

Cut-off and toxicity levels for drugs-of-abuse testing

This table summarizes information useful in the interpretation of drugs-of-abuse assays. It was originally developed by the late Daniel M. Baer, MD, and updated by Richard A. Paulson, MT(ASCP), supervisor of Chemistry and Toxicology, VA Medical Center, Portland, OR. The table was updated for CLR 2009-2010 by Robert H. Williams, PhD, D(ABCC), F(ACB), MT(ASCP), director of Quality Assurance and Clinical Consultant, Quest Diagnostics Inc., and clinical associate professor of Pathology, University of South Florida, both in Tampa, FL.

	Drug (and trade name)	Some common street names	Detectable duration in urine after last dose	Urine cut-off points for reporting positive or limit of quantitation*	Toxic blood level	Blood reference (therapeutic) range
OPIATES	Heroin (Diacetylmorphine)	Horse, Stuff, Smack, Junk	1-2 days (total opiate) (S)(1) 150 ng/mL (S)(2) (as 6-monacetyl morphine) 18 ng/mL (C)(3) (as 6-monacetyl morphine)	2000 ng/mL (as morphine)	>200 ng/mL	None detected
	Morphine (Duramorph)	M, Junk, Morpho, White stuff	2 days	2000 ng/mL (S)(1) 300 ng/mL (C)(3)	>200 ng/mL	65-80 ng/mL
	Methadone (Dolophine, Amidone)	Methadose	3 days	300 ng/mL 200 ng/mL (C)(3)	1-2 µg/mL	For narcotic stabilization: 300-1000 ng/mL For pain: 50-100 ng/mL
	Meperidine (Demerol, Pethidine)	Fortis, Demies	2-3 days	200 ng/mL (S)(2) 200 ng/mL (C)(3)	>1000 ng/mL	70-500 ng/mL
	Codeine (Analgesics with codeine)	Rabo, School boy	2 days	2000 ng/mL (S)(1) 300 ng/mL (C)(3) lethal)	>1.1 µg/mL	13-33 ng/mL
	Propoxyphene (Darvon, Darvocet-N)	Yellow, Footballs	6 hours to 2 days	300 ng/mL (S)(1) 200 ng/mL (C)(3)	>500 ng/mL	100-400 ng/mL
	Oxycodone (Oxycontin, OxyIR, Percocet, Percodan)	Oxy, OC, Oxycton, Killer	1-3 days	100-500 ng/mL (S)(1) (highly variable) 100-300 ng/mL (C)(3) (highly variable)	>200 ng/mL	10-100 ng/mL
HALLUCINOGENS	Lysergic acid, diethylamide (LSD)	Acid, Microdot, White lightning	1-5 days	0.5 ng/mL (S)(1) 100 pg/mL (C)(4)	>2 ng/mL	None detected 5-20 ng/mL (clinical studies)
	Marijuana and cannabinoids	Marijuana, Hashish, Bhang, Ganja, Sensemilla	Single use: 2-7 days (as Δ9-THC-COOH) Prolonged use: 1-2 months (as Δ9-THC-COOH)	100, 50, 25, or 20 ng/mL (S)(1) 15 ng/mL (C)(3)	50-200 ng/mL	None detected
	Phencyclidine	PCP, Angel dust, Killer weed, Hog	Single use: 1 week Prolonged use: 2-4 weeks	25 ng/mL (S)(1) 25 ng/mL (C)(3)	1 mg/mL	None detected
STIMULANTS	Cocaine	Coke, Crack, Flake, Snow	Single use: 3 days Prolonged use: 4 days	300 ng/mL (S)(1) 150 ng/mL (C)(3)	>1 µg/mL	100-500 ng/mL
	Amphetamine (Benzedrine, Dexedrine)	Speed, Bennies, Uppers, Dexies	Single use: 48 hours Prolonged use: 7-10 days	100 ng/mL (S)(1) 500 ng/mL (C)(3)	0.5-1.0 µg/mL	30-50 ng/mL
	Methylene-3,4 dioxymethamphetamine (MDMA)	Ecstasy, Adam, XTC, Love drug, Hug drug	Single use: Urine: 24 hours Plasma: 5-6 hours	3000-5000 ng/mL (S)(1) 5 ng/mL (C)(3)	0.1-1.0 µg/mL	20-30 ng/mL
	Methamphetamine (Desoxyn, Methedrine)	Speed, Meth, Crystal ice, Crank	Single use: 48 hours Prolonged use: 7-10 days	100 ng/mL (S)(1) 500 ng/mL (C)(3)	0.1-1.0 µg/mL	20-30 ng/mL

NOTE: Refer to manufacturer's insert for information on other benzodiazepines and metabolites.

*Commonly accepted cut-off values; may be different for specific jurisdictions and methods. Sensitivities to various drugs are method-specific. Sensitivity/cut-off data are from method literature and package inserts.

(S) = Screening cut-off (C) = Confirmation cut-off or Limit of Quantitation (LOQ)

- (1) Screening single-use immunoassay device (consult package insert for specific method)
- (2) High-performance liquid chromatography (HPLC)
- (3) Gas Chromatography-Mass Spectrometry (GC-MS)
- (4) Liquid Chromatography - Mass Spectrometry/Mass Spectrometry (LC-MS/MS)
- (5) Screening single-use ELISA device - Forensic toxicology use only

	Drug (and trade name)	Some common street names	Detectable duration in urine after last dose	Urine cut-off points for reporting positive or limit of quantitation*	Toxic blood level	Blood reference (therapeutic) range
BARBITURATES	Pentobarbital (Nembutal)	Goof balls, Downers, Nembies, Yellow jackets, Yellow submarine	2 days	425 ng/mL (S)(1) 200 ng/mL (C)(3)	>11 µg/mL	<10 µg/mL
	Secobarbital (Seconal)	Bullets, Pink ladies, Reds	2 days	200 ng/mL (S)(1) 200 ng/mL (C)(3)	>10 µg/mL	1-5 µg/mL
	Butobarbital (Butisol)	Goof balls, Candy, Peanuts, Stoppers	2 days	312 ng/mL (S)(1) 200 ng/mL (C)(3)	20 µg/mL	3-25 µg/mL
	Butalbital (Fiorinal)	Goof balls, Sleepers, Stoppers, Peanuts	2 days	342 ng/mL (S)(1) 200 ng/mL (C)(3)	20 µg/mL	5-15 µg/mL
	Phenobarbital	Barbs, Downers	1-3 weeks	505 ng/mL (S)(1) 200 ng/mL (C)(3)	>40 µg/mL	10-40 µg/ml
ALCOHOLS, DIOLS, & METABOLITES	Ethanol	Booze, Hooch	<1 day	10 mg/dL	80-400 mg/dL	100-150 mg/dL (for treatment of toxic alcohols)
	Methanol	Wood alcohol	<1 day	5 mg/dL (GC)	>20 mg/dL	<0.5 mg/dL
	Isopropanol	Rubbing alcohol	<1 day	5 mg/dL (GC)	50 mg/dL	None detected
	Acetone		<1 day	5 mg/dL (GC)	>33 mg/dL (GC)	<1.0 mg/dL
	Ethylene Glycol	Antifreeze	<1 day	5 mg/dL (GC)	>50 mg/dL (GC)	None detected
SEDATIVES/HYPNOTICS/ANESTHETICS	Diazepam (Valium)	Tranks, Downers, Blues, Yellows, Blue Magoo, V	Single use: Not detected Prolonged use: 5-7 days (up to 30 days)	160 ng/mL (S)(1) 100 ng/mL (C)(3)	Drug plus Metabolite: >3.0 µg/mL	Drug plus Metabolite: 0.2-2.0 µg/mL
	Oxazepam (Serax)	Tranks, Downers, Blues, Yellows	Single use: Not detected Prolonged use: 5-7 days	240 ng/mL (S)(1) 100 ng/mL (C)(3)	>1.4 µg/mL	0.2-1.4 µg/mL
	Alprazolam (Xanax)	Tranks, Downers, Blues, Yellows	Single use: Not detected Prolonged use: 5-7 days	240 ng/mL (S)(1) 100 ng/mL (C)(3)	>350 ng/mL	20-30 ng/mL
	Clonazepam (Klonopin)	Tranks, Downers, Blues, Yellows	Single use: Not detected Prolonged use: 5-14 days	540 ng/mL (S)(1) 100 ng/mL (C)(3)	>80 ng/mL	10-50 ng/mL
	Chlordiazepoxide (Librium)	Tranks, Downers, Blues, Yellows	Single use: Not detected Prolonged use: 5-7 days	600 ng/mL (S)(2) 100 ng/mL (C)(3)	>23 µg/mL	0.1-3.0 µg/mL
	Lorazepam (Ativan, Loraz)	Tranks, Downers, Blues, Yellows	Single use: Not detected Prolonged use: 5-7 days	675 ng/mL (S)(1) 100 ng/mL (C)(3)	0.3-0.6 µg/mL 0.05-0.24 µg/mL	50-240 ng/mL
	Flunitrazepam (Rohypnol)	Roofies, Rib, Rope, Roach-2, R-2	72 hours	12-60 ng/mL (S)(1) (Immunoassay) 100 pg/mL (C)(4)	50 ng/mL (GC-MS; LC-MS/MS)	5-15 ng/mL
	Gamma-Hydroxybutyrate (Somatomax)	GHB, G-Caps, Geebers, Fantasy, Liquid Ecstasy	12 hours	1-10 mg/L (GC; GC-MS)	>250 mg/L (GC-MS)	48-125 mg/L (for narcolepsy)
	Ketamine Hydrochloride (Ketajet)	Special K, Lady Kay, Vitamin K, Jet, Cat Valium	<72 hours	15 ng/mL (S)(5) (Immunoassay) 5-10 ng/mL (GC-MS)	>7-27 µg/mL (highly variable)	0.5-6.3 µg/mL