

# Nitazene Detection using an Agilent Resolve Handheld Raman Analyzer

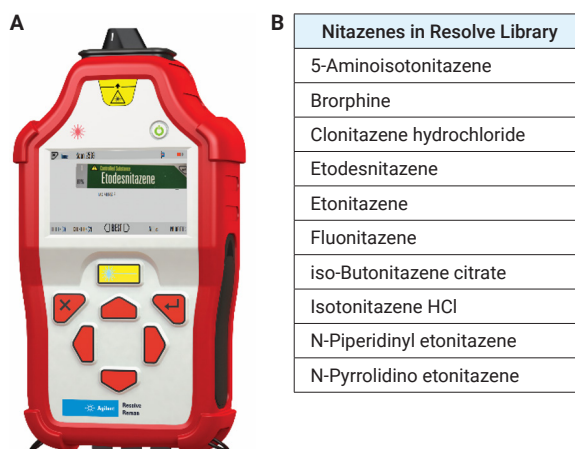
## Author

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## Safe identification of potent synthetic opioids

Nitazenes, also known as benzimidazole-opioids, are potent synthetic opioids that were developed 60 years ago as potential pain relief medication. However, the drugs were never approved for clinical use due to adverse side effects, including the risk of overdose.<sup>1</sup> Certain nitazenes can be more potent than fentanyl and are increasingly found on the illicit drug market in North America and Europe.<sup>2</sup> Nitazenes are available as powders, tablets, or liquids and have been found with other psychoactive substances, including illicit opioids and benzodiazepines.<sup>3</sup> These material types present a high risk in their pure form. Also, due to their high potency, the risk remains after these substances have been prepared and packaged for sale.

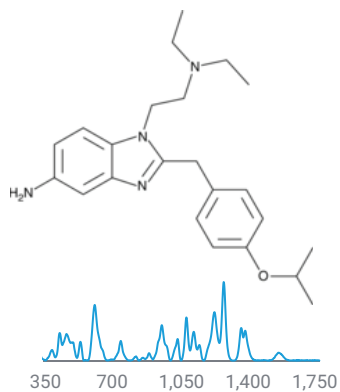
The **Agilent Resolve Handheld Raman Analyzer** uses **spatially offset Raman spectroscopy (SORS)** technology to identify hazardous materials, explosives, and narcotics concealed behind single and multiple barriers. These barriers can include colored and opaque plastics, glass, paper, cardboard, wrapping, and fabrics. The combination of SORS, high data quality, reduced fluorescence interference, and a library continuously updated with new psychoactive substances makes the Resolve a powerful tool in the detection and identification of controlled substances.



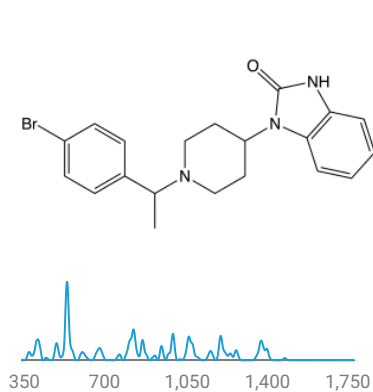
**Figure 1.** (A) Agilent Resolve handheld Raman analyzer. (B) Nitazene compounds present in the Agilent Resolve Controlled Substances spectral library.

## Structure and Raman spectra of nitazene materials included in the Resolve library

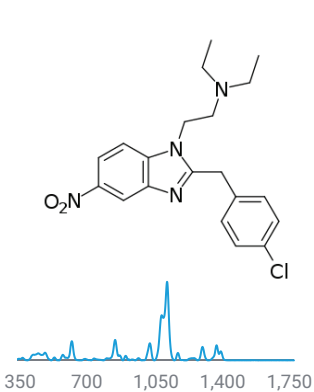
5-Aminoisotonitazene



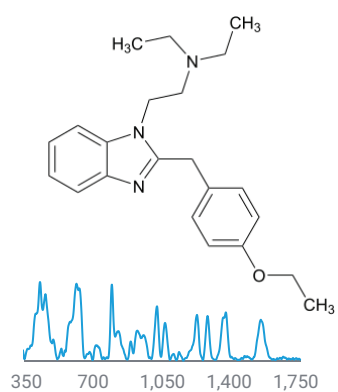
Brorphine



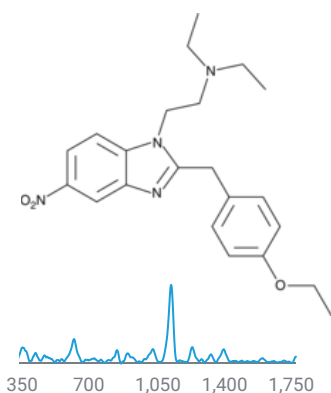
Clonitazene



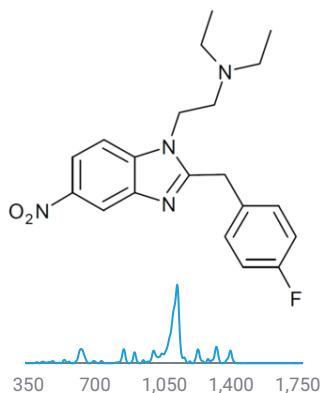
Etodesnitazene



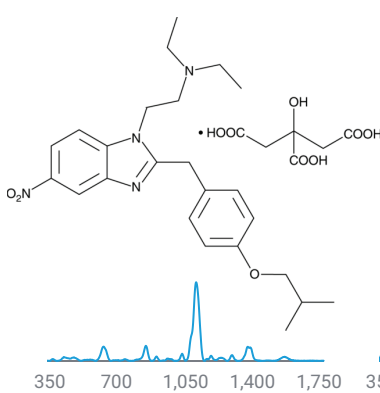
Etonitazene



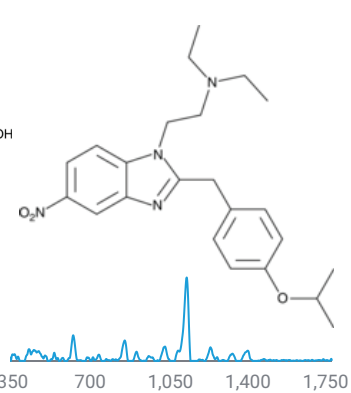
Fluonitazene



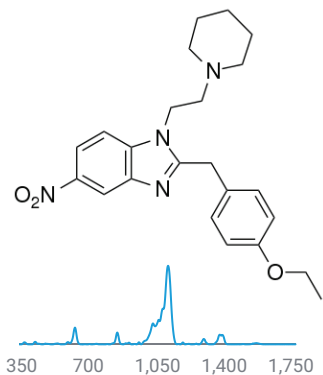
iso-Butonitazene citrate



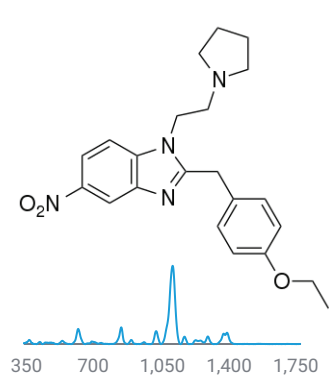
Isotonitazene



N-PiperidinyI etonitazene



N-Pyrrolidino etonitazene



## Fast, direct identification of narcotics

The Agilent Resolve handheld Raman analyzer with SORS and the Resolve Controlled Substances spectral library can be used for the identification of narcotics in original packaging. Direct analysis using the Resolve minimizes the risk of accidental exposure to the compounds by law enforcers.

## References

1. [https://www.ccsa.ca/sites/default/files/2022-03/CCSA-CCENDU-Drug-Alert-Nitazenes-2022-en\\_0.pdf](https://www.ccsa.ca/sites/default/files/2022-03/CCSA-CCENDU-Drug-Alert-Nitazenes-2022-en_0.pdf)
2. Pergolizzi, J.; Raffa, R.; LeQuang, J.; Breve, F.; Varrassi, G. Old Drugs and New Challenges: A Narrative Review of Nitazenes. *Cureus* **2023**, *15* (6). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10361140/>
3. [https://www.deaiversion.usdoj.gov/drug\\_chem\\_info/benzimidazole-opioids.pdf](https://www.deaiversion.usdoj.gov/drug_chem_info/benzimidazole-opioids.pdf)

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RA45224.655474537

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Printed in the USA, November 9, 2023  
5994-6890EN