



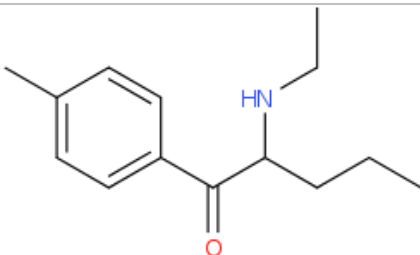
ANALYTICAL REPORT^{1,2}

4-MEAP (C₁₄H₂₁NO)

2-(ethylamino)-1-(4-methylphenyl)pentan-1-one

Remark – other NPS detected: **none**

Sample ID:	1696-16
Sample description:	powder - white
Sample type:	collected /FSC Ivan Vučetić, Croatia
Date of sample receipt (M/D/Y):	9/30/2016
Date of entry (M/D/Y) into NFL database:	10/25/2016
Report updates (if any) will be published here:	http://www.policija.si/apps/nfl_response_web/seznam.php

Substance identified - structure ³ (base form)	
Systematic name	2-(ethylamino)-1-(4-methylphenyl)pentan-1-one
Other names	4-Methyl-N-ethylnorpentedrone; 2-(ethylamino)-4'-methyl- valerophenone; 1-p-Tolyl-2-ethylamino-pentanone-(1)
Formula (per base form)	C ₁₄ H ₂₁ NO
M _w (g/mol)	219,33
Salt form/anions detected	HCl
StdInChIKey	IKIANZXWCBSIGA-UHFFFAOYSA-N
Compound Class	Cathinones
Other NPS detected	none
Add.info (purity..)	pure by HPLC-TOF, GC-MS

¹ This report has been produced with the financial support of the Prevention of and fight against crime Programme of the European Union (grant agreement number JUST/2013/ISEC/DRUGS/AG/6413). The contents of this report are the sole responsibility of the National Forensic Laboratory and can in no way be taken to reflect the views of the European Commission.

² Acknowledgement: Sample was kindly provided by the FSC, Ivan Vučetić, Croatia. Measurements shown in this report were done in NFL.

³ Created by OPSIN free tool: <http://opsin.ch.cam.ac.uk/> DOI: 10.1021/ci100384d

Report updates

date	comments (explanation)

Instrumental methods (if applied) in NFL

1. GC-MS (Agilent): GC-method is RT locked to tetracosane (9.258 min). Injection volume 1 ml and split mode (1:50). Injector temperature: 280 °C. Chromatographic separation: on column HP1-MS (100% dimethylpolysiloxane), length 30 m, internal diameter 0.25 mm, film thickness 0.25 µm. Carrier gas He: flow-rate 1.2 ml/min. GC oven program: 170 °C for 1 min, followed by heating up to 190 °C at rate 8 °C/min, then heating up to 293 °C at a rate of 18 °C/min, hold for 6.1 min, then heating at 50 °C/min up to 325 °C and finally 6.1 min isothermal. MSD source EI = 70 eV. GC-MS transfer line T= 235 °C, source and quadropole temperatures 280 °C and 180 °C, respectively. Scan range m/z scan range: from 50 (30 until 6 min.) to 550 (300 until 6 min) amu.

2. HPLC-TOF (Agilent): 6230B TOF with Agilent 1260 Infinity HPLC with binary pump, column: Zorbax Eclipse XDB-C18, 50 x 4.6 mm, 1.8 micron. Mobile phases (A) 0.1% formic acid and 1mM ammonium formate in water; (B) 0.1% formic acid in methanol (B). Gradient: starting at 5% B, changing to 40% B over 4 min, then to 70% over 2 min and in 5 min to 100%, hold 1 min and back to 5%, equilibration for 1.7 min. The flow rate: 1.0 ml/min; Injection volume 1 µl. MS parameters: 2GHz, Extended Dynamic range mode to a maximum of 1700 amu, acquisition rate 1.30 spectra/sec. Sample ionisation: by Agilent Jet Stream technology (Dual AJS ESI). Ion source: positive ion scan mode with mass scanning from 82 to 1000 amu. Other TOF parameters: drying gas (N₂) and sheath temperature 325 °C; drying gas flow rate 6 l/min; sheath gas flow rate 8 l/min; nebulizer 25 psig; Vcap. 4000 V; nozzle 2000 V; skimmer 65 V; fragmentor 175 V and Octopole RF 750 V.

3. FTIR-ATR (Perkin Elmer): scan range 4000-400 cm⁻¹; resolution 4cm⁻¹

4. GC- (MS)-IR condensed phase (GC-MS (Agilent) & IR (Spectra analyses-Danny)

GC-method: Injection volume 1 ml and split mode (1:5). Injector temperature 280 °C. Chromatographic separation as above (1). Split MS : IR = 1: 9.

MSD source EI = 70 eV. GC-MS transfer line T= 235 °C, source and quadropole temperatures 280 °C and 180 °C, respectively. Scan range m/z scan range: from 50 (30 until 6 min.) to 550 (300) amu.

IR (condensed (solid) phase): IR scan range 4000 to 650, resolution 4 cm⁻¹.

5. IC (anions) (Thermo Scientific, Dionex ICS 2100), Column: IonPac AS19, 2 x 250mm; Eluent: 10mM from 0 to 10 min, 10-58 mM from 10 to 40min; Flow rate: 0.25 ml/min; Temperature: 30°C; Suppressor: AERS 500 2mm, suppressor current 13mA; Inj. Volume: 25 µl

Supporting information

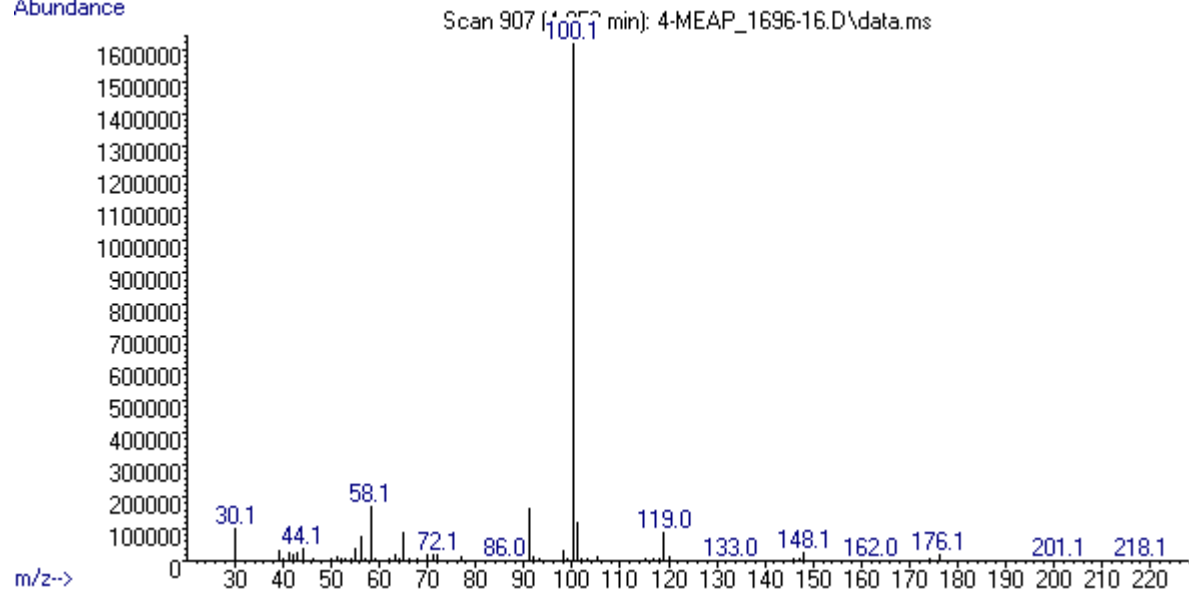
Solubility in	result/remark
CH ₂ Cl ₂	soluble
MeOH	soluble
H ₂ O	soluble

Analytical technique:	applied	remarks
GC-MS (EI ionization)	+	NFL GC-RT (min): 4,85 BP(1): 100; BP(2): 58,BP(3) :91,
HPLC-TOF	+	Exact mass (theoretical): 219,1623; measured value Δppm:-1,52; formula:C14H21NO
FTIR-ATR	+	direct measurement (sample as received)
FTIR (condensed phase) always as base form	+	
IC (anions)	+	
NMR (in FKKT)	-	
validation		
other		

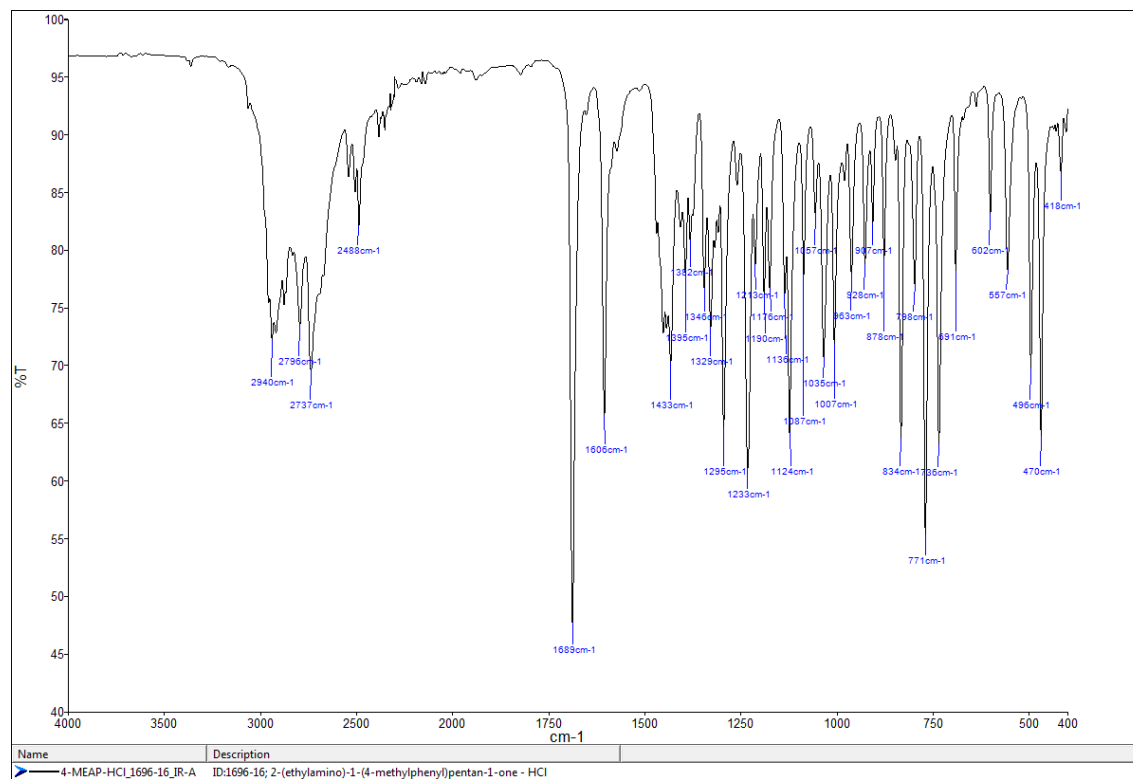
ANALYTICAL RESULTS

MS (EI)

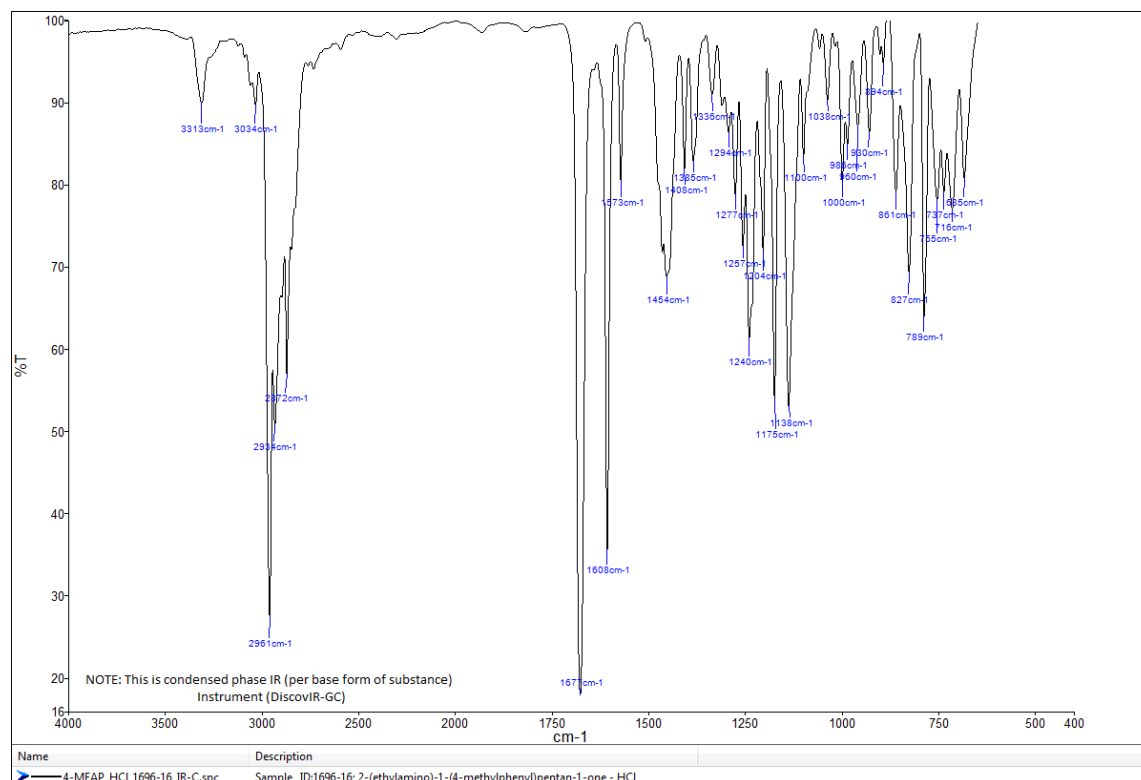
Abundance



FTIR-ATR - direct measurement (sample as received)



IR (condensed phase – after chromatographic separation)



TOF REPORT

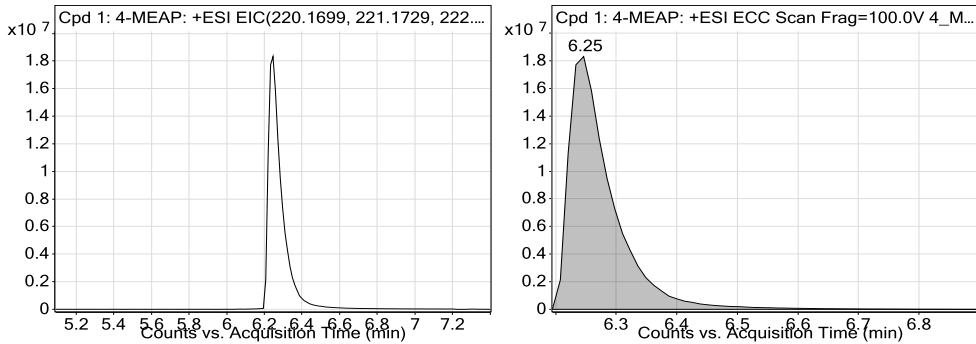
Data File	4_MEAP_1696-16.d	Sample Name	ID_1696-16
Sample Type	Sample	Position	P1-E3
Instrument Name	6230B TOF LC-MS	User Name	TG
Acq Method	general-10_10_2016-XDB-C18-ESI-poz-soft.m	Acquired Time	10/24/2016 3:17:33 PM
IRM Calibration Status	Success	DA Method	Drugs_NFL.m
Comment	extract in MeOH		

Compound Table

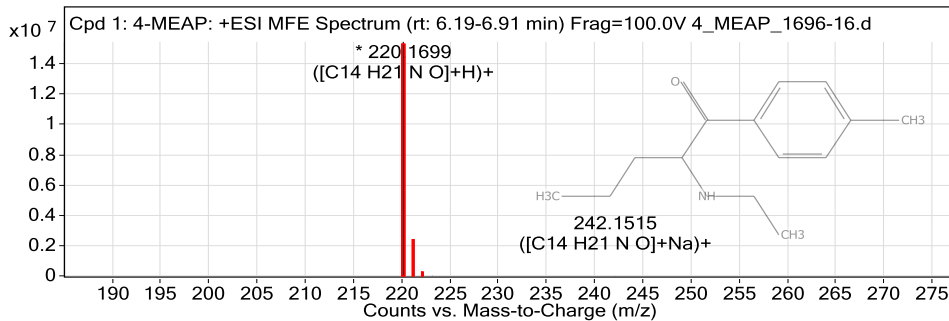
Label	Compound Name	MFG Formula	Obs. RT	Obs. Mass
Cpd 1: 4-MEAP	4-MEAP	C14 H21 N O	6.25	219.1626

Name	Obs. m/z	Obs. RT	Obs. Mass	DB RT	DB Formula	DB Mass	DB Mass Error (ppm)
4-MEAP	220.1699	6.25	219.1626	6.25	C14 H21 N O	219.1623	-1.52

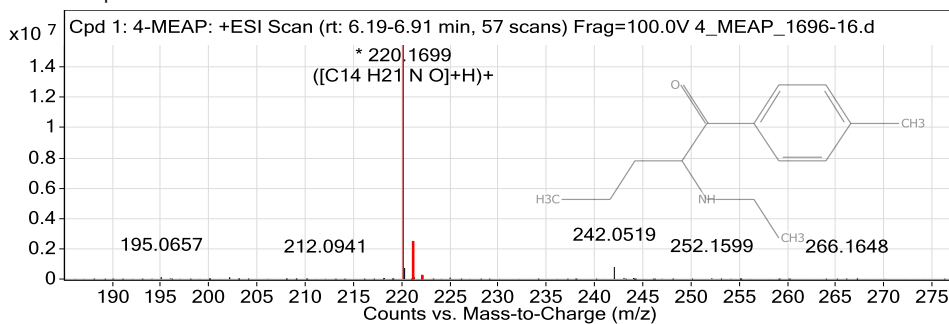
Compound Chromatograms



MFE MS Zoomed Spectrum



MS Zoomed Spectrum



MS Spectrum Peak List

Obs. m/z	Charge	Abund	Formula	Ion/Isotope
220.1699	1	15443965	C14 H21 N O	(M+H)+
221.1733	1	2303773.47	C14 H21 N O	(M+H)+
222.1764	1	182554.98	C14 H21 N O	(M+H)+
223.1788	1	11928.23	C14 H21 N O	(M+H)+
242.1515	1	4331.52	C14 H21 N O	(M+Na)+

--- End Of Report ---

Peak Integration Report

Sample Name:	ID-1696-16	Inj. Vol.:	25,00
Injection Type:	Unknown	Dilution Factor:	1,0000
Program:	ANIONI	Operator:	kemija
Inj. Date / Time:	24-okt-2016 / 15:31	Run Time:	42,00

No.	Time min	Peak Name	Peak Type	Area $\mu\text{S}\cdot\text{min}$	Height μS	Amount mg/L
1,00	10,19	Chloride	BMB	36,49	124,19	n.a.
TOTAL:				36,49	124,19	0,00

