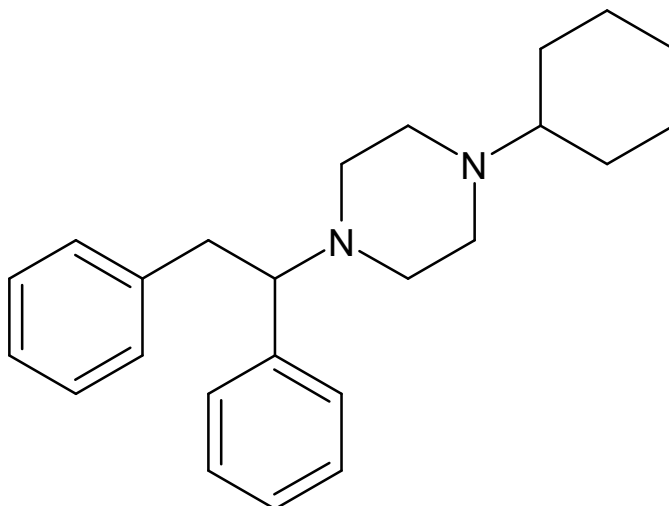




## MT-45

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



### 1. GENERAL INFORMATION

**IUPAC Name:** 1-cyclohexyl-4-(1,2-diphenylethyl)piperazine

**CAS#:** 41537-67-1

**Synonyms:** NSC 299236, IC-6

**Source:** DEA Reference Material Collection

**Appearance:** White powder (diHCl)

**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>24</sub> H <sub>32</sub> N <sub>2</sub>	348	Not Determined
diHCl	C <sub>24</sub> H <sub>32</sub> N <sub>2</sub> · 2HCl	421	Not Determined



# MT-45

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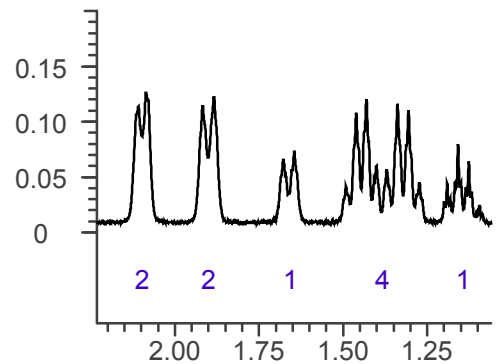
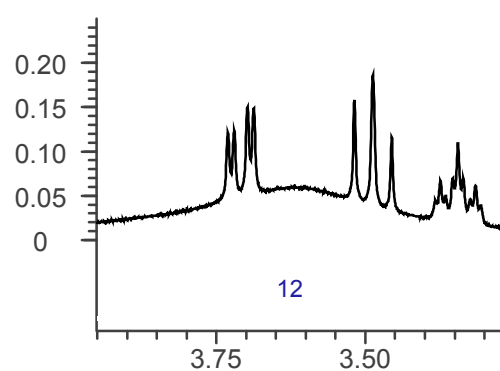
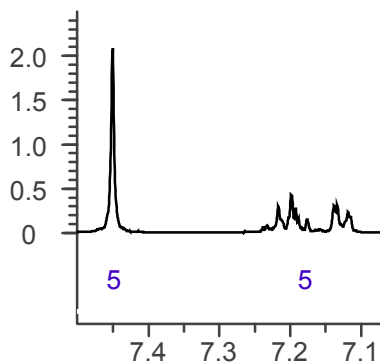
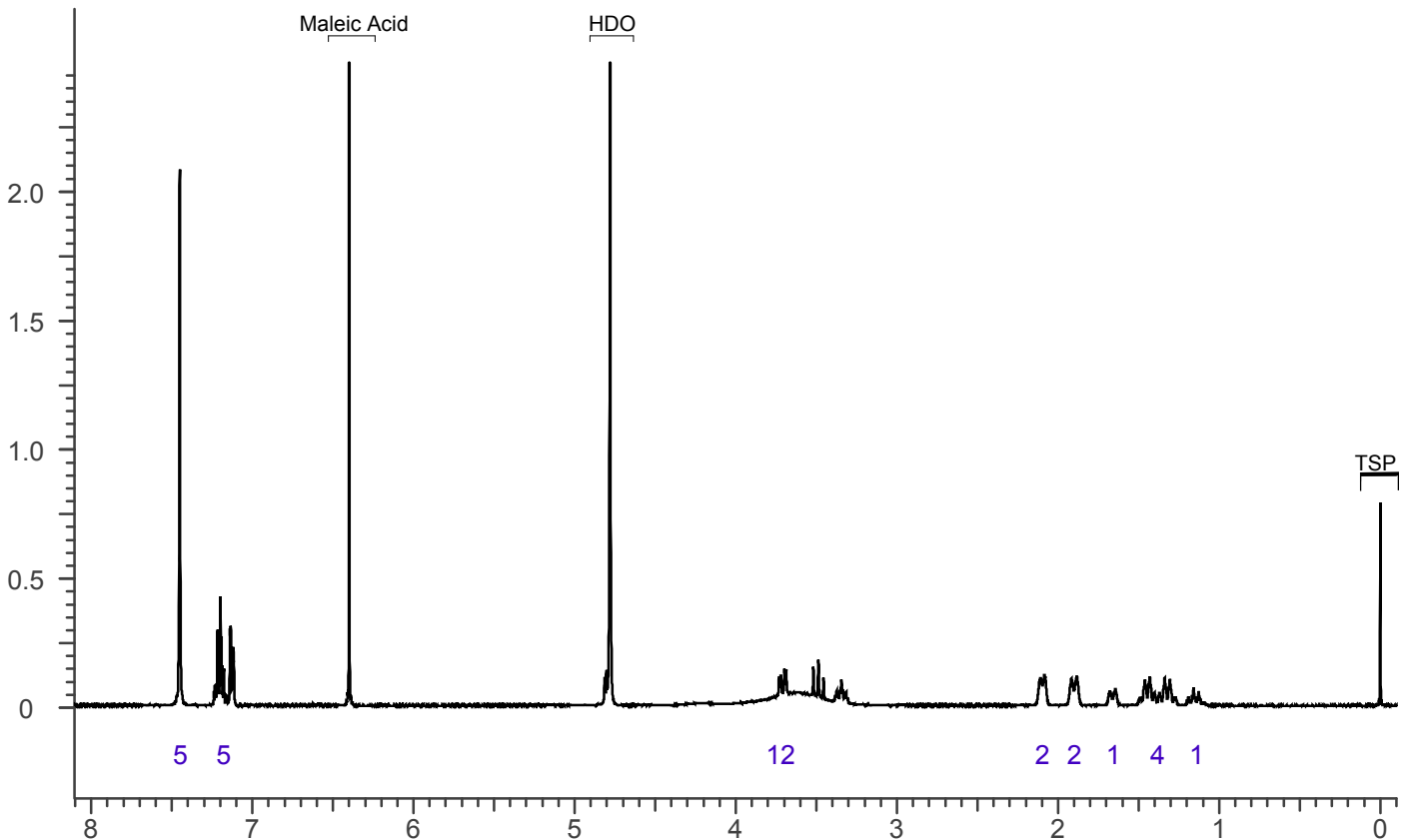


## 3. QUALITATIVE DATA

### 3.1 NUCLEAR MAGNETIC RESONANCE

**Sample Preparation:** Dilute analyte to ~10 mg/mL in D<sub>2</sub>O containing TSP for 0 ppm reference and maleic acid 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  
<sup>1</sup>H NMR: MT-45 diHCl Lot # 0450699-5; D<sub>2</sub>O; 400MHz





## MT-45

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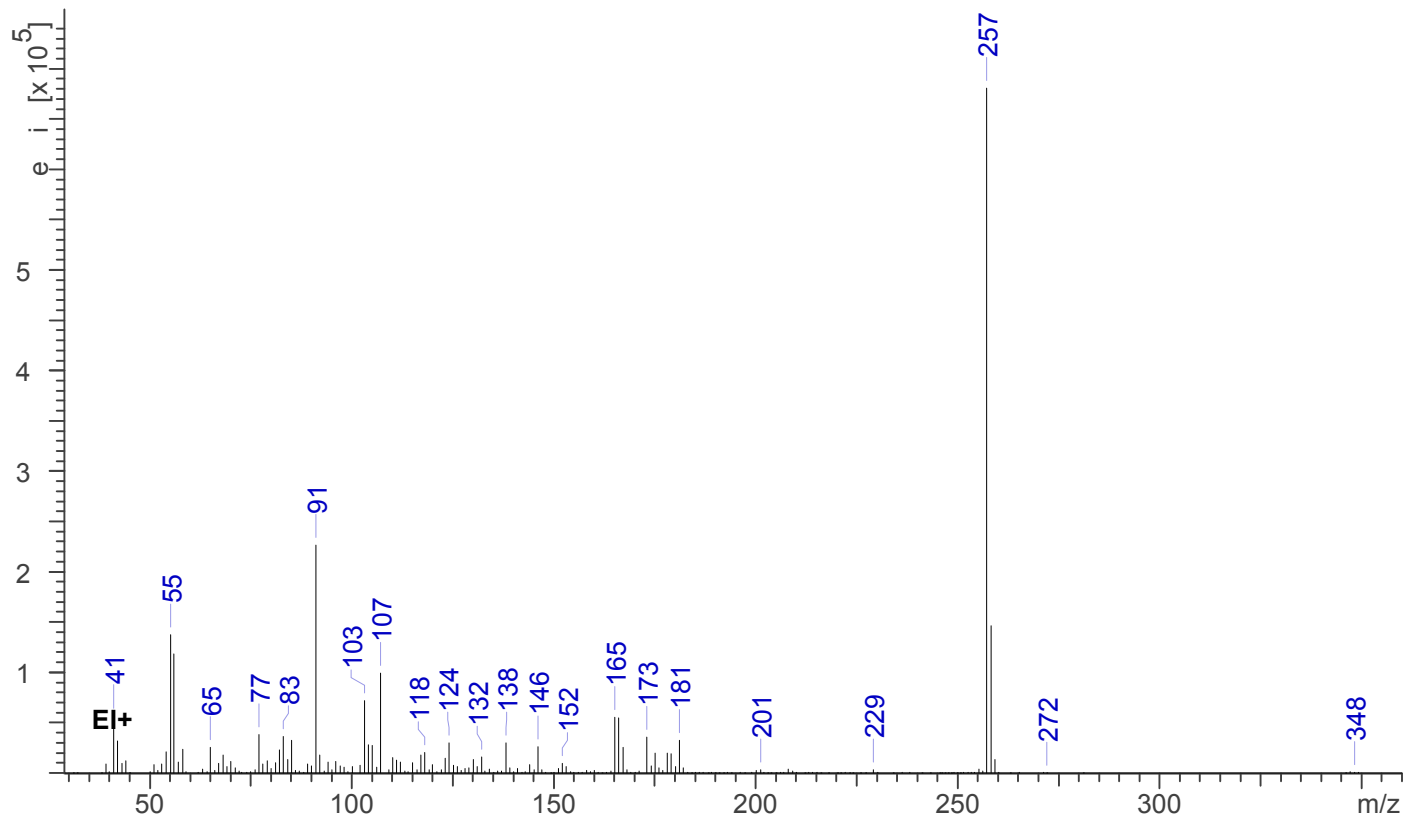


### 3.2 GAS CHROMATOGRAPHY/MASS SPECTROMETRY

*Sample Preparation:* Dilute analyte ~4 mg/mL in methanol.

**Instrument:** Agilent gas chromatograph operated in split mode with MS detector  
**Column:** DB-1 MS (or equivalent); 30m x 0.25 mm x 0.25  $\mu$ m  
**Carrier Gas:** Helium at 1 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 300°C at 12 °C/min  
3) Hold final temperature for 9.0 min  
**Injection Parameters:** Split Ratio = 20:1, 1  $\mu$ L injected  
**MS Parameters:** Mass scan range: 30-550 amu  
Threshold: 100  
Tune file: stune.u  
Acquisition mode: scan  
**Retention Time:** 16.433 min

EI Mass Spectrum: MT-45 diHCl Lot # 0450699-5





# MT-45

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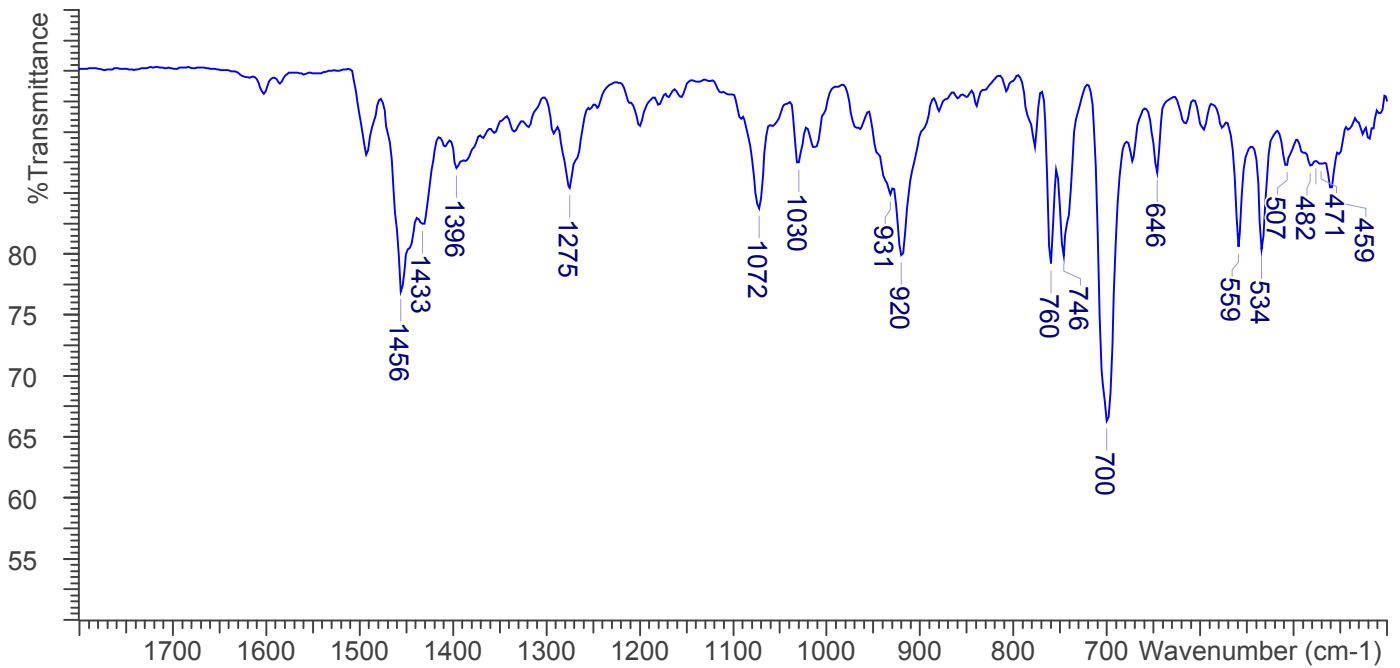
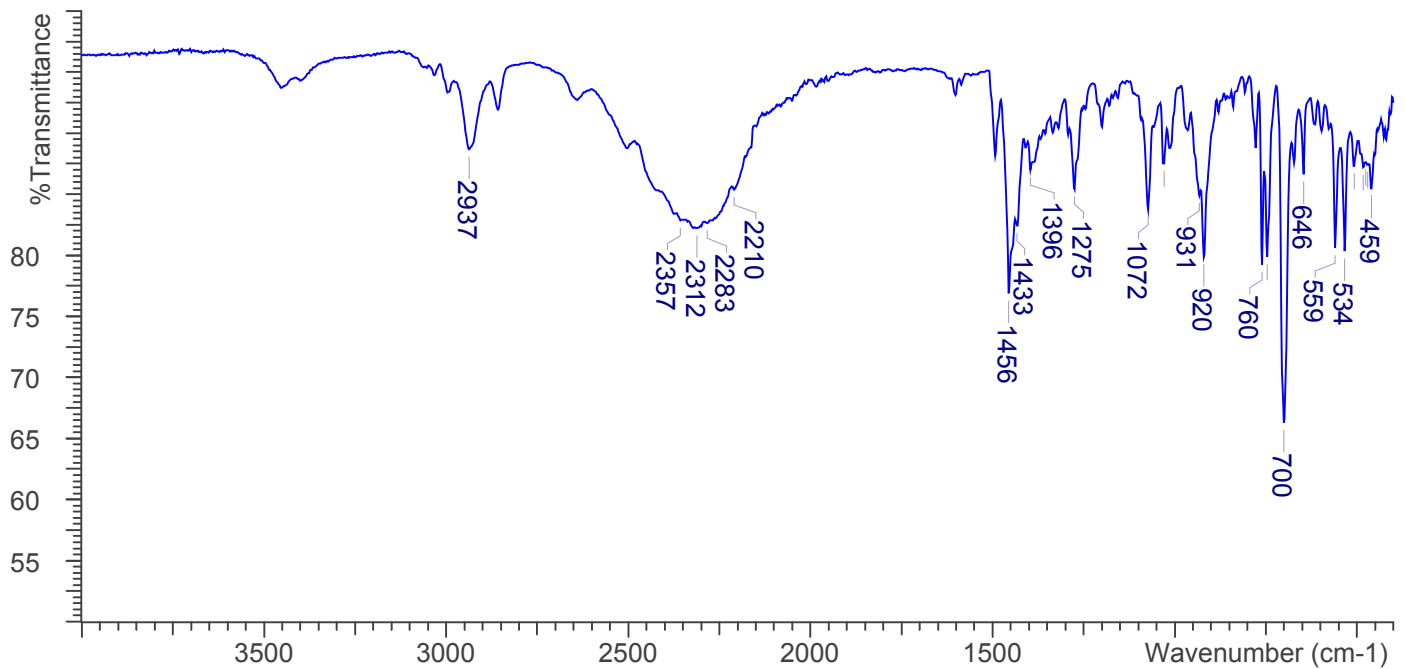


## 3.3 INFRARED SPECTROSCOPY (FTIR)

**Instrument:** FTIR with diamond ATR attachment (3 bounce)

**Scan Parameters:**  
Number of scans: 32  
Number of background scans: 32  
Resolution: 4 cm<sup>-1</sup>  
Sample gain: 8  
Aperture: 150

FTIR ATR (Diamond, 3 Bounce): MT-45 diHCl Lot # 0450699-5





**MT-45**

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



#### **4. ADDITIONAL RESOURCES**

[Wikipedia](#)