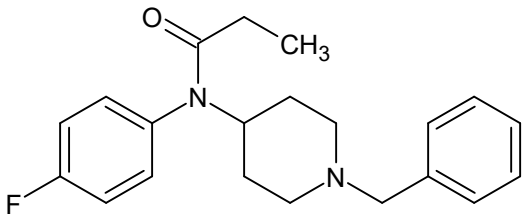
N-Benzyl *para*-fluoro norfentanyl

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



1. GENERAL INFORMATION

IUPAC Name: *N*-(1-benzylpiperidin-4-yl)-*N*-(4-fluorophenyl)propionamide

CAS#: N/A

Synonyms: *para*-fluoro benzyl fentanyl, N-benzyl *para*-fluoro fentanyl

Source: DEA Reference Material Collection

Appearance: White powder

UV_{max}(nm): Not determined

2. CHEMICAL AND PHYSICAL DATA

2.1 CHEMICAL DATA

Form	Chemical Formula	Molecular Weight	Melting Point (^{o}C)
Base	$C_{21}H_{25}FN_2O$	340.43	Not Determined
HCl	$C_{21}H_{25}FN_2O$ HCl	376.90	Not Determined

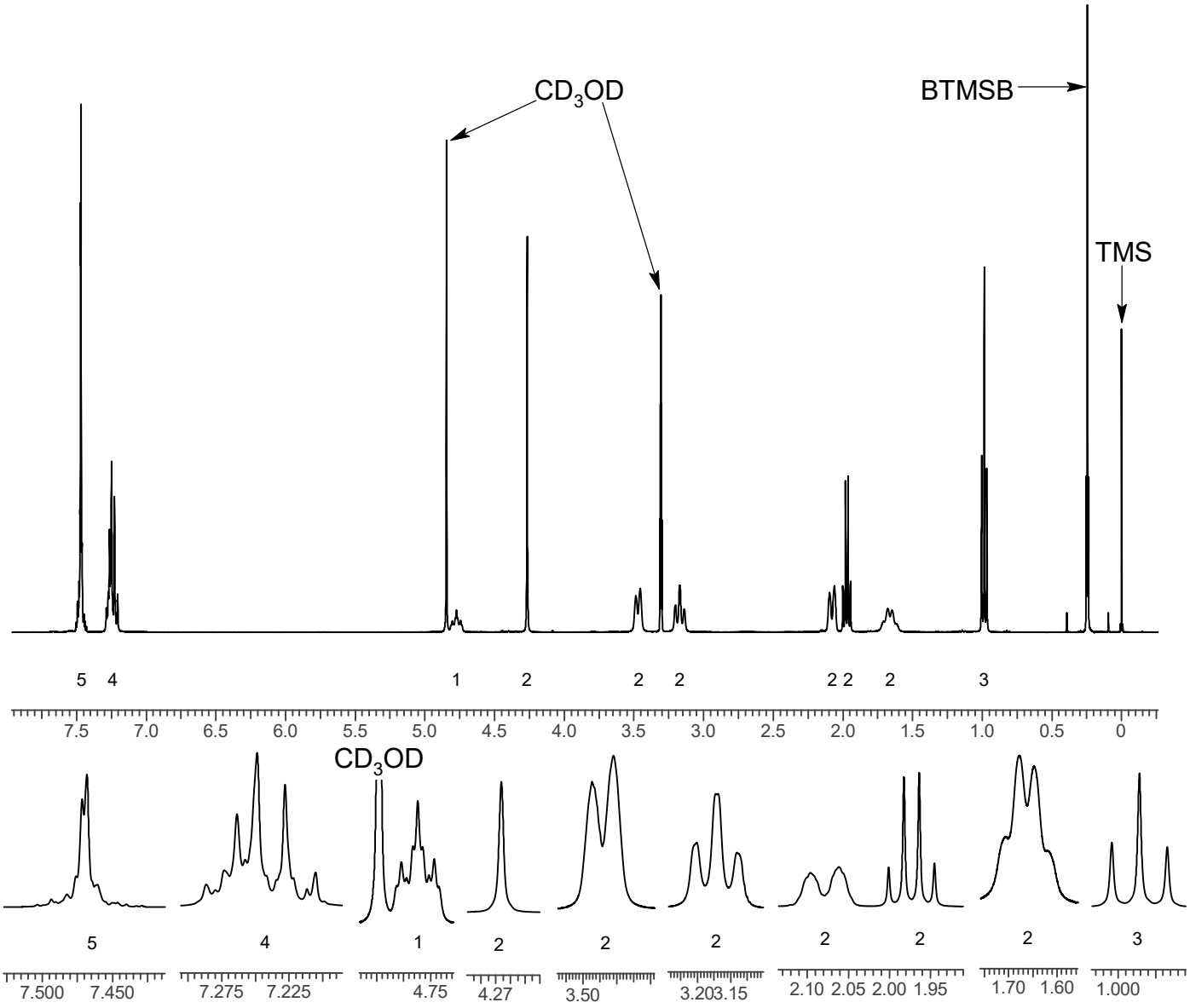
3. QUALITATIVE DATA

3.1 NUCLEAR MAGNETIC RESONANCE

Sample Preparation: Dilute analyte to ~13 mg/mL in methanol-d_4 containing TMS for 0 ppm reference and 1,4-BTMSB-d_4 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: N-Benzyl *para*-fluoro norfentanyl HCl; Lot# N19-P13A; methanol-d_4; 400MHz

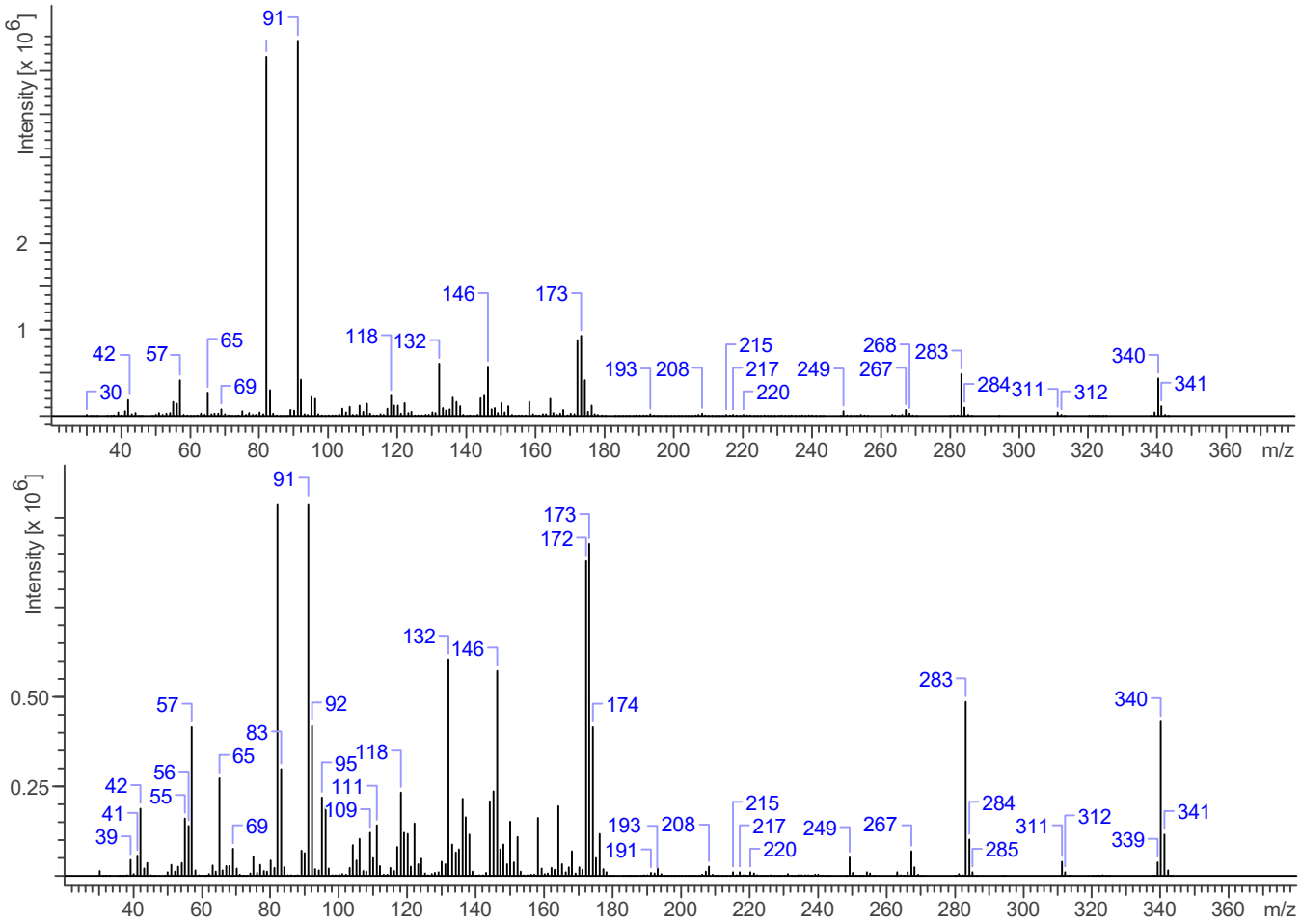


3.2 GAS CHROMATOGRAPHY/MASS SPECTROMETRY

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	Threshold: 150
	Tune file: stune.u	Acquisition mode: scan
Retention Time:	15.80 min	

EI Mass Spectrum: N-Benzyl *para*-fluoro norfentanyl HCl; Lot # N19-P13A



3.3 INFRARED SPECTROSCOPY (FTIR)

Instrument: FTIR ATR (KRS-5 focusing)

Scan Parameters:
Number of scans: 32
Number of background scans: 32
Resolution: 4 cm^{-1}
Sample gain: 1
Aperture: 150

FTIR ATR (KRS-5 focusing): N-Benzyl *para*-fluoro norfentanyl HCl; Lot# N19-P13A