N-Desethyl Etonitazene

**NPS SUBCLASS**
Opioid

**REPORT DATE**
November 30, 2023

**SAMPLE RECEIVED**
October 19, 2023

**SAMPLE TYPE**
Toxicology

<table>
<thead>
<tr>
<th>Preferred Name</th>
<th>N-Desethyl Etonitazene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Formal Name</td>
<td>2-[2-[(4-ethoxyphenyl)methyl]-5-nitro-benzimidazol-1-yl]-N-ethyl-ethanamine</td>
</tr>
<tr>
<td>InChI Key</td>
<td>RESPFUMJVJRUMB-UHFFFAOYSA-N</td>
</tr>
<tr>
<td>CAS Number</td>
<td>2732926-26-8</td>
</tr>
<tr>
<td>Chemical Formula</td>
<td>(\text{C}<em>{20}\text{H}</em>{24}\text{N}<em>{4}\text{O}</em>{3})</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>368.43</td>
</tr>
<tr>
<td>Molecular Ion [M⁺]</td>
<td>368</td>
</tr>
<tr>
<td>Exact Mass [M+H]⁺</td>
<td>369.1921</td>
</tr>
</tbody>
</table>
Characterization & Intelligence

The following information was compiled in November 2023 and is subject to change as new research is conducted and as new information becomes available:

**Description:** N-Desethyl etonitazene is a novel synthetic opioid bearing structural resemblance to etonitazene, N-desethyl isotonitazene, and other nitazene (2-benzylbenzimidazole) analogues. In November 2023, N-desethyl etonitazene was detected for the first time in the United States. N-Desethyl etonitazene is a metabolite of etonitazene; however, it was detected in the absence of etonitazene and is now being sold as a drug on its own, as observed through sales on online gray market sites.

**Sample Source:** Boulder County Coroner’s Office, NMS Labs – Toxicology Laboratory

**Sample Appearance:** Blood and urine specimens

**Pharmacology:** *In vitro* pharmacological data show that N-desethyl etonitazene is an active mu opioid agonist with similar potency to etonitazene, and is approximately 10 times more potent than fentanyl.¹

**Toxicology:** N-Desethyl etonitazene has been detected in two toxicology cases at the CFSRE.

**Drug Materials:** N-Desethyl etonitazene has not been identified in drug materials to date at the CFSRE.

**Demographics / Geographics:** Toxicology specimens originated from the states of Colorado and Missouri. In one case, N-desethyl etonitazene was identified alongside the NPS benzodiazepine flubromazepam.

**Legal Status:** N-Desethyl etonitazene is not explicitly scheduled in the United States.

**References:**
- Cayman Chemical: [N-Desethyl Etonitazene](#)
- Vandeputte et al. (2021) *Synthesis, Chemical Characterization, and μ-Opioid Receptor Activity Assessment of the Emerging Group of “Nitazene” 2-Benzylbenzimidazole Synthetic Opioids*
Gas Chromatography Mass Spectrometry (GC-MS)

**Laboratory:** Center for Forensic Science Research and Education (CFSRE, Willow Grove, PA, USA)

**Sample Preparation:** Standard diluted in methanol

**Instrument:** Agilent 5975 Series GC/MSD

**Methods:** [www.cfsre.org/nps-discovery/monographs](http://www.cfsre.org/nps-discovery/monographs)

**GC-MS** Method Details

**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, Willow Grove, PA, USA)

**Sample Preparation:** Liquid-liquid extraction

**Instrument:** Sciex X500R LC-QTOF-MS

**Methods:**
- www.cfsre.org/nps-discovery/monographs
- LC-QTOF-MS Method Details

**Confirmation Using Drug Standard:** Reference material (Batch: 0603955-2) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be N-desethyl etonitazene based on retention time (sample: 6.31 min vs. standard: 6.46 min) and mass spectral data comparisons.