

The LOD (limit of detection) is the lowest concentration of the drug in whole blood that can be reproducibly detected.

The LLOQ (lower limit of quantitation) is the lowest concentration that will be reported for a process.

All concentrations shown are in ng/ml unless otherwise indicated.

The following notations indicate that a derivative of the drug is referenced: * = TMS derivative, ** = diTMS derivative, and *** = acetyl derivative.

The following notation indicate that the chirality of a drug is referenced: ^ = d-isomer

The following notation indicates that the compound is not part of the QSCREEN method: ∅

Immunoassay Screened Categories / Substances	Process						UoM	therapeutic range (ng/ml)	reference
	EIA	QSCREEN	BSPE	ANSPE	PHEALLE	BCLLE			
The drugs listed in the below can be detected. If an LOD has been established it is reported below.									
Amphetamine/MDA									
Amphetamine	20^				12.5***			20-100	①
MDA					12.5***			-400	①
Phentermine								30-100	①
Barbiturates									
Amobarbital		∅						1000-5000	①
Butabarbital		∅						5000-15000	①
Butalbital		∅		250				1000-5000	①
Phenobarbital	300	∅		250				10000-40000	①
Secobarbital		∅						1500-5000	①
Benzodiazepines									
7-Aminoclonazepam		5	>300					n/a	
7-Aminoflunitrazepam		20							
Alpha-hydroxyalprazolam									
Alprazolam		20	50					5-80	①
Bromazepam								50-200	①
Chlordiazepoxide		5							
Clonazepam		5						4-80	①
Delorazepam									
Desalkylflurazepam		30						n/a	
Diazepam		20	25					100-2500	①
Diclazepam		5						n/a	
Estazolam		5						55-200	①
Etizolam		10						8-20	①
Flualprazolam									
Flubromazepam								n/a	
Flubromazolam		20						n/a	
Flunitrazepam		5							
Flurazepam		10							
Lorazepam									
Lorazepam Glucuronide									
Midazolam		100	25					40-250	①
Nitrazepam								30-100	①
Nordiazepam		25	25.0					20-800	①
Oxazepam	50	40	>1500					200-1500	①
Phenazepam		200						20-40	①
Temazepam		20						20-900	①

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	EIA	QSCREEN	BSPE	ANSPE	PHEALLE	BCLLE			
Triazolam		10						2-20	①
Cannabinoids									
Cannabidiol									
Cannabinol		100							
Tetrahydrocannabinol (THC)						1	+/- 21%	5-50	①
11-hydroxy-Δ-9-tetrahydrocannabinol (11-OH-THC)		∅				1	+/- 21%	n/a	
11-nor-Δ-9-tetrahydrocannabinol-9-carboxylic acid (THCA)	25					5	+/- 27%	n/a	
Methamphetamine									
MDMA					12.5***			100-350	①
Methamphetamine	20^				12.5***			-100	①
Cocaine Metabolite									
Benzoylcegonine	50	2.5	750/100*					100	①
Cocaethylene		2.5	10					n/a	
Cocaine		1	25					50-300	①
Ecgonine Methyl Ester									
Opiates/Opioids									
Codeine		20	25					30-250	①
Codeine-6beta-D-Glucuronide		50							
Dihydrocodeine		10						30-250	①
Heroin		30							
Hydrocodone		10	25					10-50	①
Hydromorphone		20	50*					5-15	①
6-Monoacetylmorphine (6MAM)		25	150/25*					n/a	
Morphine	50	10	50**					10-100	①
Morphine-3-beta-d-Glucuronide									
Norhydrocodone		5							
Noroxycodone		50						n/a	
Oxycodone	25	5	50					5-100	①
Oxymorphone -3-beta-D-Glucuronide									
Oxymorphone		40	150					1-7	②
Methadone									
EDDP		25							
Methadone	25	10	25					50-750	①
Carisoprodol/Meprobamate									
Carisoprodol	500	25		125				10000-30000	①
Meprobamate		175		250				5000-10000	①
Tramadol									
Tramadol	50	10	25					100-300	①
O-Desmethyltramadol		5	50					30-40	①
Zolpidem									
Zolpidem (Ambien)	20	2.5	12.5					80-150	①
Non Immunoassay Screened Drugs									
2,5-DMA		150							

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Immunoassay Screened Categories / Substances	Process						UoM	therapeutic range (ng/ml)	reference
	EIA	QSCREEN	BSPE	ANSPE	PHEALLE	BCLLE			
25B-NBOME		20							
25C-NBOME		25							
25E-NBOMe		20							
25H-NBOME		5							
25I-NBOME		10							
25T4-NBOMe		10							
25T7-NBOMe		20							
2C-B		50							
2C-E		40							
2C-I		20							
2C-T-2		40							
3-Chloromethcathinone									
3-Methoxy PCP									
3,4-DMA									
3,4-DMMC		50							
4-ANPP		5							
4-Chloromethcathinone									
4-FMA									
4-hydroxy DMT									
4-MEC									
5-APB									
5-IAI		25							
5-MEO-DALT									
5-MEO-DIPT		20							
5-MEO-DMT		20							
6-APB									
Acetaminophen		25							
Acetyl Fentanyl									
Acryl Fentanyl		5							
Alpha - PPP		50							
Alpha - PVP		40							
Amitriptyline		50	10					50-300	①
Amoxapine		10							
Aripiprazole		10							
Atomoxetine									
Benzocaine									
Benztropine		100						10-180	①
Benzylpiperazine									
Brompheniramine		10							
Bufotenine									
Buprenorphine		20							
Buprenorphine Glucuronide									
Bupropion								10-20	①
Buspirone		10							

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	EIA	QSCREEN	BSPE	ANSPE	PHEALLE	BCLLE			
Butylone								n/a	
Butyryl Fentanyl		5							
Carbamazepine		2.5		250				2000-12000	(1)
Carbinoxamine		5						~ 20-40	(1)
Carfentanil		2.5							
Cathinone									
Chlorpheniramine		20	10					3-17	(1)
Chlorpromazine		20						30-500	(1)
Chlorzoxazone									
Chlorcyclizine									
Citalopram		20	25					50-110	(1)
Clomipramine		10						20-400	(1)
Clonidine		10						1-4	(1)
Clozapine		50						100-600	(1)
Cotinine									
Crotonyl Fentanyl		5							
Cyclobenzaprine		25	25					3-40	(1)
Cyclobutyl Fentanyl									
Cyclohexyl Fentanyl									
Cyclopropyl Fentanyl		5							
DBZP		20							
Deschloroketamine									
Desipramine		100						10-500	(1)
(Dextro)Methorphan		10	50					10-40	(1)
Dibutylone		20							
Diltiazem		5						30-250	(1)
Diphenhydramine		50	12.5					50-100	(1)
DMT		100							
DOB		20							
Doxepin		20	25					10-200	(1)
Doxylamine		10	50					50-200	(1)
Duloxetine		100							
Ephedrine (Pseudo)		300						50-800	(1)
Ethylamphetamine									
Ethylone								n/a	
N-Ethylpentylone									
Fenfluramine		50							
Fentanyl		2.5	50					3-300	(1)
Flephedrone									
Fluoxetine		40	100					120-500	(1)
Furanylfentanyl		2.5							
Gabapentin		25							
Guaifenesin		150							
Haloperidol		2.5						1-20	(1)
Hydroxy Bupropion		40							
Hydroxyzine		2.5						50-100	(1)
Imipramine		200						50-350	(1)
Isobutryl Fentanyl		2.5							
Isopropyl U-47700									

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	EIA	QSCREEN	BSPE	ANSPE	PHEALLE	BCLLE			
JWH-015		20							
JWH-122 (4-Hydroxypentyl Metabolite)		10							
JWH-250 (4-Hydroxypentyl Metabolite)		5							
Ketamine		10						1000-6000	(1)
Lamotrigine		500	300					1000-14000	(1)
Levamisole									
Levetiracetam									
Lidocaine		40	25					1000-5000	(1)
Lisdexamfetamine		20							
Loratadine		10							
LSD		10							
Maprotiline		10							
MBDB									
MDEA									
3,4-methylenedioxypyrovalerone (MDPV)		20	25					n/a	
Meclizine		20							
Memantine									
Meperidine		25						100-800	(1)
Mephedrone								n/a	
Mescaline		50							
Meta-Fluorobutyl Fentanyl									
Meta-Fluoroisobutyl Fentanyl									
Metaxalone		500		250				<2000-8600	(2)
Methaqualone		20						1000-3000	(1)
Methcathinone									
Methedrone									
Methocarbamol		20							
Methoxetamine		5							
Methoxyacetyl Fentanyl		1							
Methylone		40						n/a	
Methylphenidate			25					10-60	(1)
Metoclopramide		10							
Mirtazapine		20	25					30-300	(1)
Mitragynine		20						n/a	
Naloxone		20							
Naproxen									
Norbuprenorphine		20							
Norfentanyl		40	150					n/a	
Norketamine									
Normeperidine		20						n/a	
Norpropoxyphene									
Norquetiapine								n/a	
Nortriptyline			200					20-150	(1)
Noscapine		2.5							
Ocfentanil		5							
O-Desmethylenlafaxine		2.5	100					100-400	(1)
Olanzapine		40							
Orphenadrine		50						100-600	(1)
Ortho-Fluorobutyl Fentanyl									

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	EIA	QSCREEN	BSPE	ANSPE	PHEALLE	BCLLE			
Ortho-Fluoroisobutyl Fentanyl									
Oxcarbazepine		20		1000				10000-35000	(1)
Papaverine		2.5							
para-fluoro Tetrahydrofuran Fentanyl		10							
Paroxetine		150	>250					10-120	(1)
PCP (phencyclidine)		100	10					10-200	(1)
Pentazocine		10						10-200	(1)
Pentedrone									
Pentylone		40							
Para-Fluorobutyl Fentanyl		2.5							
Para-Fluoroisobutyl Fentanyl									
Para-MethoxyButyl Fentanyl									
Phenmetrazine									
Phenyl Fentanyl		5							
Phenylpropanolamine									
Phenytoin				200				5000-20000	(1)
Pregablin									
Primidone				125				4000-15000	(1)
Procainamide		25							
Procaine		50							
Promethazine		25						50-400	(1)
Propoxyphene		20						50-500	(1)
Psilocin									
Psilocybin									
Pyrovalerone		40							
Quetiapine		2.5	2000					100-500	(1)
Risperidone		5							
Sertraline		10	25					10-250	(1)
Sildenafil		50							
Stanozolol		40							
Tapentadol		20						50-130	(1)
Tetrahydrofuran Fentanyl									
TFMPP		50							
Thioridazine		25						100-2000	(1)
Tizanidine									
Topiramate									
Trazodone		25	100					700-1000	(1)
U-47700		40						n/a	
U-49900									
Valeryl Fentanyl		5							
Venlafaxine		20	50					100-400	(1)
Verapamil		10						10-400	(1)
W-18									
Xylazine									
Zaleplon		5							
Ziprasidone		50							

The drugs listed in the tabel below cannot be detected in blood, by current state crime laboratory procedures.

Non-screened Drugs
Butanediol
GHB (gamma-hydroxybutyric acid)
GBL (gamma-butyrolactone)
Lithium
"Synthetic Cannabinoids"
Valproic acid
Zopiclone

References:

- ① - Schulz, Iwersen-Bergmann, Andresen, Schmoldt, "Therapeutic and toxic blood concentrations of nearly 1,000 drugs and other xenobiotics", Crit Care, 2012, pages 1-146.
 ② - North Carolina Office of the Chief Medical Examiner Toxicology Drug Chart, Last Modified August 18,2015 <https://www.ocme.dhhs.nc.gov/toxicology/index.shtml>

Volatile Analysis (a.k.a. - Blood Alcohol Concentration (BAC) analysis)

	Lower Limit of Reporting (gm/100 ml)		Quantitative Measurement Uncertainty
Blood Alcohols			
Ethanol	0.01		4%
Isopropanol (2-propanol)	0.01		7%
Methanol	0.01		11%
Acetone	0.01		14%
Non-Alcohol Volatiles			
Chloroethane			
1,1-Difluoroethane			
Toluene			
Ether (diethyl ether)			

Signature of Approver: