

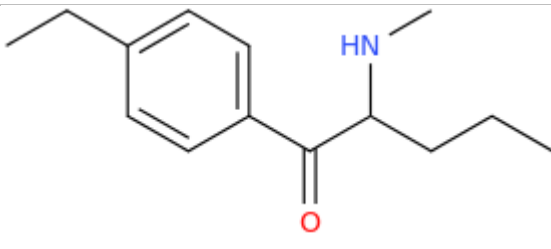
## ANALYTICAL REPORT

4-ethyl Pentedrone (C<sub>14</sub>H<sub>21</sub>NO)

## 1-(4-ethylphenyl)-2-(methylamino)pentan-1-one

Remark – other active cpd. detected **none**

|                             |                       |
|-----------------------------|-----------------------|
| Sample ID:                  | 1970-18               |
| Sample description:         | powder - white        |
| Sample type:                | RM-reference material |
| Comments:                   | CAY Lot#0533926-2,    |
| Date of entry (DD/MM/YYYY): | 03/10/2018            |

|   |  |
|---|--|
| Substance identified-structure <sup>1</sup> (base form) |    |
| Systematic name:  | 1-(4-ethylphenyl)-2-(methylamino)pentan-1-one  |
| Other names:  | para-ethyl Pentedrone; 4-EPD; p-EPD; 4-ethyl- $\alpha$ -methylamino-Valerophenone; para-ethyl- $\alpha$ -methylamino-Valerophenone; p-ethyl- $\alpha$ -methylamino-Valerophenone |
| Formula (per base form)                                 | C <sub>14</sub> H <sub>21</sub> NO   |
| M <sub>w</sub> (g/mol)                                  | 219,33   |
| Salt form:  | HCl  |
| StdInChIKey (per base form)                             | TZVVTYDGFNOBQ-UHFFFAOYSA-N   |
| Other active cpd. detected                              | none   |
| Add.info (purity..)                                     | ≥98%   |

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

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## Report updates

| date | comments (explanation) |
|------|------------------------|
|      |                        |
|      |                        |
|      |                        |
|      |                        |

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## Supporting information

| Analytical technique:   | applied | remarks   |
|-------------------------|---------|---|
| GC-MS (EI ionization)   | +       | NFL GC-RT (min): 5,14 BP(1): 86; BP(2): 44,BP(3) :87,           |
| FTIR-ATR                | +       | direct measurement  |
| GC-IR (condensed phase) | +       | always as base form   |
| HPLC-TOF                | +       | exact mass theoretical: 219,1623 / measured $\Delta$ ppm: -1,31 |

**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  $\mu$ 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  $\text{cm}^{-1}$ ; resolution 4 $\text{cm}^{-1}$

**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.

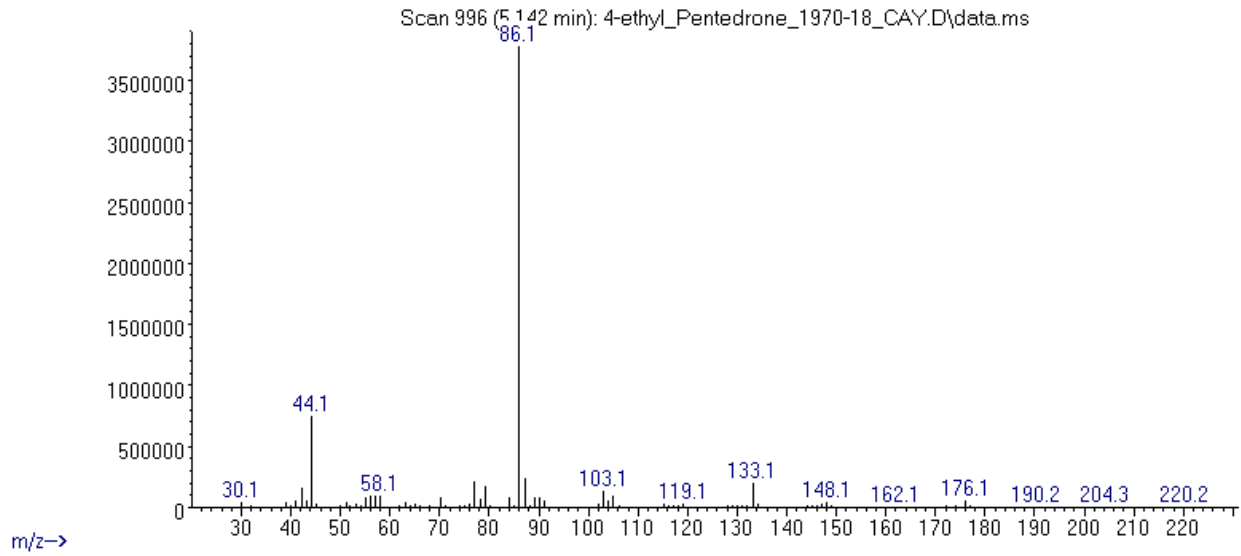
IR (condensed (solid) phase): IR scan range 4000 to 650, resolution 4  $\text{cm}^{-1}$ .

**4. 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  $\mu$ l. 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 (N<sub>2</sub>) 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.

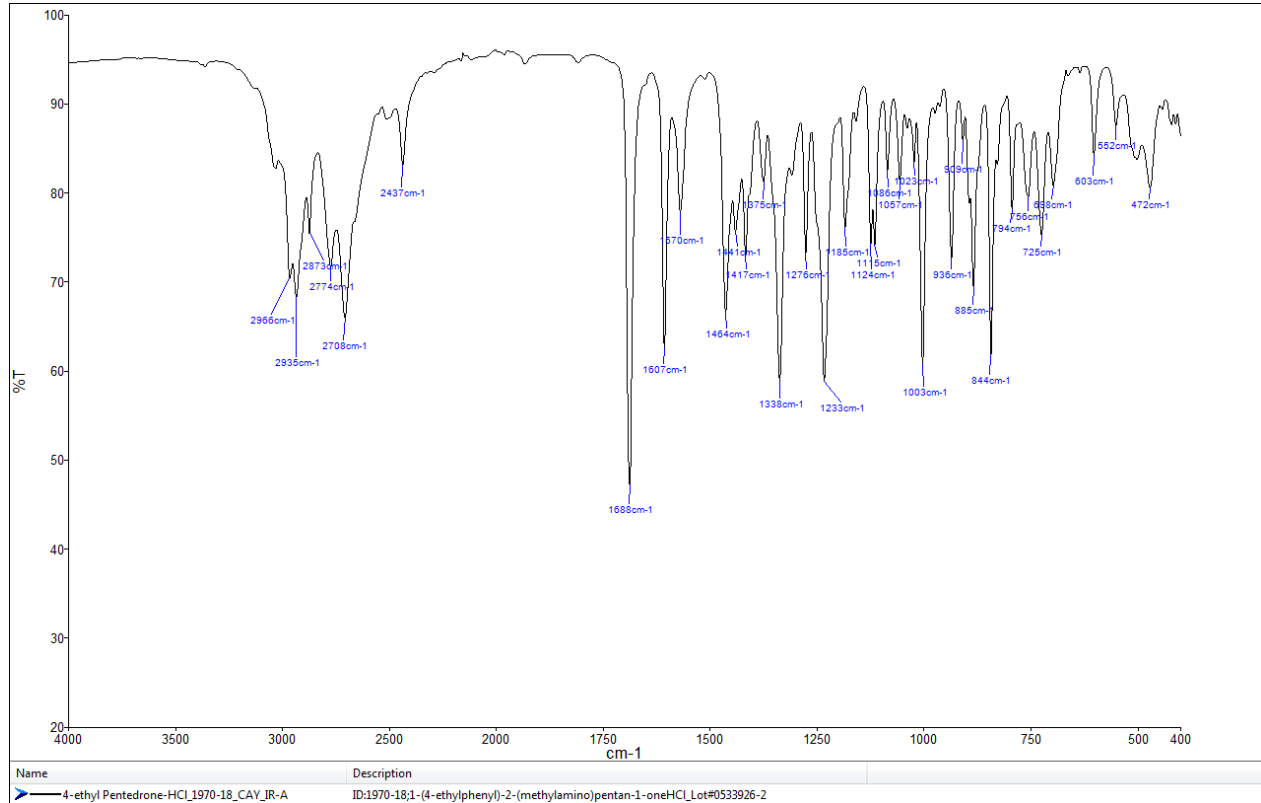
# ANALYTICAL RESULTS

MS (EI)

Abundance



# FTIR-ATR



# IR- (condensed (solid) phase – after chromatographic separation) - spectrum per base form

