

CERTIFICATE of ANALYSIS



Fentanyl Analog Screening Kit - Emergent Drug Panel

For R&D purposes only. Not intended for human or animal use.

| | |
|---------------------|---|
| Item No.: | 9004121 |
| Batch No.: | 0671115 |
| Size: | 200 µg/well |
| Expiry Date: | 03MAR2026 (valid from date of certification) |
| Storage & Handling: | Store upright and unopened at -20°C. Warm to room temperature prior to opening. |
| Safety: | Danger. Review the Safety Data Sheets before use. |

Description

This product consists of 96-well Matrix plates containing individual emerging drugs of abuse standards. The individual well locations for each unique standard are listed in the table below. The supplemental data package contains the batch-specific certificates of analysis for each compound used in the preparation of this plate.

Traceability Statement

This kit was prepared from individual standards that have been verified through standard quality testing and are traceable via individual item and batch numbers. Individual certificates of analysis are available at www.caymanchem.com/faskitdocuments. All compounds used to make this kit were used within their valid expiry dates. Stability testing of this kit is ongoing to ensure continuous quality and traceability of the materials.

Quality Testing

A single kit was pulled randomly from the batch and high resolution accurate mass analysis was performed to verify the contents of each vial position. A summary of results is reported below as the average ppm mass error \pm standard deviation determined for all analytes.

| Test | Result | Specification | Meets Specification |
|--------------------|---------------------|---------------|---------------------|
| Average mass error | 0.68 \pm 0.39 ppm | \pm 10 ppm | Yes |

Individual results are reported in the table on pages 2-5.

Approval: 

Title: Director of Analytical Chemistry Certification Date: 03MAR2023

Cayman Chemical certifies that this product meets the specifications stated in this certificate and warrants this product to meet the stated acceptance criteria through the expiry date when stored unopened as recommended.

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Kit Contents Plate 1

| Well | Item Name | Molecular Formula (free analyte) | Calculated [M+H] ⁺ m/z | Measured [M+H] ⁺ m/z | Mass Accuracy (ppm) |
|------|---------------------------|--|-----------------------------------|---------------------------------|---------------------|
| A1 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| A2 | Clonazolam | C ₁₇ H ₁₂ ClN ₅ O ₂ | 354.07523 | 354.0751 | 0.35 |
| A3 | Etizolam | C ₁₇ H ₁₅ ClN ₄ S | 343.07787 | 343.0779 | 0.09 |
| A4 | Flualprazolam | C ₁₇ H ₁₂ ClFN ₄ | 327.08072 | 327.0807 | 0.07 |
| A5 | Flubromazolam | C ₁₇ H ₁₂ BrFN ₄ | 371.03021 | 371.0303 | 0.25 |
| A6 | Desalkylflurazepam | C ₁₅ H ₁₀ ClFN ₂ O | 289.05384 | 289.0538 | 0.14 |
| A7 | Bromazolam | C ₁₇ H ₁₃ BrN ₄ | 353.03963 | 353.0396 | 0.08 |
| A8 | Adinazolam | C ₁₉ H ₁₈ ClN ₅ | 352.13235 | 352.1323 | 0.13 |
| A9 | Deschloroetizolam | C ₁₇ H ₁₆ N ₄ S | 309.11684 | 309.1166 | 0.78 |
| A10 | Meclonazepam | C ₁₆ H ₁₂ ClN ₃ O ₃ | 330.06399 | 330.0638 | 0.58 |
| A11 | Flubromazepam | C ₁₅ H ₁₀ BrFN ₂ O | 333.00332 | 333.0033 | 0.07 |
| A12 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| B1 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| B2 | Pyrazolam | C ₁₆ H ₁₂ BrN ₅ | 354.03488 | 354.0350 | 0.34 |
| B3 | Diclazepam | C ₁₆ H ₁₂ Cl ₂ N ₂ O | 319.03994 | 319.0401 | 0.50 |
| B4 | Bromazepam | C ₁₄ H ₁₀ BrN ₃ O | 316.00800 | 316.0082 | 0.65 |
| B5 | Metizolam | C ₁₆ H ₁₃ ClN ₄ S | 329.06222 | 329.0623 | 0.25 |
| B6 | 8-Aminoclonazolam | C ₁₇ H ₁₄ ClN ₅ | 324.10105 | 324.1010 | 0.14 |
| B7 | Phenazepam | C ₁₅ H ₁₀ BrClN ₂ O | 348.97377 | 348.9739 | 0.36 |
| B8 | Fluclotizolam | C ₁₅ H ₁₀ ClFN ₄ S | 333.03715 | 333.0371 | 0.14 |
| B9 | N-Pyrrolidino Etonitazene | C ₂₂ H ₂₆ N ₄ O ₃ | 395.20776 | 395.2076 | 0.41 |
| B10 | Etodesnitazene | C ₂₂ H ₂₉ N ₃ O | 352.23833 | 352.2380 | 0.95 |
| B11 | Protonitazene | C ₂₃ H ₃₀ N ₄ O ₃ | 411.23906 | 411.2389 | 0.40 |
| B12 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |

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Kit Contents Plate 1 Continued

| Well | Item Name | Molecular Formula (free analyte) | Calculated [M+H] ⁺ m/z | Measured [M+H] ⁺ m/z | Mass Accuracy (ppm) |
|------|--|---|--------------------------------------|------------------------------------|------------------------|
| C1 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| C2 | Dipyron | C ₂₃ H ₂₉ NO | 336.23219 | 336.2320 | 0.55 |
| C3 | N-Piperidinyl Etonitazene | C ₂₃ H ₂₈ N ₄ O ₃ | 409.22341 | 409.2232 | 0.52 |
| C4 | Butonitazene | C ₂₄ H ₃₂ N ₄ O ₃ | 425.25471 | 425.2543 | 0.97 |
| C5 | Eutylone | C ₁₃ H ₁₇ NO ₃ | 236.12812 | 236.1278 | 1.34 |
| C6 | α-Pyrrolidinoisohexanophenone (α-PiHP) | C ₁₆ H ₂₃ NO | 246.18524 | 246.1850 | 0.96 |
| C7 | Deschloroketamine | C ₁₃ H ₁₇ NO | 204.13829 | 204.1381 | 0.91 |
| C8 | 3-hydroxy PCP (HO-PCP) | C ₁₇ H ₂₅ NO | 260.20089 | 260.2007 | 0.71 |
| C9 | 2-fluoro Deschloroketamine | C ₁₃ H ₁₆ FNO | 222.12886 | 222.1287 | 0.74 |
| C10 | 3-methoxy PCP | C ₁₈ H ₂₇ NO | 274.21654 | 274.2164 | 0.50 |
| C11 | 3-chloro PCP (Cl-PCP) | C ₁₇ H ₂₄ ClN | 278.16700 | 278.1670 | 0.00 |
| C12 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| D1 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| D2 | N-Ethylhexedrone | C ₁₄ H ₂₁ NO | 220.16959 | 220.1694 | 0.84 |
| D3 | Pentylone | C ₁₃ H ₁₇ NO ₃ | 236.12812 | 236.1279 | 0.91 |
| D4 | α-pyrrolidinohexiophenone (α-PHP) | C ₁₆ H ₂₃ NO | 246.18524 | 246.1851 | 0.55 |
| D5 | N-ethyl Pentylone | C ₁₄ H ₁₉ NO ₃ | 250.14377 | 250.1435 | 1.06 |
| D6 | 3,4-Methylenedioxy-N-benzylcathinone (BDMP, benzylone) | C ₁₇ H ₁₇ NO ₃ | 284.12812 | 284.1280 | 0.41 |
| D7 | 4-methoxy PCP | C ₁₈ H ₂₇ NO | 274.21654 | 274.2165 | 0.13 |
| D8 | MDMB-4en-PINACA | C ₂₀ H ₂₇ N ₃ O ₃ | 358.21251 | 358.2123 | 0.60 |
| D9 | N-butyl Pentylone | C ₁₆ H ₂₃ NO ₃ | 278.17507 | 278.1750 | 0.24 |
| D10 | 3,4-Methylenedioxy PV8 | C ₁₈ H ₂₅ NO ₃ | 304.19072 | 304.1905 | 0.71 |
| D11 | N-Ethyl Pentedrone | C ₁₃ H ₁₉ NO | 206.15394 | 206.1538 | 0.66 |
| D12 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |

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Kit Contents Plate 1 Continued

| Well | Item Name | Molecular Formula (free analyte) | Calculated [M+H] ⁺ m/z | Measured [M+H] ⁺ m/z | Mass Accuracy (ppm) |
|------|---|--|--------------------------------------|------------------------------------|------------------------|
| E1 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| E2 | N-Ethyl Deschloroketamine (deschloro-N-ethyl ketamine) | C ₁₄ H ₁₉ NO | 218.15394 | 218.1537 | 1.08 |
| E3 | 4-chloro- α -Pyrrolidinovalerophenone (4Cl- α -PVP) | C ₁₅ H ₂₀ ClNO | 266.13061 | 266.1305 | 0.43 |
| E4 | Pyrrolidinovalerophenone (α -PVP) | C ₁₅ H ₂₁ NO | 232.16959 | 232.1693 | 1.23 |
| E5 | 4-HO-DiPT (HO-DiPT) | C ₁₆ H ₂₄ N ₂ O | 261.19614 | 261.1959 | 0.90 |
| E6 | 3-HO-PCE (HO-PCE) | C ₁₄ H ₂₁ NO | 220.16959 | 220.1693 | 1.30 |
| E7 | 5F-MDMB-PICA | C ₂₁ H ₂₉ FN ₂ O ₃ | 377.22349 | 377.2232 | 0.78 |
| E8 | Xylazine | C ₁₂ H ₁₆ N ₂ S | 221.11069 | 221.1105 | 0.87 |
| E9 | 4F-MDMB-BINACA, 4F-MDMB-BUTINACA | C ₁₉ H ₂₆ FN ₃ O ₃ | 364.20309 | 364.2029 | 0.53 |
| E10 | ADB-BINACA | C ₂₁ H ₂₄ N ₄ O ₂ | 365.19720 | 365.1968 | 1.09 |
| E11 | 5F-MDMB-PINACA (5F-ADB) | C ₂₀ H ₂₈ FN ₃ O ₃ | 378.21874 | 378.2186 | 0.38 |
| E12 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| F1 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |
| F2 | 4F-MDMB-BICA | C ₂₀ H ₂₇ FN ₂ O ₃ | 363.20784 | 363.2075 | 0.94 |
| F3 | ADB-4en-PINACA | C ₁₉ H ₂₆ N ₄ O ₂ | 343.21285 | 343.2123 | 1.60 |
| F4 | ADB-HEXINACA | C ₂₀ H ₃₀ N ₄ O ₂ | 359.24415 | 359.2435 | 1.80 |
| F5 | 4F-ABINACA (4-fluoro ABUTINACA) | C ₂₂ H ₂₈ FN ₃ O | 370.22891 | 370.2289 | 0.03 |
| F6 | ADB-BUTINACA | C ₁₈ H ₂₆ N ₄ O ₂ | 331.21285 | 331.2125 | 1.05 |
| F7 | ACHMINACA | C ₂₅ H ₃₃ N ₃ O | 392.26963 | 392.2695 | 0.34 |
| F8 | 4-CN-CUMYL-BUTINACA | C ₂₂ H ₂₄ N ₄ O | 361.20228 | 361.2020 | 0.78 |
| F9 | FUB-AMB (MMB-FUBINACA) | C ₂₁ H ₂₂ FN ₃ O ₃ | 384.17179 | 384.1717 | 0.24 |
| F10 | 5F-EDMB-PINACA | C ₂₁ H ₃₀ FN ₃ O ₃ | 392.23439 | 392.2341 | 0.74 |
| F11 | 5F-EDMB-PICA | C ₂₂ H ₃₁ FN ₂ O ₃ | 391.23914 | 391.2388 | 0.88 |
| F12 | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> | <i>Unused</i> |

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|------|-----------|-------------------------------------|--------------------------------------|------------------------------------|------------------------|
| G1 | Unused | Unused | Unused | Unused | Unused |
| G2 | Unused | Unused | Unused | Unused | Unused |
| G3 | Unused | Unused | Unused | Unused | Unused |
| G4 | Unused | Unused | Unused | Unused | Unused |
| G5 | Unused | Unused | Unused | Unused | Unused |
| G6 | Unused | Unused | Unused | Unused | Unused |
| G7 | Unused | Unused | Unused | Unused | Unused |
| G8 | Unused | Unused | Unused | Unused | Unused |
| G9 | Unused | Unused | Unused | Unused | Unused |
| G10 | Unused | Unused | Unused | Unused | Unused |
| G11 | Unused | Unused | Unused | Unused | Unused |
| G12 | Unused | Unused | Unused | Unused | Unused |
| H1 | Unused | Unused | Unused | Unused | Unused |
| H2 | Unused | Unused | Unused | Unused | Unused |
| H3 | Unused | Unused | Unused | Unused | Unused |
| H4 | Unused | Unused | Unused | Unused | Unused |
| H5 | Unused | Unused | Unused | Unused | Unused |
| H6 | Unused | Unused | Unused | Unused | Unused |
| H7 | Unused | Unused | Unused | Unused | Unused |
| H8 | Unused | Unused | Unused | Unused | Unused |
| H9 | Unused | Unused | Unused | Unused | Unused |
| H10 | Unused | Unused | Unused | Unused | Unused |
| H11 | Unused | Unused | Unused | Unused | Unused |
| H12 | Unused | Unused | Unused | Unused | Unused |

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Revision History

| Revision No. | Date | Reason for Revision |
|--------------|-----------|---------------------|
| 01 | 03MAR2023 | Initial version |

Disclaimers

Material Safety Data

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some but not all of the information required for the safe and proper use of this material. Before use, review the complete Material Safety Data Sheet, which has been sent *via* email to your institution.

Warranty and Limitation of Remedy

Cayman Chemical Company makes no warranty or guarantee of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman warrants only to the original customer that the material will meet our specifications at the time of delivery.

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have any obligation or liability, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees.

Buyer's exclusive remedy and Cayman's sole liability hereunder shall be limited to a refund of the purchase price, or at Cayman's option, the replacement, at no cost to Buyer, of all material that does not meet our specification.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver of Buyer of all claims hereunder with respect to said material. For further details, please refer to our Warranty and Limitations of Remedy located on our website and in our catalog.

This Certificate shall not be reproduced except in full, without written approval from the Cayman Chemical Company.

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