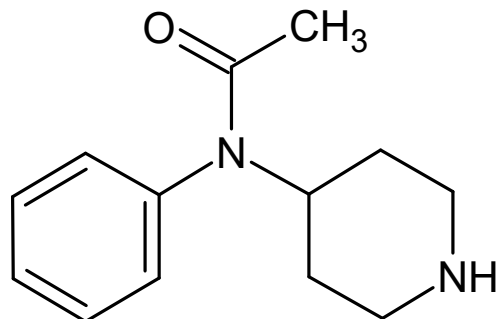




## Acetyl norfentanyl

The Drug Enforcement Administration's Special Testing and Research Laboratory generated this monograph using structurally confirmed reference material.



### 1. GENERAL INFORMATION

**IUPAC Name:** N-phenyl-N-(piperidin-4-yl)acetamide

**CAS#:** 22352-82-5 (HCl)

**Synonyms:** acetylnorfentanyl

**Source:** DEA Reference Material Collection

**Appearance:** white powder

**UV<sub>max</sub>(nm):** Not determined

### 2. CHEMICAL AND PHYSICAL DATA

#### 2.1 CHEMICAL DATA

| Form | Chemical Formula                                     | Molecular Weight | Melting Point (°C) |
|------|--|------------------|--------------------|
| Base | C <sub>13</sub> H <sub>18</sub> N <sub>2</sub> O     | 218.29           | Not Determined     |
| HCl  | C <sub>13</sub> H <sub>18</sub> N <sub>2</sub> O HCl | 254.75           | Not Determined     |



# Acetyl norfentanyl

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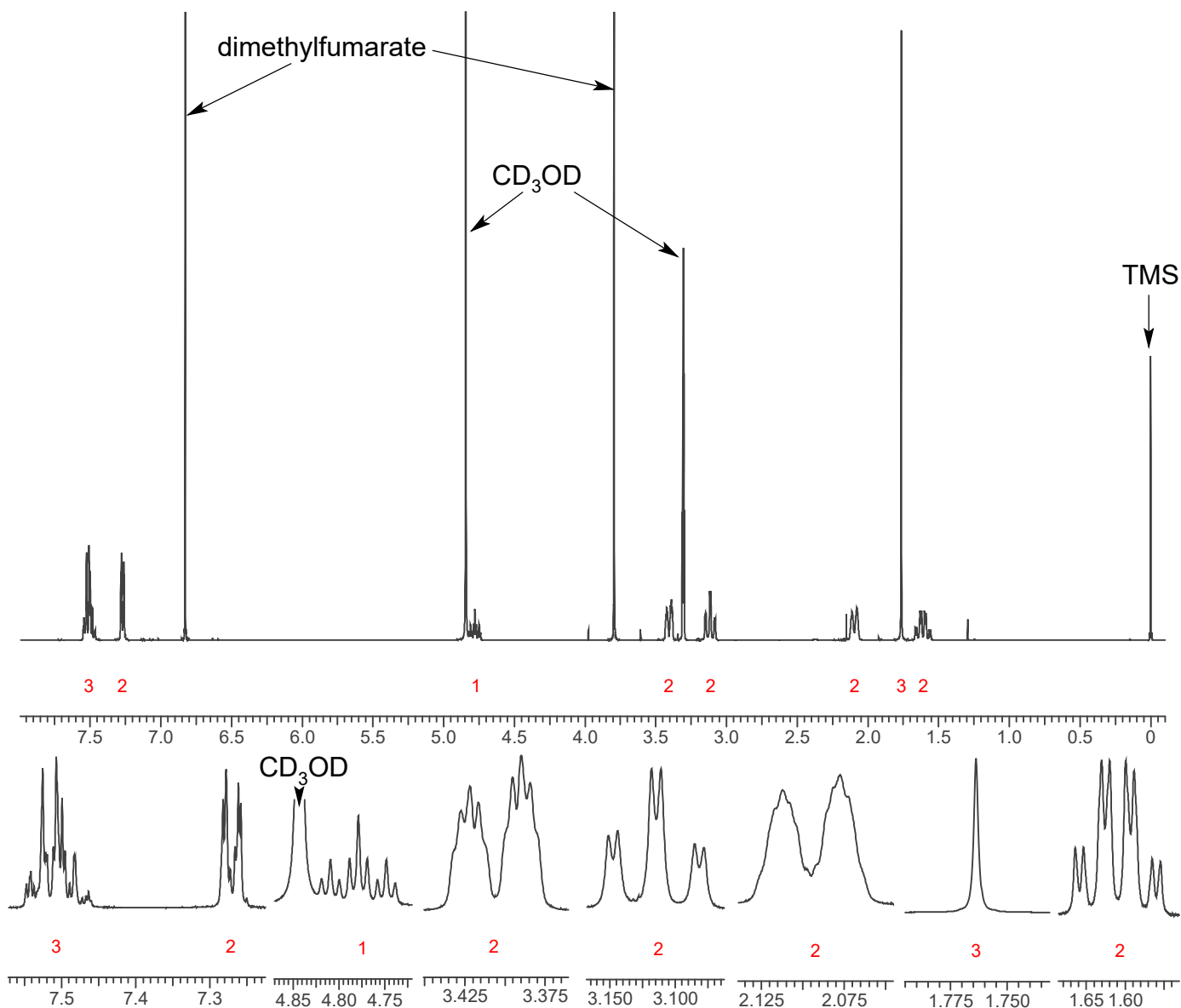
## 3. QUALITATIVE DATA

### 3.1 NUCLEAR MAGNETIC RESONANCE

*Sample Preparation:* Dilute analyte to ~5 mg/mL in methanol- $d_4$  containing TMS for 0 ppm reference and dimethylfumarate as quantitative internal standard.

**Instrument:** 400 MHz NMR spectrometer  
**Parameters:** Spectral width: at least containing -3 ppm through 13 ppm  
Pulse angle: 90°  
Delay between pulses: 45 seconds

$^1\text{H}$ NMR: Acetyl norfentanyl HCl; LOT # 0450748-6; methanol- $d_4$ ; 400MHz





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## 3.2 GAS CHROMATOGRAPHY/MASS SPECTROMETRY

**Sample Preparation:** Dilute analyte ~4 mg/mL in CHCl<sub>3</sub> (base extracted)

**Instrument:** Agilent gas chromatograph operated in split mode with MS detector

**Column:** HP-5 MS (or equivalent); 30m x 0.25 mm x 0.25 μm

**Carrier Gas:** Helium at 1.5 mL/min

**Temperatures:** Injector: 280°C                      MSD transfer line: 280°C

MS Source: 230°C                      MS Quad: 150°C

Oven program:

1) 100°C initial temperature for 1.0 min

2) Ramp to 280°C at 12 °C/min

3) Hold final temperature for 9.0 min

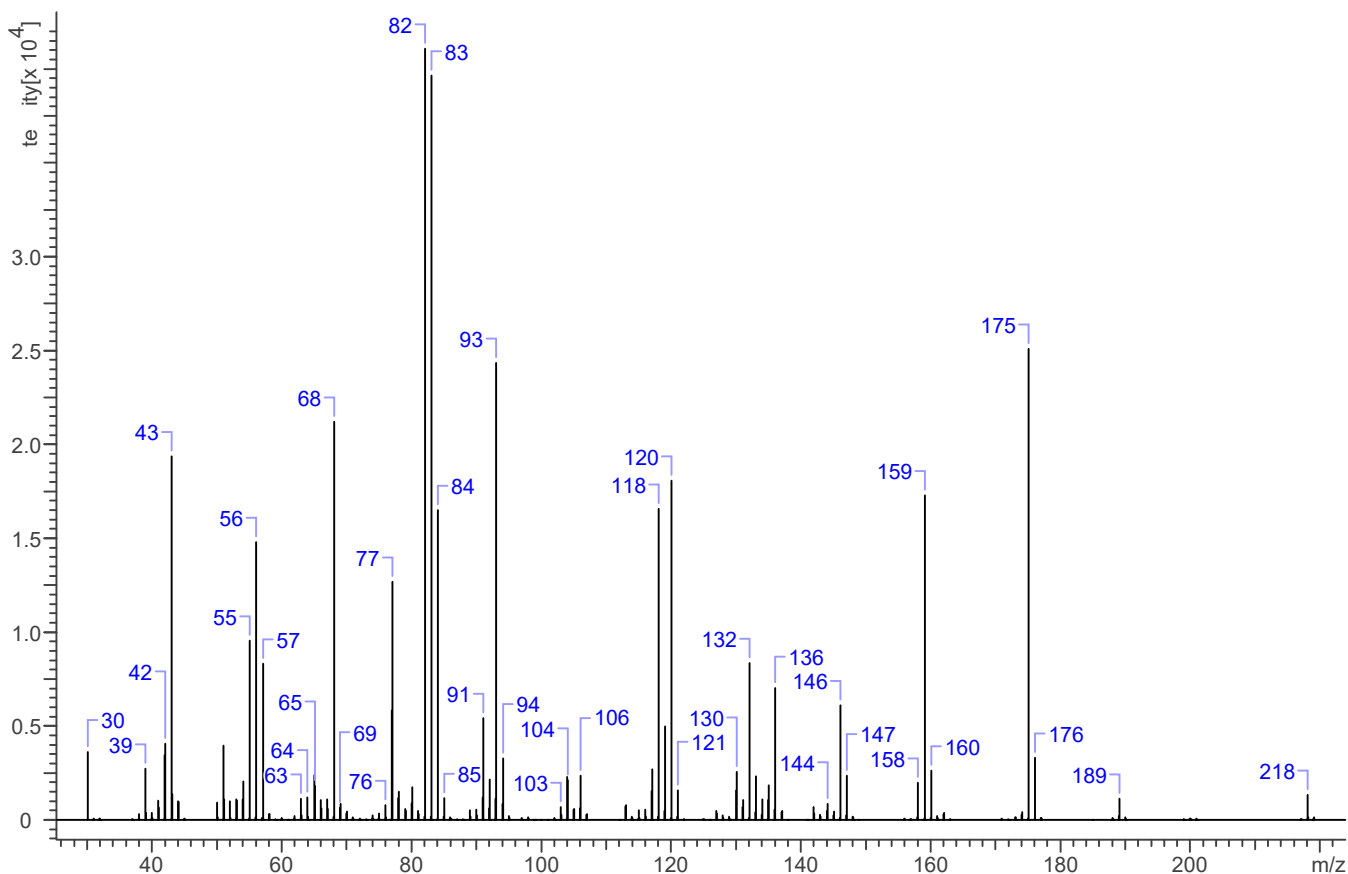
**Injection Parameters:** Split Ratio = 25:1, 1 μL injected

**MS Parameters:** Mass scan range: 30-550 amu                      Threshold: 250

Tune file: stune.u                      Acquisition mode: scan

**Retention Time:** 10.986 min

EI Mass Spectrum: Acetyl norfentanyl HCl; LOT # 0450748-6





# Acetyl norfentanyl

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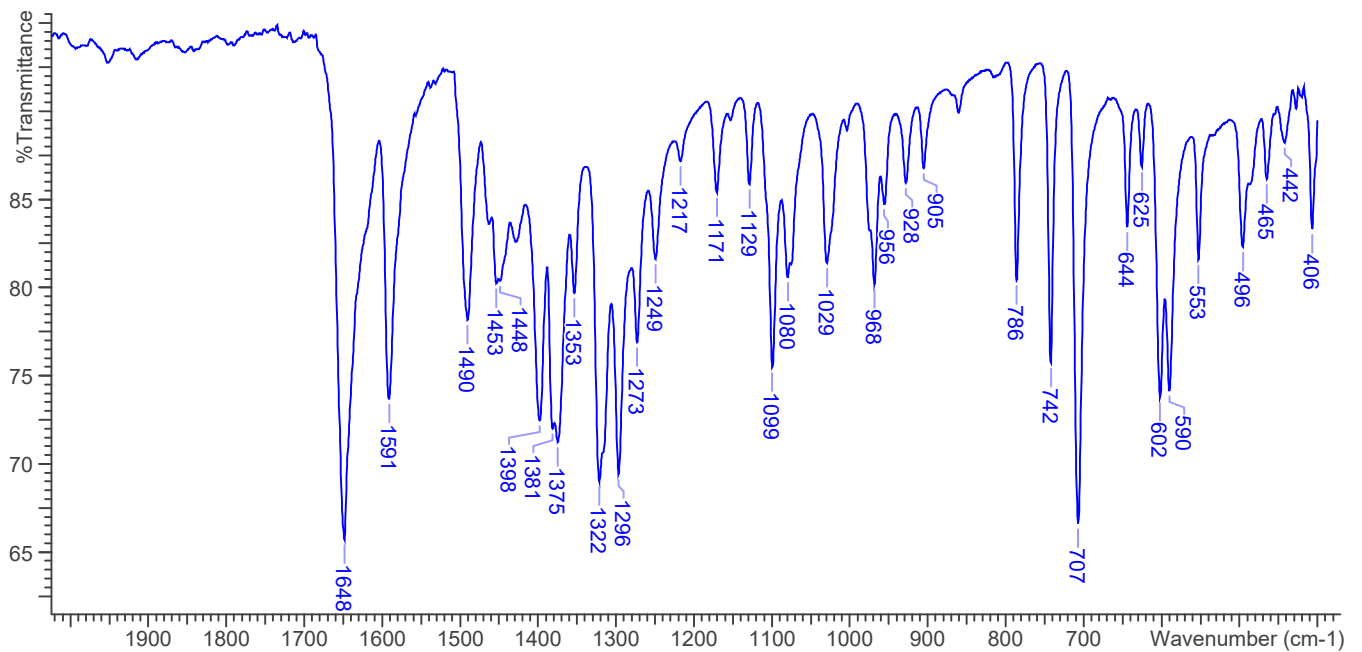
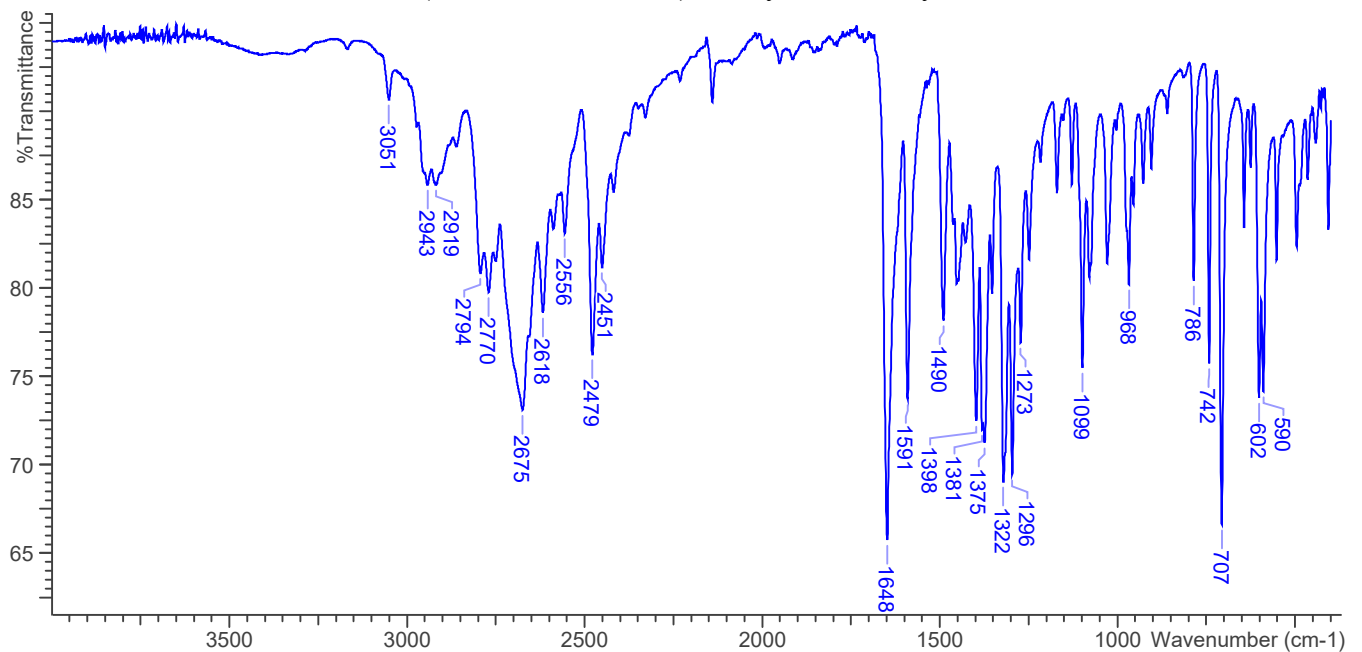


## 3.3 INFRARED SPECTROSCOPY (FTIR)

**Instrument:** FTIR with diamond ATR attachment (1 bounce)

**Scan Parameters:**  
Number of scans: 32  
Number of background scans: 32  
Resolution: 4 cm<sup>-1</sup>  
Sample gain: 4  
Aperture: 80

FTIR ATR (Diamond 1 Bounce): Acetyl norfentanyl HCl; LOT # 0450748-6





## Acetyl norfentanyl

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### **4. ADDITIONAL RESOURCES**

No additional resources as of 11/16/2016