1. GENERAL INFORMATION

IUPAC Name: \( N-(4\text{-}\text{methoxyphenyl})-N-[1-(\text{2-phenylethyl})\text{piperidin-4-yl}]\text{propanamide} \)

CAS#: 23609-41-8 (HCl)

Synonyms: N/A

Source: DEA Reference Material Collection

Appearance: White powder

\( \text{UV}_{\text{max}}(\text{nm}) \): Not determined

2. CHEMICAL AND PHYSICAL DATA

2.1 CHEMICAL DATA

<table>
<thead>
<tr>
<th>Form</th>
<th>Chemical Formula</th>
<th>Molecular Weight</th>
<th>Melting Point (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>( \text{C}<em>{23}\text{H}</em>{30}\text{N}<em>{2}\text{O}</em>{2} )</td>
<td>366.50</td>
<td>Not Determined</td>
</tr>
<tr>
<td>HCl</td>
<td>( \text{C}<em>{23}\text{H}</em>{30}\text{N}<em>{2}\text{O}</em>{2} \cdot \text{HCl} )</td>
<td>402.96</td>
<td>Not Determined</td>
</tr>
</tbody>
</table>
3. QUALITATIVE DATA

3.1 NUCLEAR MAGNETIC RESONANCE

Sample Preparation: Dilute analyte to ~14 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

$^1$HNMR: para-Methoxy fentanyl HCl; Lot# 0488249-14; methanol-$d_4$; 400MHz
para-Methoxy fentanyl

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

3.2 GAS CHROMATOGRAPHY/MASS SPECTROMETRY

Sample Preparation: Dilute analyte ~4 mg/mL in MeOH

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
- Tune file: stune.u
- Threshold: 150
- Acquisition mode: scan

Retention Time: 18.97 min

EI Mass Spectrum: para-Methoxy fentanyl HCl; Lot# 0488249-14
para-Methoxy fentanyl

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

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⁻¹
Sample gain: 1
Aperture: 150

FTIR ATR (Diamond 1 Bounce): para-Methoxy fentanyl HCl; Lot# 0488249-14