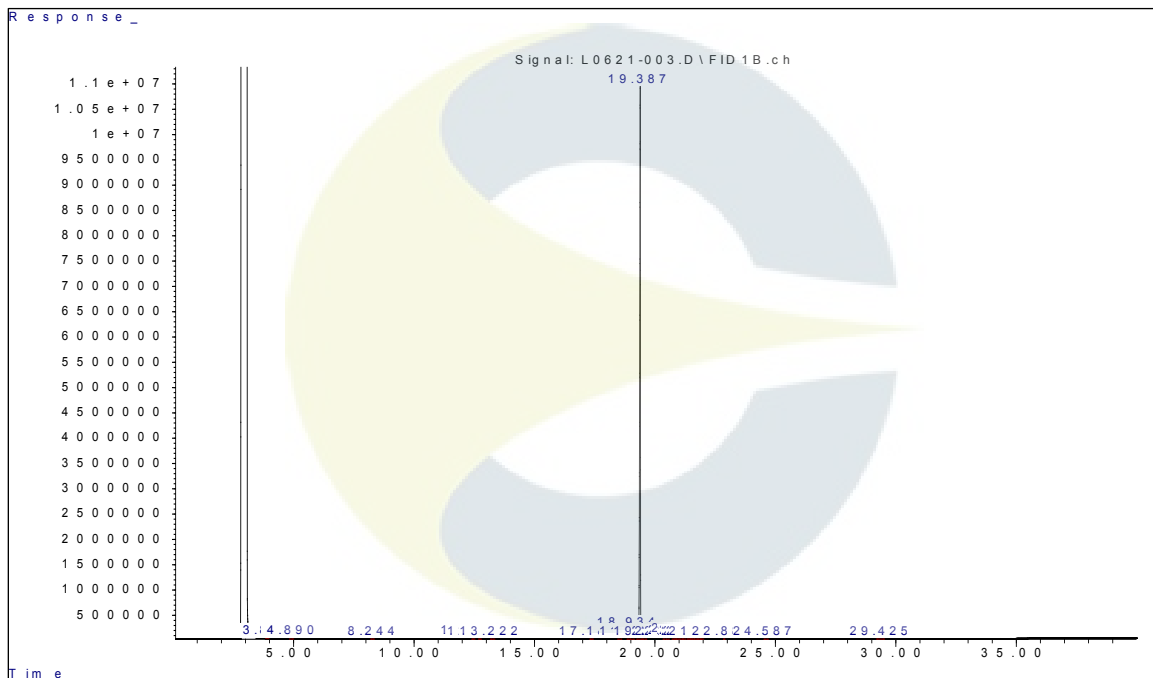
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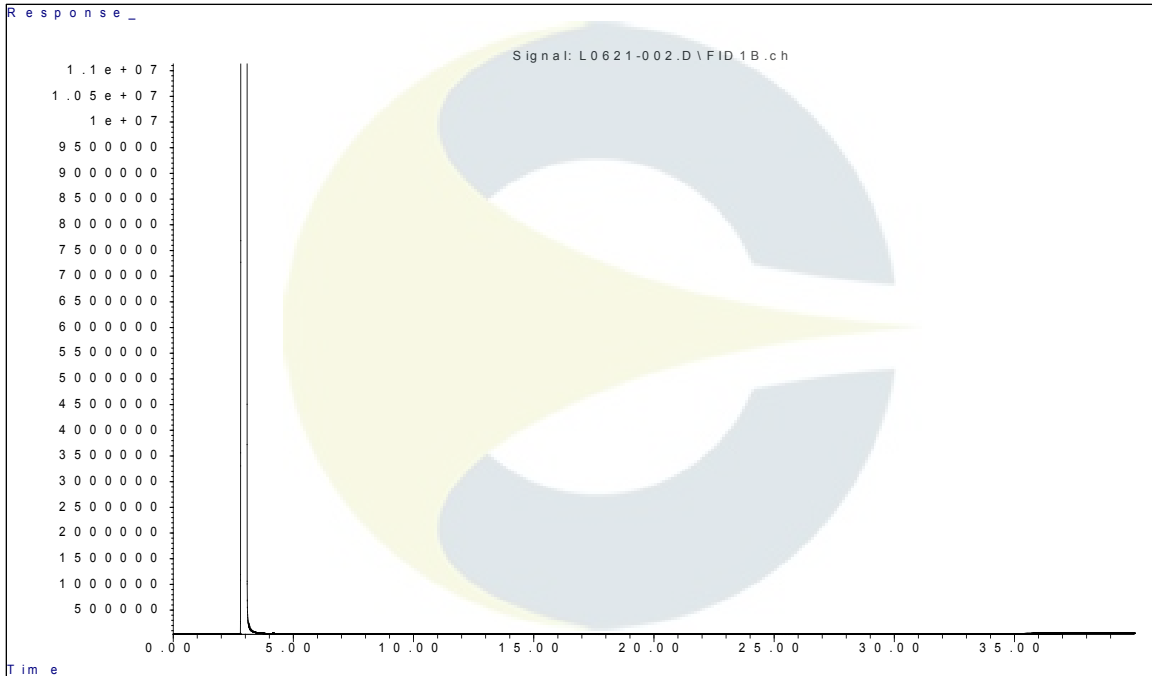
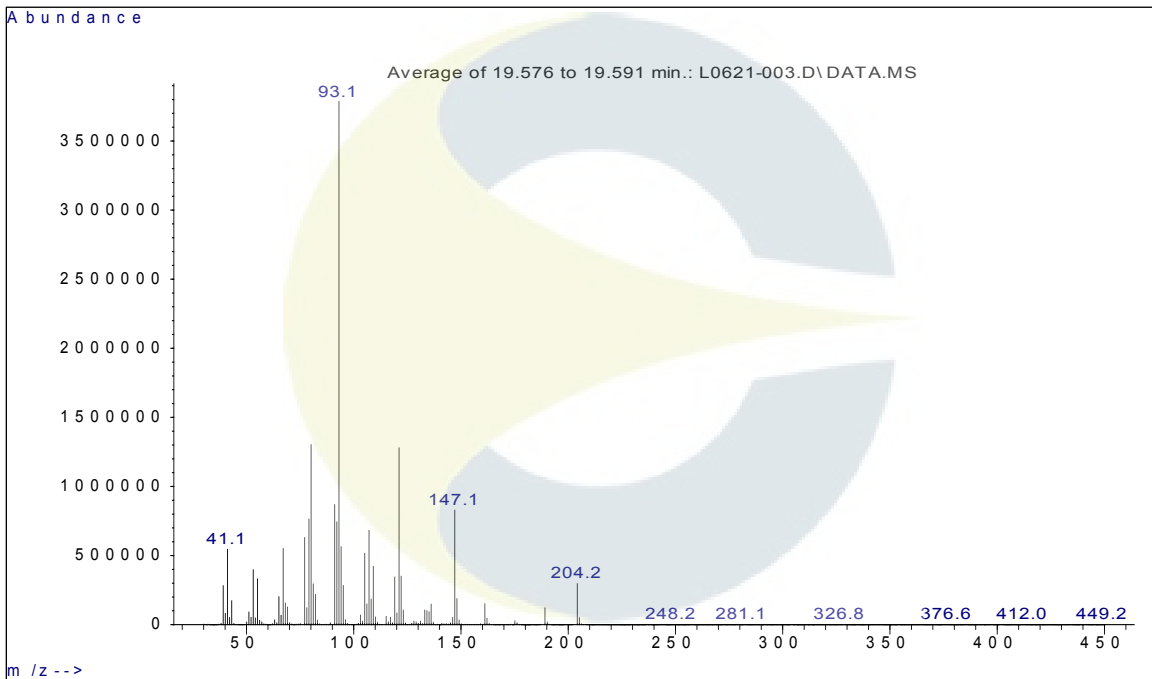
ANALYTICAL CONDITIONS

INSTRUMENT	AGILENT 7890B WITH FLAME IONIZATION DETECTOR (FID) AND AGILENT 5977B MASS SELECTIVE DETECTOR (MSD)
COLUMN	Phenomenex Zebron ZB-5plus, 30 m x 0.32 mm x 0.25 μm
CARRIER GAS	Helium
COLUMN TEMP.	Isothermic 40 °C for 5.0 minutes, then increasing at 10.0 °C/minute to 340 °C. Hold at 340 °C for 5.0 minutes.
FLOW RATE	2.0 mL/minute
INJECTOR TEMP.	300 °C
INJECTOR SPLIT RATIO	20:1
INJECTION VOL.	1.0 μL
INJECTION CONC.	3.3 mg/mL in Methanol
DETECTION	FID (300 °C) & MSD (Transfer line 280 °C, Source 230 °C, Quad 150 °C)

GC CHROMATOGRAM OF ALPHA-HUMULENE (CDXP-21-00853)



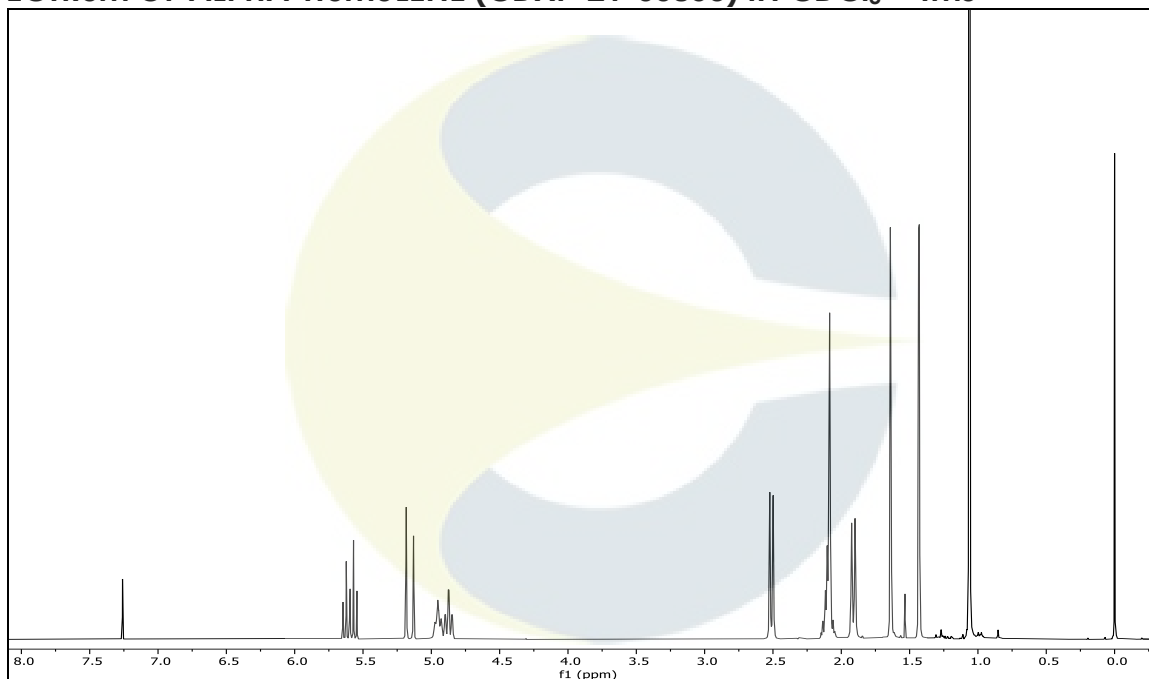
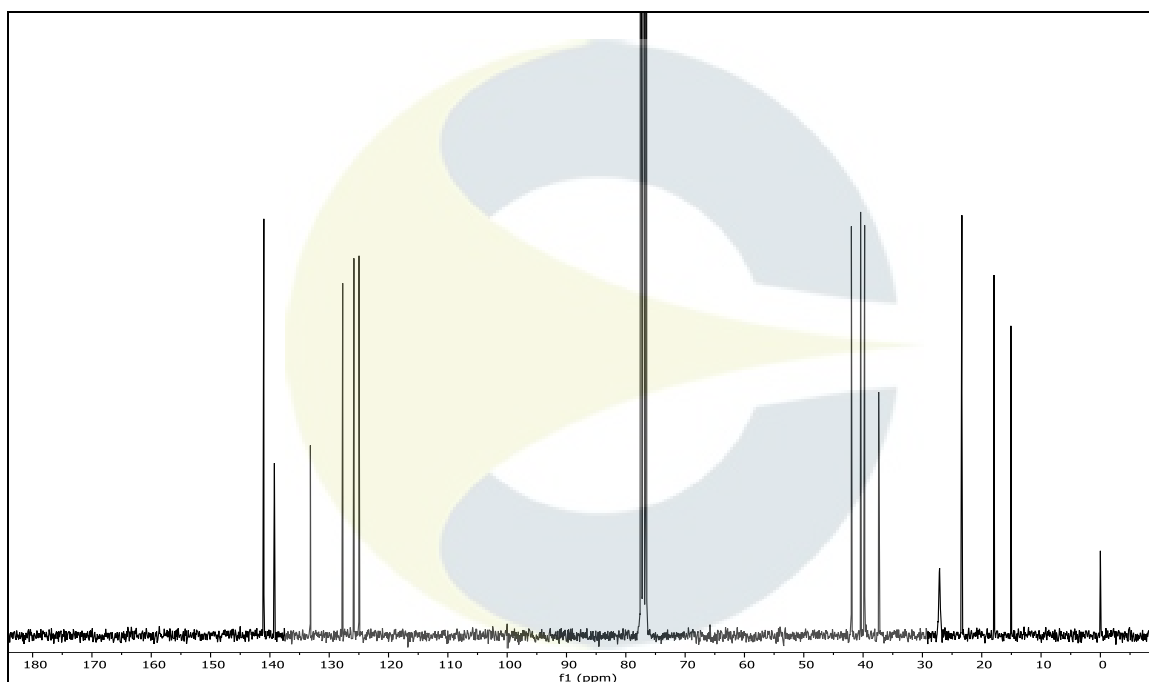
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GC CHROMATOGRAM OF DILUENT BLANK

MASS SPECTRUM OF ALPHA-HUMULENE (CDXP-21-00853)


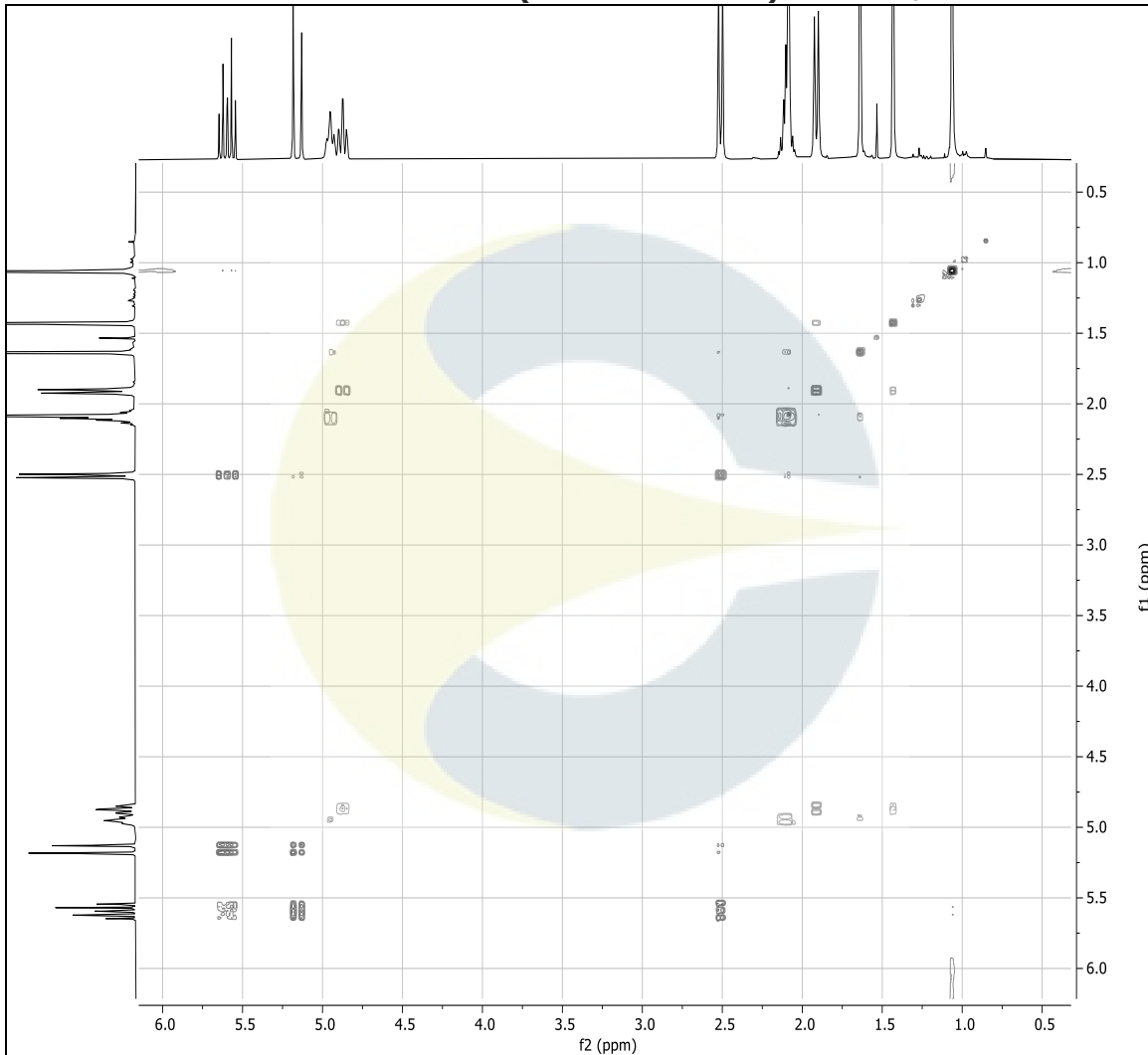
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 Email: customerservice@lifetechindia.com Website: www.lifetechindia.com

¹H-NMR SPECTRUM OF ALPHA-HUMULENE (CDXP-21-00853) IN CDCl₃ + TMS

¹³C-NMR SPECTRUM OF ALPHA-HUMULENE (CDXP-21-00853) IN CDCl₃ + TMS


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COSY-NMR SPECTRUM OF ALPHA-HUMULENE (CDXP-21-00853) IN CDCl₃ + TMS

REVISION HISTORY

<u>Revision History</u>	<u>Date of Revision</u>	<u>Document/Changes</u>
00	12/20/2021	New report

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