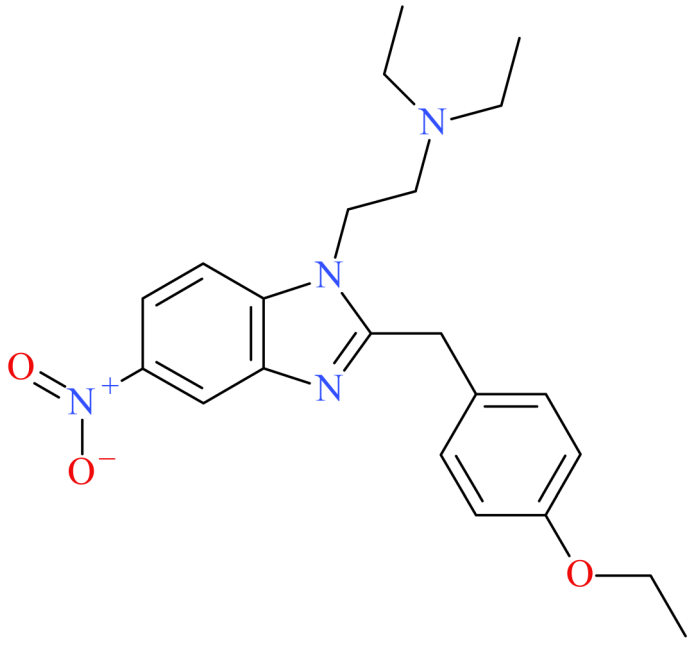
Etonitazene



NPS SUBCLASS
Opioid
REPORT DATE
November 12, 2025
SAMPLE RECEIVED
July 3, 2025
SAMPLE TYPE
Toxicology

Preferred Name	Etonitazene
Synonyms	NIH 7607
Formal Name	2-[2-[(4-ethoxyphenyl)methyl]-5-nitro-benzimidazol-1-yl]-N,N-diethyl-ethanamine
InChI Key	PXDBZSCGSQSKST-UHFFFAOYSA-N
CAS Number	911-65-9
Chemical Formula	$C_{22}H_{28}N_4O_3$
Molecular Weight	396.5
Molecular Ion [M⁺]	396
Exact Mass [M+H]⁺	397.2234

Characterization & Intelligence

The following information was compiled in November 2025 and is subject to change as new research is conducted and as new information becomes available:

Description: Etonitazene is a synthetic opioid characterized as a 2-benzylbenzimidazole ("nitazene analogue"). Etonitazene was originally synthesized in the 1950s as a potential analgesic; however, was never approved for clinical use.[1,2] Etonitazene has been reported in drug materials in Toronto and Thunder Bay, Canada.[3,4] Etonitazene was first identified by our laboratory in July 2025 and confirmed after acquiring standard reference material.

Sample Source: Toxicology UK (United Kingdom)

Sample Appearance: Blood specimen

Pharmacology: Etonitazene is a potent mu-opioid receptor agonist approximately 1000x more potent than morphine [K_i=38.4 nM, EC_{50}=0.588 nM, E_{max} (% hydromorphone)=254%).[1]

Toxicology: Etonitazene has been detected in one toxicology case to date at the CFSRE.

Drug Materials: Etonitazene has not been detected in drug materials to date at the CFSRE.

Demographics / Geographics: The toxicology specimen originated from the United Kingdom. Etonitazene was identified alongside diazepam, cocaine, methadone, and heroin.

Legal Status: Etonitazene is a Schedule I drug in the United States.

References:

- Cayman Chemical: Etonitazene
- [1]Vandeputte et al. (2024) Characterization of novel nitazene recreational drugs: insights into their risk...
- [2]Ujvary et al. (2021) DARK classics in chemical neuroscience: etonitazene and related benzimidazoles
- [3]Toronto Drug Checking Service (2021) Etonitazene identified in Toronto's unregulated drug supply
- [4]Thunder Bay District Health Unit (2022) Drug strategy advisory: presence of etonitazene identified...

About: In collaboration with medical examiner and coroner offices, crime laboratories, clinical partners, and other stakeholders, the Center for Forensic Science Research and Education (CFSRE) is documenting first confirmations of NPS through analysis of drug materials and/or toxicology samples. These reports are generated using comprehensive analytical techniques (e.g., GC-MS, LC-QTOF-MS, NMR) and include available information about the new substances identified at the time of reporting, as well as the analytical data generated during testing. Our new drug monographs are intended to assist with the rapid identification of NPS in forensic casework and related disciplines, and should not be used for confirmatory purposes alone.

Analytical Notes: All identifications were made based on evaluation of analytical data (GC-MS and LC-QTOF-MS) in comparison to analysis of acquired reference material.

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Gas Chromatography Mass Spectrometry (GC-MS)

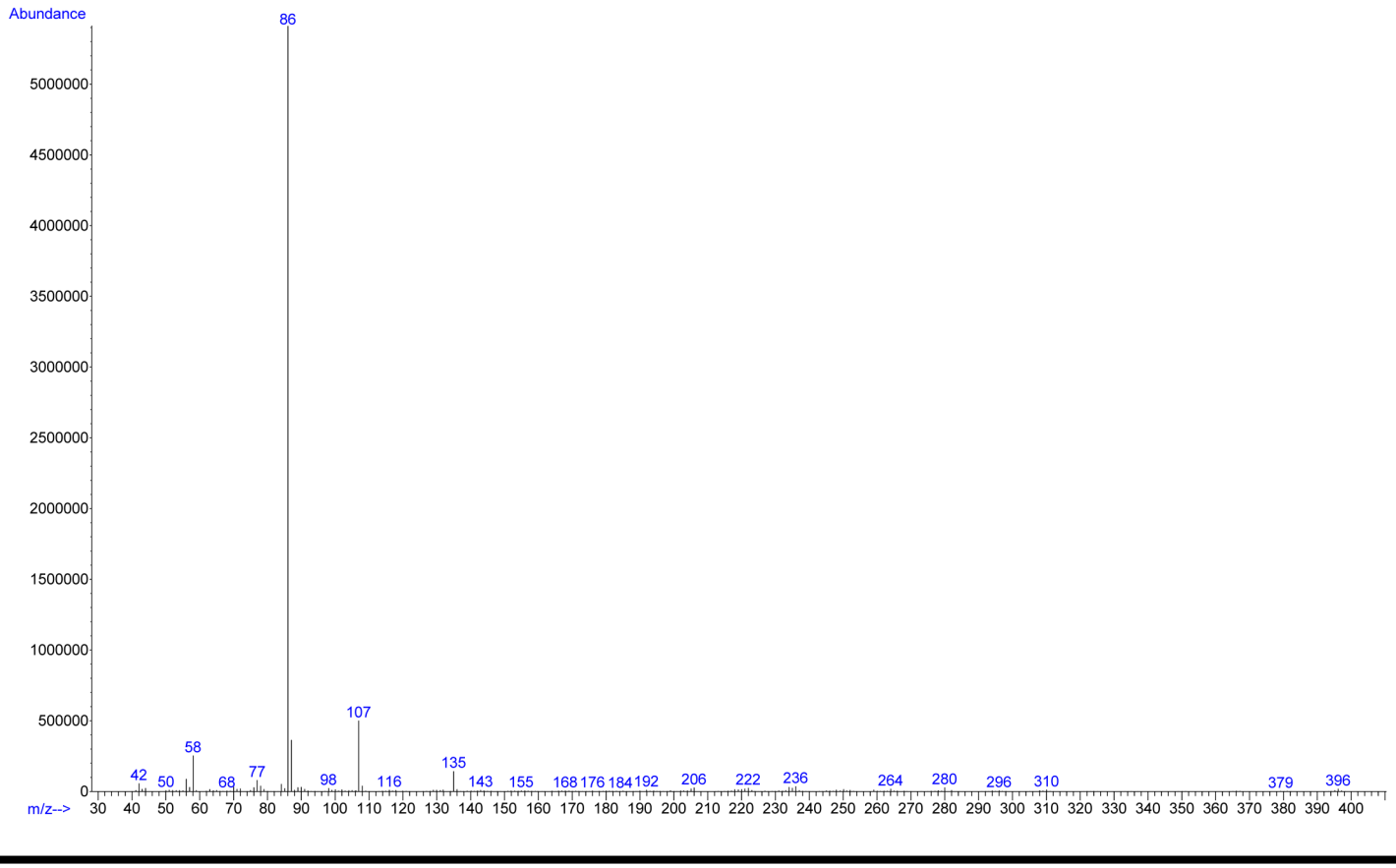
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham PA, USA)

Sample Preparation: Standard dilution in methanol

Instrument: Agilent 5975 Series GC/MSD

Methods: GC-MS Method Details & Monographs

GC-MS: Mass Spectrum (EI 70 eV)



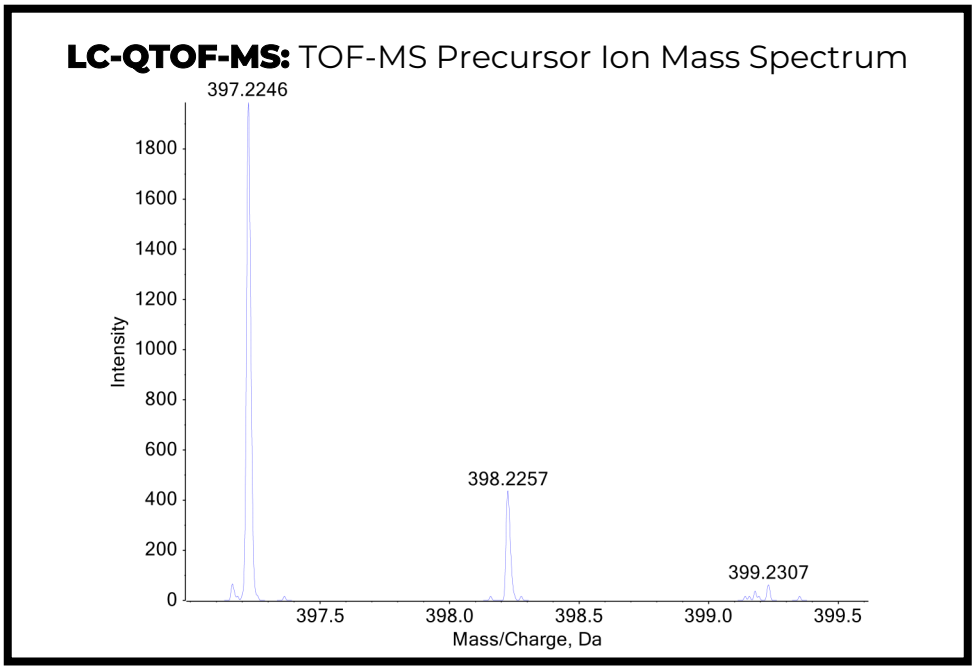
Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)

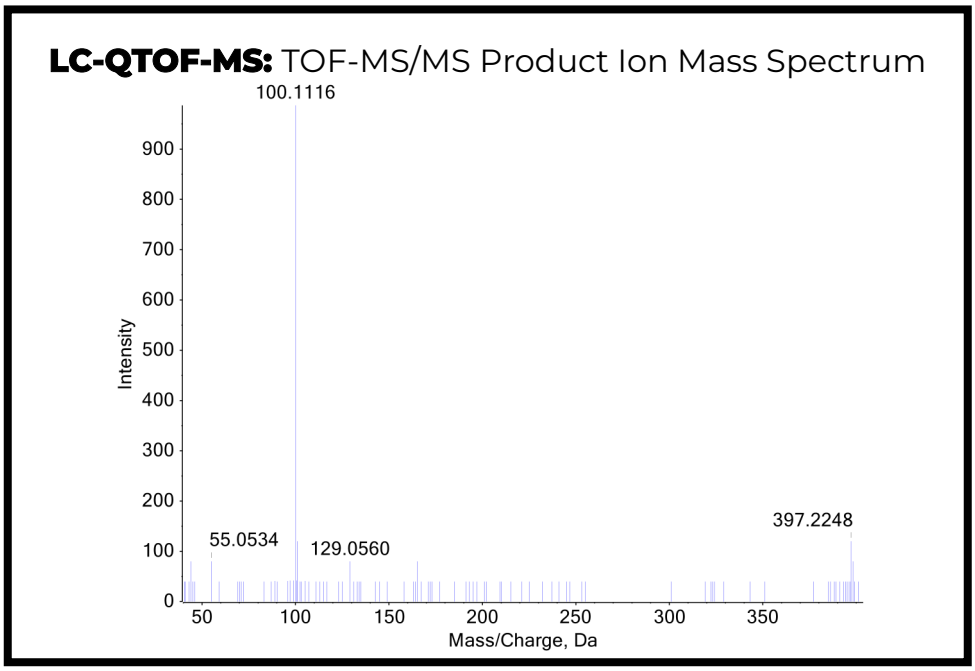
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham, PA, USA)

Sample Preparation: Liquid-liquid extraction

Instrument: Sciex X500R LC-QTOF-MS

Methods: LC-QTOF-MS Method Details & Monographs





Confirmation Using Drug Standard: *Reference material for etonitazene (Batch: 0589128-1) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be etonitazene based on retention time (sample: 6.36 min vs. standard: 6.57 min) and mass spectral data comparisons.*