

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.

If a drug is not included in this index then its LOD has not been determined.

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

Immunoassay Screened Categories / Substances	Immunoassay cut-off concentration (ng/ml)	Confirmation / Extraction Processes				Confirmation Process Quantitative Uncertainty	therapeutic range (ng/ml)	reference
		Base extract by GCMS (LOD in ng/ml)	Acid extract by GCMS (LOD in ng/ml)	Phenethylamine (PHEALLE) extract by GCMS (LOD in ng/ml)	Cannabinoid (BCLLE) extract by LCMSMS (LLOQ in ng/ml)			
Category 1 drugs listed below have had their LOD determined, and can be detected by current state crime laboratory procedures at or below the drug's mid-therapeutic concentration in blood/serum/plasma. Mid-therapeutic concentrations have been administratively determined as the middle of the therapeutic range listed in the noted reference.								
Barbiturates								
Butalbital			250				1000-5000	(1)
Phenobarbital	300		250				10000-40000	(1)
Benzodiazepines								
Alprazolam		50					5-80	(1)
Diazepam		25					100-2500	(1)
Midazolam		25					40-250	(1)
Nordiazepam		25.0					20-800	(1)
Opiates								
Codeine		25					30-250	(1)
Hydrocodone		25					10-50	(1)
6-Monoacetylmorphine (6MAM)		150/25*					n/a	
Morphine	50	50**					10-100	(1)
Cocaine Metabolite								
Benzoyllecgonine	50	750/100*					100	(1)
Cocaine		25					50-300	(1)
Ethylbenzoyllecgonine (cocaeethylene)		10					n/a	
Methadone								
Methadone	25	25					50-750	(1)
Amphetamine/MDA								
Amphetamine	20^			12.5***			20-100	(1)
MDA				12.5***			-400	(1)
Cannabinoids								
Tetrahydrocannabinol (THC)					1	+/- 20%	5-50	(1)
11-hydroxy-Δ-9-tetrahydrocannabinol (11-OH-THC)					1	+/- 19%	n/a	
11-nor-Δ-9-tetrahydrocannabinol-9-carboxylic acid (THCA)	25				5	+/- 28%	n/a	
Carisoprodol/Meprobamate								
Carisoprodol	500		125				10000-30000	(1)
Meprobamate			250				5000-10000	(1)
Methamphetamine								
MDMA				12.5***			100-350	(1)
Methamphetamine	20^			12.5***			-100	(1)
Tramadol								
Tramadol	50	25					100-300	(1)
Zolpidem								
Zolpidem (Ambien)	20	12.5					80-150	(1)
Oxycodone/Oxymorphone								
Oxycodone	25	50					5-100	(1)
Non-screened Drugs								
Amitriptyline		10					50-300	(1)
Carbamazepine			250				2000-12000	(1)
Chlorpheniramine		10					3-17	(1)
Citalopram		25					50-110	(1)
Cyclobenzaprine		25					3-40	(1)
O-Desmethylenlafaxine		100					100-400	(1)
Diphenhydramine		12.5					50-100	(1)
Doxepin		25					10-200	(1)
Doxylamine		50					50-200	(1)
Fentanyl		50					3-300	(1)
Fluoxetine		100					120-500	(1)
Lamotrigine		300					1000-14000	(1)
Lidocaine		25					1000-5000	(1)
MDPV (3,4-methylenedioxypropylvalerone)		25					n/a	
Metaxalone			250				<2000-8600	(2)
Methorphan		50					10-40	(1)
Methylphenidate		25					10-60	(1)
Mirtazapine		25					30-300	(1)
Oxcarbazepine			1000				10000-35000	(1)
PCP (phencyclidine)		10					10-200	(1)
Phenytoin			200				5000-20000	(1)
Primidone			125				4000-15000	(1)
Sertraline		25					10-250	(1)

Blood-Drugs Category 1

Blood-Drugs Category 1

		Confirmation / Extraction Processes						
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Category 1 drugs listed below have had their LOD determined, and can be detected by current state crime laboratory procedures at or below the drug's mid-therapeutic concentration in blood/serum/plasma. Mid-therapeutic concentrations have been administratively determined as the middle of the therapeutic range listed in the noted reference.								
Non-screened Drugs								
Trazodone		100					700-1000	(1)
Venlafaxine		50					100-400	(1)

		Confirmation / Extraction Processes						
Immunoassay Screened Categories / Substances	Immunoassay cut-off concentration (ng/ml)	Base extract by GCMS (LOD in ng/ml)	Acid extract by GCMS (LOD in ng/ml)	Phenethylamine (PHEALLE) extract by GCMS (LOD in ng/ml)	Cannabinoid (BCLLE) extract by LCMSMS (LLOR in ng/ml)	Confirmation Process Quantitative Uncertainty	therapeutic range (ng/ml)	reference
Blood Drugs - Category 2	Category 2 drugs listed below are only detectable by current state crime laboratory procedures at a LOD concentration above the drug's mid-therapeutic concentrations in blood.							
	Opiates							
	Hydromorphone	50*					5-15	①
	Tramadol							
	O-Desmethyldramadol	50					30-40	①
	Oxycodone/Oxymorphone							
	Oxymorphone	150					1-7	②
	Non-screened Drugs							
	Nortriptyline	200					20-150	①
	Quetiapine	2000					100-500	①

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Category 3 drugs listed below are detectable by current state crime laboratory procedures, however, the LOD has not been determined.								
Barbiturates								
Amobarbital							1000-5000	(1)
Butabarbital							5000-15000	(1)
Secobarbital							1500-5000	(1)
Benzodiazepines								
7-Aminoclonazepam		>300					n/a	
Bromazepam							50-200	(1)
Clonazepam							4-80	(1)
Delorazepam								
Desalkylflurazepam							n/a	
Diclozepam							n/a	
Estazolam							55-200	(1)
Etizolam							8-20	(1)
Flubromazepam							n/a	
Flubromazolam							n/a	
Nitrazepam							30-100	(1)
Oxazepam	50	>1500					200-1500	(1)
Phenazepam							20-40	(1)
Temazepam							20-900	(1)
Triazolam							2-20	(1)
Opiates								
Dihydrocodeine							30-250	(1)
Amphetamine/MDA								
Phentermine							30-100	(1)
Non-screened Drugs								
Benztropine							10-180	(1)
Bupropion							10-20	(1)
Butylone							n/a	
Carbinoxamine							~ 20-40	(1)
Chlorpromazine							30-500	(1)
Chlorzoxazone								
Clomipramine							20-400	(1)
Clonidine							1-4	(1)
Clozapine							100-600	(1)
Desipramine							10-500	(1)
Diltiazem							30-250	(1)
Ethylone							n/a	
Haloperidol							1-20	(1)
Hydroxyzine							50-100	(1)

Blood Drugs - Category 3

Category 3 drugs listed below are detectable by current state crime laboratory procedures, however, the LOD has not been determined.

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Non-screened Drugs								
Imipramine							50-350	(1)
Ketamine							1000-6000	(1)
Mecizine								
Meperidine							100-800	(1)
Mephedrone							n/a	
Methaqualone							1000-3000	(1)
Methylone							n/a	
Mitragynine							n/a	
Norfentanyl		150					n/a	
Normeperidine							n/a	
Noroxycodone							n/a	
Norquetiapine							n/a	
Orphenadrine							100-600	(1)
Paroxetine		>250					10-120	(1)
Pentazocine							10-200	(1)
Promethazine							50-400	(1)
Propoxyphene							50-500	(1)
(pseudo)ephedrine							50-800	(1)
Tapentadol							50-130	(1)
Thioridazine							100-2000	(1)
U-47700							n/a	
Verapamil							10-400	(1)

Category 4 drugs listed below cannot be detected in blood, by current state crime laboratory procedures.

Blood Drugs - Category 4	Benzodiazepines	
	Flunitrazepam	
	7-Aminoflunitrazepam	
	Lorazepam	
	Non-screened Drugs	
	Acetaminophen	
	Buprenorphine	
	Butanediol	
	Chlordiazepoxide	
	Duloxetine	
	Gabapentin	
	GHB (gamma-hydroxybutyric acid)	
	GBL (gamma-butyrolactone)	
	Lithium	
	LSD (lysergic acid diethylamide)	
	Naloxone	
	Pregabalin	
	Psilocin	
	Psilocybin	
	"Synthetic Cannabinoids"	
	Topiramate	
	Valproic acid	
	Zaleplon	
	Zopiclone	

References:

- (1) - Schulz, Iwersen-Bergmann, Andresen, Schmoldt, "Therapeutic and toxic blood concentrations of nearly 1,000 drugs and other xenobiotics", Crit Care, 2012,
 (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)

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: