Recommended Scope for NPS Testing in the United States

NPS SCOPE

Q4 2024

PURPOSE: The objective of this report is to provide updated guidance in developing an appropriate analytical scope of testing for novel psychoactive substances (NPS) in the United States (and around the world) based on current trends and intelligence. This report is based on information available in Q3 2024 and early Q4 2024 and is subject to change along with the drug market.

SUMMARY: The NPS landscape is changing rapidly, requiring laboratories to constantly remain abreast of new and emerging drugs locally, nationally, and internationally. To meet individualized needs, laboratories amend existing methods or develop new ones for detection and confirmation of NPS. This can be challenging for scientists as information about NPS detections can be regionalized and/or out-of-date, making it difficult to determine which drugs should be prioritized at a given time. **CFSRE**'s **NPS Discovery** and the **SOFT NPS Committee** have established the below recommendations for NPS scope based on information from extensive collaborations, partnerships, and initiatives which yield national and international perspectives. Suggested cut-off concentrations or reporting limits (in ng/mL) are listed for each NPS. These values are categorized (i.e., <1, 1-10, and >10 ng/mL) and determined based on currently available quantitative data and/or comparison to structurally similar NPS within the given sub-class.

BENZODIAZEPINES		OPIOIDS		STIMULANTS & HALLUCINOGENS		SYNTHETIC CANNABINOIDS				
TIER ONE (STRONGLY RECOMMEND)										
Bromazolam	1-10	Protonitazene	<]	2F-2-oxo-PCE / Fluorexetamine	>10	MDMB-4en-PINACA	<]			
Desalkylgidazepam [†]	1-10	Metonitazene	<]	N,N-Dimethylpentylone	>10	5F-MDMB-PINACA (5F-ADB)	<]			
Flubromazepam	1-10	Carfentanil	<]	Pentylone	>10	ADB-BINACA (-BUTINACA)	<]			
Etizolam [†]	1-10	o/m/p-Fluorofentanyl	1-10	*N-Isopropyl Butylone	>10	ADB-4en-PINACA	<1			
Flualprazolam	1-10	o/m/p-Methylfentanyl	1-10	*2/3/4-Methylmethcathinone	>10	MDMB-BINACA (-BUTINACA)	<1			
TIER TWO (RECOMMEND)										
*Phenazolam	1-10	N-Pyrrolidino Etonitazene	<]	2/3/4-Chloromethcathinone	>10	5F-MDMB-PICA	<1			
Clonazolam‡	<1	N-Pyrrolidino Protonitazene	<]	'alpha-PiHP / alpha-PHP	>10	ADB-5'Br-BINACA	<1			
8-Aminoclonazolam‡	1-10	N-Desethyl Isotonitazene	<]	*Eutylone	>10	MDMB-PICA	<]			
*Flubromazolam	1-10	N-Desethyl Etonitazene	<]	MDPHP	>10	*4CI-MDMB-BINACA (-BUTINACA)	<]			
TIER THREE (CONSIDER)										
*Desalkylflurazepam†	1-10	N-Pyrrolidino Metonitazene	<]	2C-B	<1	ADB-5'Br-PINACA	<]			
Desalkylquazepam	1-10	Etodesnitazene	1-10	*N-Cyclohexyl Methylone	>10	MMB-4en-PINACA	<]			
*Pyrazolam	1-10	*N-Propionitrile Chlorphine	<]	N-Cyclohexyl Butylone	>10	4F-MDMB-BICA	<]			
Deschloroetizolam	1-10	*5,6-Dichloro Desmethylchlorphine (SR-17018)	<1	*N-Ethyl Pentedrone	>10	4F-MDMB-BINACA	<7			

Note: This may not be an all-inclusive list. Laboratories should consider additional NPS for inclusion (or exclusion) based on local, national, and/or international trends.



by the Society of Forensic Toxicologists (SOFT) MSF Committee in collaboration with the Centre for Forensic Science Research and Education (FSRE) at the Fredic Reders Family Foundation. This report was prepared by Aer Vortulsid, Kayla Eliders, Dani Mata, Donna Papsum, Elias Shoff, Szabolcs Softak, Swante Wikingson, Michael Truser, Cella Modell, Lana Goodson, Sandrine Wetter, Aury Patrian, and Barry Logan. The authors would like to acknowledge scientists and staff at our laboratorise for their related involvements and contributions.

Disclaimer: The recommendations in this report are subject to char with time as new information becomes available. Toxicologists sho care idea that NDC management that the control of t

FSRE's MFS Discovery is funded in part by the National statute of Justice, Office of Justice Programs, U.S. Department of particular of Justice, Office of Justice Programs, U.S. Department of NPS Discovery - An Early Warning System for Noved Drug Intelligence, unreillance, Monitoring, Resportes, and Forecasting using Drug varieties, Monitoring, Resportes, and Forecasting using Drug detections and office of the U.S. The System of Nove Drug Intelligence, the U.S. Drug Intelligence of the U.S. Department of the U.S. The options of the U.S. Department of Information programs of the U.S. Department of U.S. Depa

aggested Citations Krotulski et al. (2024) Recommended Scope for PS Testing in the United States Q4 2024, Center for Forensic Science personal and Education United States

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Q4 2024

NEW THIS QUARTER: At the 2024 SOFT Annual Meeting, the SOFT NPS Committee made the decision to add additional NPS scope recommendations and suggestions to this Q4 2024 report as supplemental information. The additions encompass metabolites of specified NPS to consider in testing scopes, when known or postulated with high certainty based on literature or prior drug similarity, as well as specific semi-synthetic cannabinoids. Our new recommendations come after years of discussion and consideration, in addition to commentary for improvements from stakeholders through our 2023 survey.

PROVIDE FEEDBACK: If you are interested in providing feedback to the committee on specific drugs and/or drug classes, the content and formatting of our latest scope recommendations, or other topics, please email us at npsdiscovery@cfsre.org.

RECOMMENDED METABOLITES FOR SPECIFIC NPS								
Bromazolam ▶	Protonitazene ►	2F-2-oxo-PCE ▶	MDMB-4en-PINACA ▶					
alpha-Hydroxy Bromazolam	N-Desethyl Protonitazene & 5-Aminoprotonitazene	2F-Deschloronorketamine	MDMB-4en-PINACA 3,3- Dimethylbutanoic Acid					
Phenazolam ▶	Metonitazene ►	N,N-Dimethylpentylone ►	5F-MDMB-PINACA (5F-ADB) ►					
alpha-Hydroxy Phenazolam	N-Desethyl Metonitazene & 5-Aminometonitazene	Pentylone	5F-MDMB-PINACA 3,3- Dimethylbutanoic Acid					
			ADB-BINACA (-BUTINACA) ▶					
Clonazolam ►	N-Pyrrolidino Etonitazene ▶	N-Isopropyl Butylone ▶	ADB-BINACA <i>N</i> -Butanoic Acid &					
8-Aminoclonazolam	N-Pyrrolidino 4'-OH Nitazene	N-Desalkyl Butylone	MDMB-BINACA 3,3- Dimethylbutanoic Acid					
Carfentanil ▶	N-Pyrrolidino Protonitazene ►	2/3/4-Methylmethcathinone ►	ADB-4en-PINACA ▶					
Norcarfentanil	N-Pyrrolidino 4'-OH Nitazene	2/3/4-Methylcathinone	MDMB-4en-PINACA 3,3- Dimethylbutanoic Acid					
o/m/p-Fluorofentanyl ▶	N-Pyrrolidino Metonitazene ►	2/3/4-Chloromethcathinone ►	MDMB-BINACA (-BUTINACA) ►					
o/m/p-Fluoronorfentanyl	N-Pyrrolidino 4'-OH Nitazene	2/3/4-Chlorocathinone	MDMB-BINACA 3,3- Dimethylbutanoic Acid					
o/m/p-Methylfentanyl ►	N-Desethyl Isotonitazene ►	N-Desethyl Etonitazene ▶	5F-MDMB-PICA ►					
o/m/p-Methylnorfentanyl	<i>N,N-</i> Didesethyl Isotonitazene & 5-Amino <i>N-</i> Desethyl Isotonitazene	<i>N,N</i> -Didesethyl Etonitazene & 5-Amino <i>N</i> -Desethyl Etonitazene	5F-MDMB-PICA 3,3- Dimethylbutanoic Acid					

Notes: NPS metabolize to >1 metabolite. NPS metabolites are found at varying abundances in different matrices. This is not an exhaustive list. Some metabolites listed are predicted.

RECOMMENDED SEMI-SYNTHETIC CANNABINOIDS (SUGGESTED CUTOFF: 1-10 NG/ML)								
TIER ONE ▶	∆ ⁸ -THC	∆8-THC-COOH	9(R)-HHC / 9(S)-HHC	9(R)-HHC-COOH / 9(S)-HHC-COOH				
TIER TWO ►	∆ ¹0-THC	Δ^{10} -THC-COOH	THC-O-Acetate	HHC-O-Acetate				
TIER THREE ▶	THCP	ННСР	CBDP	H4-CBD				

Note: This is not an all-inclusive list. Laboratories should consider additional NPS for inclusion (or exclusion) based on local, national, and/or international trends.



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