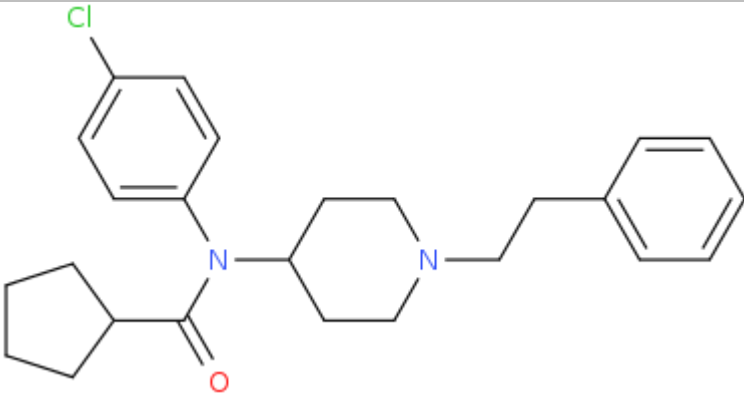




ANALYTICAL REPORT

4Cl-Cyclopentyl-F (C₂₅H₃₁ClN₂O)**N-(4-chlorophenyl)-N-[1-(2-phenylethyl)piperidin-4-yl]cyclopentanecarboxamide**Remark – other active cpd. detected: **none**

Sample ID:	1897-17
Sample description:	powder - white
Sample type:	RM-reference material
Comments:	CAY Lot#0515414-1,
Date of entry (DD/MM/YYYY):	07/12/2017

Substance identified-structure ¹ (base form)	
Systematic name:	N-(4-chlorophenyl)-N-[1-(2-phenylethyl)piperidin-4-yl]cyclopentanecarboxamide
Other names:	4-chloro Cyclopentanoyl fentanyl; para-chloro Cyclopentanoyl; p-chloro Cyclopentanoyl fentanyl; 4-chloro Cyclopentyl fentanyl; p-chloro Cyclopentyl fentanyl; 4Cl-CP-F; N-(4-chlorophenyl)-N-(1-phenethylpiperidin-4-yl)cyclopentanecarboxamide
Formula (per base form)	C ₂₅ H ₃₁ ClN ₂ O
M _w (g/mol)	410,99
Salt form:	HCl
StdInChIKey (per base form)	SJMSXMAHJSSXOR-UHFFFAOYSA-N
Other active cpd. detected	none
Add.info (purity..)	98,7 %

¹ Created by OPSIN free tool: <http://opsin.ch.cam.ac.uk/> DOI: 10.1021/ci100384d

Report updates

date	comments (explanation)

Supporting information

Analytical technique:	applied	remarks
GC-MS (EI ionization)		NFL GC-RT (min): 15,64 BP(1): 69; BP(2): 319,BP(3) :105,
FTIR-ATR		direct measurement
GC-IR (condensed phase)		always as base form
HPLC-TOF		exact monoisotopic mass: 410,2125 Δ ppm (difference from calculated): -0,38

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 μ m. 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 7.1 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. FTIR-ATR (Perkin Elmer): scan range 4000-400 cm^{-1} ; resolution 4 cm^{-1}

3. 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.

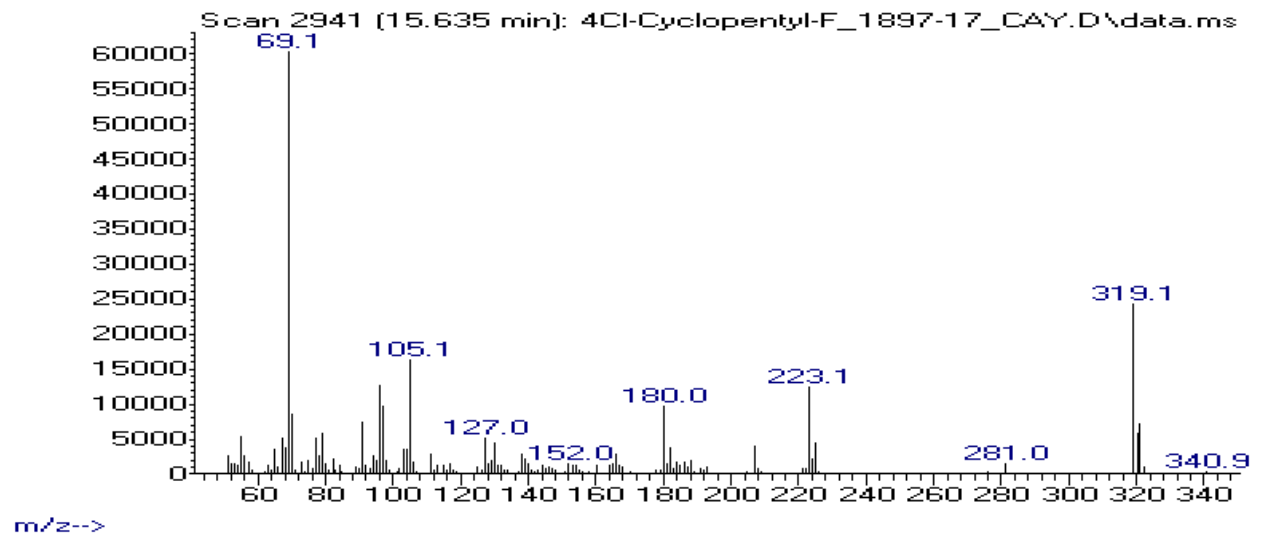
IR (condensed (solid) phase): IR scan range 4000 to 650, resolution 4 cm^{-1} .

4. HPLC-TOF for exact monoisotopic mass and empirical formula control

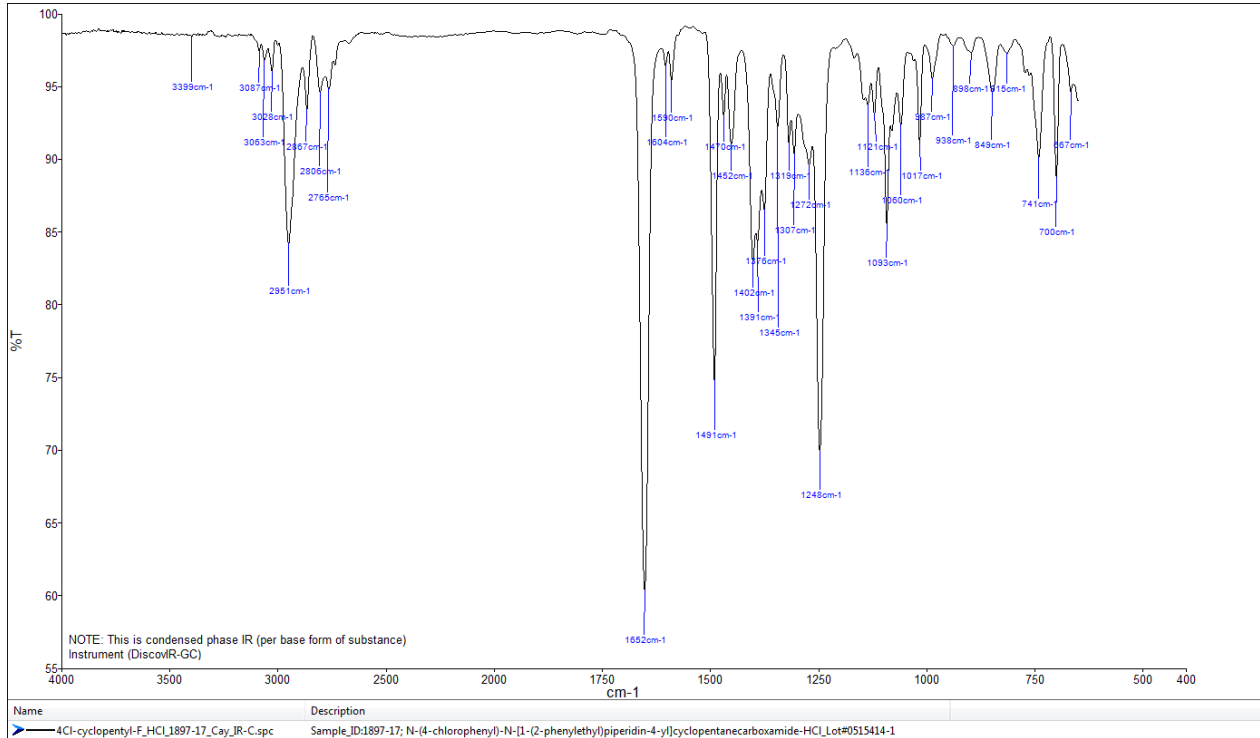
ANALYTICAL RESULTS

MS (EI)

Abundance



FTIR-ATR - sample as received



IR (condensed phase – after chromatographic separation)

