

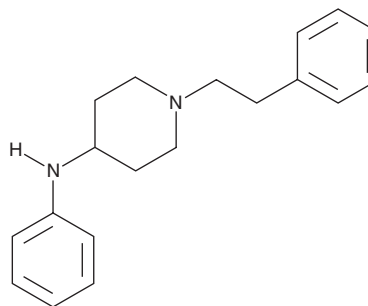
# PRODUCT INFORMATION



## 4-ANPP

Item No. 18810

**CAS Registry No.:** 21409-26-7  
**Formal Name:** N-phenyl-1-(2-phenylethyl)-4-piperidinamine  
**Synonyms:** 4-Aminophenyl-1-phenethylpiperidine, 4-Anilino-N-phenethylpiperidine, Despropionyl fentanyl  
**MF:** C<sub>19</sub>H<sub>24</sub>N<sub>2</sub>  
**FW:** 280.4  
**Purity:** ≥98%  
**Supplied as:** A neat solid  
**Storage:** -20°C  
**Stability:** ≥3 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Description

4-ANPP (Item No. 18810) is an analytical reference material categorized as an opioid metabolite and a precursor in the synthesis of fentanyl (Item Nos. ISO60197 | 22659 | 14719) and other opioids.<sup>1-4</sup> 4-ANPP is a metabolite of acetyl fentanyl (Item Nos. ISO60128 | ISO00128), butyryl fentanyl (Item Nos. 19734 | 14728), furanyl fentanyl (Item Nos. 19633 | 18705), acrylfentanyl (Item Nos. 23060 | 19312), and fentanyl.<sup>2-5</sup> It has also been found as an impurity in illicit fentanyl preparations.<sup>6</sup> 4-ANPP is regulated as a Schedule II compound in the United States. This product is intended for research and forensic applications.

This product is qualified as a Reference Material that has been manufactured and tested to ISO/IEC 17025 and ISO 17034 international standards.

### References

1. Pease, J.P., LePine, A.J., and Smith, C.M. Methods for preparing fentanyl and fentanyl intermediates. Patent Application Publication US 2013/0281702 A1, (2013).
2. Watanabe, S., Vikingsson, S., Roman, M., *et al.* *In vitro* and *in vivo* metabolite identification studies for the new synthetic opioids acetylfentanyl, acrylfentanyl, furanylfentanyl, and 4-fluoro-isobutyrylfentanyl. *AAPS J.* **19(4)**, 1102-1122 (2017).
3. Labroo, R.B., Paine, M.F., Thummel, K.E., *et al.* Fentanyl metabolism by human hepatic and intestinal cytochrome P450 3A4: Implications for interindividual variability in disposition, efficacy, and drug interactions. *Drug Metab. Dispos.* **25(9)**, 1072-1079 (1997).
4. Melent'ev, A.B., Kataev, S.S., and Dvorskaya, O.N. Identification and analytical properties of acetyl fentanyl metabolites. *J. Anal. Chem.* **70(2)**, 216-224 (2015).
5. Steuer, A.E., Williner, E., Staeheli, S.N., *et al.* Studies on the metabolism of the fentanyl-derived designer drug butyrylfentanyl in human *in vitro* liver preparations and authentic human samples using liquid chromatography-high resolution mass spectrometry (LC-HRMS). *Drug Test Anal.* **9(7)**, 1085-1092 (2017).
6. Lurie, I.S., Berrier, A.L., Casale, J.F., *et al.* Profiling of illicit fentanyl using UHPLC-MS/MS. *Forensic Sci. Int.* **220(1-3)**, 191-196 (2012).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM