

Client: Example Client ABC123
123 Test Drive
Salt Lake City, UT 84108
UNITED STATES

Physician: Doctor, Example

Patient: Patient, Example

DOB: 5/11/1989
Gender: Female
Patient Identifiers: 01234567890ABCD, 012345
Visit Number (FIN): 01234567890ABCD
Collection Date: 01/01/2017 12:34

Bath Salts Panel, Serum or Plasma

ARUP test code 2011411

Bath Salts Panel, Serum or Plasma

See Note

Analysis and Comments	Result	Units
Methylone Serum or Plasma Reporting Limit: 5.0 ng/mL Synonym(s): 3,4-methylenedioxy-N-methylcathinone; bk-MDMA Methylone is a methylenedioxy beta keto amphetamine, or cathinone stimulant drug. It is the beta-keto analog of MDMA. Its use has been linked to the popular 'Designer Drug' movement, and may be present in products sold as 'Legal High' or 'Bath Salts' for recreational purposes. Methylone acts as an inhibitor of dopamine, norepinephrine, and serotonin reuptake and may have stimulating effects on the central nervous system. The drug is usually taken orally, but can also be insufflated or vaporized. Euphoria, agitation, sweating, nausea, vomiting, dilated pupils, seizures, hyponatremia and confusion were reported in two cases after the use of bath salt products found to contain methylone. Other substances may have been present. Four fatalities attributed to this drug had methylone heart blood concentrations of 60 - 1100 ng/mL; concentrations in femoral blood in three fatalities were 560, 840, and 3300 ng/mL. Methylone is known to have limited stability in serum and plasma which may be dependent upon pH, collection tube, and storage temperature; results should be interpreted with caution. The ratio of whole blood concentration to serum or plasma concentration is unknown for this analyte. Analysis by High Performance Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS)	10	ng/mL
Mephedrone Serum or Plasma Reporting Limit: 10 ng/mL Synonym(s): Methylhexaneamine; 1,3-dimethylamylamine Mephedrone is a psychoactive phenethylamine derivative that is structurally related to methcathinone and amphetamine. It is abused for its perceived 'ecstasy like' effects of euphoria, excitement, and alertness. Reported adverse effects include peripheral vasoconstriction resulting in a bruised appearance on the arms and legs, loss of appetite, poor concentration, increased heart rate, sweating with an odor, and dilation of the pupils. In two fatalities where mephedrone intoxication was	20	ng/mL

H=High, L=Low, *=Abnormal, C=Critical

Unless otherwise indicated, testing performed at:

ARUP LABORATORIES | 800-522-2787 | aruplab.com
500 Chipeta Way, Salt Lake City, UT 84108-1221
Tracy I. George, MD, Laboratory Director

Patient: Patient, Example
ARUP Accession: 19-015-116837
Patient Identifiers: 01234567890ABCD, 012345
Visit Number (FIN): 01234567890ABCD
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determined to be the cause of death blood concentrations were 22000 ng/mL and 3300 ng/mL. The ratio of whole blood concentration to serum or plasma concentration is unknown for this analyte. Analysis by High Performance Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS)
alpha-PVP 30 ng/mL

Serum or Plasma
Reporting Limit: 2.0 ng/mL

Synonym(s):
(RS)-1-phenyl-2-(1-pyrrolidinyl)-1-pentanone;
alpha-Pyrrolidinovalerophenone
Alpha-Pyrrolidinovalerophenone (alpha-PVP) is a psychoactive stimulant that is structurally related to pyrovalerone and MDPV. The compound has been sold on the internet as a designer drug for the intention of recreational drug use in the form of tablets or powders to be taken orally or insufflated, respectively. It is abused for its perceived 'ecstasy like' effects of euphoria, excitement and alertness. It is claimed that alpha-PVP improves productivity, wakefulness, motivation, locomotion and endurance. In general, psychoactive stimulants have temporary effects on the psychoneurotic system. In addition, they seem to have a much higher tendency to cause side effects such as paranoia, hallucinations, and schizophrenic or psychosis like symptoms.

Alpha-PVP is known to have limited stability in serum and plasma which may be dependent upon pH, collection tube, and storage temperature. Results should be interpreted with caution.

No reference serum or plasma concentration data for this compound have been reported.

Analysis by High Performance Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS)
Pentedrone 40 ng/mL

Serum or Plasma
Reporting Limit: 2.0 ng/mL

Synonym(s): (RS)-1-phenyl-2-(methylamino)pentan-1-one
Pentedrone is a beta keto amphetamine or cathinone that is chemically related to mephedrone. It is a stimulant drug that was first reported in 2010. Its use has been linked to the popular 'Designer Drug' movement and may be present in products sold as 'Legal Highs' or 'Bath Salts' for recreational purposes. The drug is usually taken orally, but can also be insufflated or vaporized.

No reference serum or plasma concentration data for this compound have been reported.

Pentedrone is known to have limited stability in serum and plasma which may be dependent upon pH, collection tube, and storage temperature. Results should be interpreted with caution.

Analysis by High Performance Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS)
MDPV 50 ng/mL

Serum or Plasma
Reporting Limit: 10 ng/mL

Synonym(s):
1-(1,3-benzodioxol-5-yl)-2-pyrrolidin-1-ylpentan-1-one;
MDPK; Methylenedioxypropylvalerone
MDPV is a synthetic stimulant drug reported to have effects similar to methylphenidate at low doses and cocaine at high doses. Desired outcomes following use include increased energy and sociability, increased concentration, psychedelic effects and sexual stimulation.

Reported adverse effects include insomnia, severe agitation/anxiety, panic attacks, kidney pain, stomach cramps, tachycardia, hypertension, dilated pupils,

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headache, tinnitus and peripheral neuropathies and dizziness. Use of MDPV has been linked to the popular 'Designer Drug' movement and may be present in products sold as 'Legal High' or 'Bath Salts' for recreational purposes. The drug is usually taken orally, but can also be insufflated or vaporized. Blood concentrations in 17 fatalities were 10 - 5000 ng/mL. Blood concentrations in 9 cases of drivers exhibiting signs of impairment were 6 - 360 ng/ml; other impairing drugs were often found in conjunction with MDPV.

Analysis by High Performance Liquid Chromatography/
Tandem Mass Spectrometry (LC-MS/MS)

Methoxetamine 60 ng/mL

Serum or Plasma

Reporting Limit: 2.0 ng/mL

Synonym(s): 2-MeO-Oxo-PC; MXE

Methoxetamine is a psychoactive compound that is structurally related to ketamine and reported to have similar effects. Ketamine is a DEA Schedule III rapidly acting general anesthetic that is chemically related to phencyclidine (PCP). The effects of ketamine include profound analgesia, normal or enhanced skeletal muscle tone and cardiovascular and respiratory stimulation. Reactions manifested by hallucinations, delirium, irrational behavior and/or dream-like states may be seen with use of ketamine and, presumably, methoxetamine. The use of methoxetamine has been linked to the popular 'Designer Drug' movement and this substance may be present in products sold as 'Legal Highs' or 'Bath Salts' for recreational purposes.

Plasma concentrations of 90 - 450 ng/mL have been reported following acute ingestion of methoxetamine. Methoxetamine is known to have limited stability in serum and plasma which may be dependent upon pH, collection tube, and storage temperature; results should be interpreted with caution.

Analysis by High Performance Liquid Chromatography/
Tandem Mass Spectrometry (LC-MS/MS)

Testing performed at NMS Labs, Inc.

3701 Welsh Road
Willow Grove, PA 19090-2910
CLIA 39D0197898

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
Bath Salts Panel, Serum or Plasma	19-015-116837	1/15/2019 3:02:00 PM	1/15/2019 3:13:51 PM	1/16/2019 6:31:00 AM

END OF CHART

H=High, L=Low, *=Abnormal, C=Critical

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