

MassTox[®]

Drugs of Abuse Testing in Urine by LC-MS/MS



DRUGS OF ABUSE TESTING

SPEED UP YOUR ANALYSIS!

CSQUANT[®]

NEW SOFTWARE AVAILABLE

Target screening and quantitative
confirmation of more than
100 drugs and metabolites
within the same run

LC-MS/MS Urine Assay for both: Target Screening and Quantitative Confirmation

- ▶ Assay includes 108 drugs and metabolites
- ▶ Target screening and quantitative confirmation within the same run
- ▶ Run time of 12 minutes
- ▶ Simple sample prep combined with high selectivity and sensitivity
- ▶ Internal standards for 98 analytes

The LC-MS/MS based assay **MassTox®** Drugs of Abuse Testing offers the target screening of more than 100 drugs and metabolites with an instrument-dependent analysis time of approximately 12 minutes. A quantitative confirmation can also be performed within the same run. The CE-IVD validated solution includes everything, eliminating the need for developing and maintaining several in-house methods or for preparing QC materials for a multitude of analyte compounds.

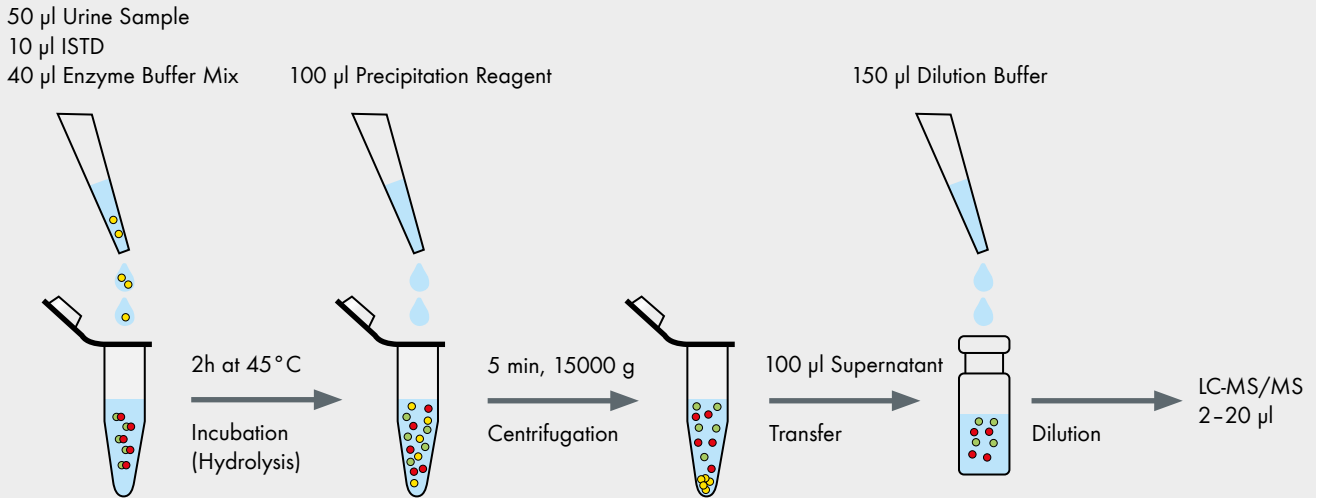
It also provides a significantly higher selectivity and sensitivity than current immunoassays and is designed to work below cut-offs defined by GTFCh and EWDTs. The assay can be used for target screening, quantitative confirmation, or both. 98 analytes are safeguarded by isotopically labelled internal standards. The high stability of the 6PLUS1® multilevel urine calibrator set and three **MassCheck®** urine controls ensure reliable results with highest precision.

Parameter Menu

Amphetamines	Benzodiazepines	Booster	Opiates/Opioids
Amphetamine	Alprazolam	Gabapentin	Acetylcodeine
BDB	7-Aminoclonazepam	Pregabalin	Buprenorphine
Butylone	7-Aminoflunitrazepam	Promethazine	Codeine
2C-B	7-Aminonitrazepam	Quetiapine	Dihydrocodeine
2C-I	Bromazepam		EDDP
Cathinone	Brotizolam		Fentanyl
MBDB	Chlordiazepoxide		Hydrocodone
MDA	Clobazam	Cannabinoids	Hydromorphone
MDEA	Clonazepam	THC-COOH	Meconin
MDMA	Demoxepam		Meperidine
MDPV	Desalkylflunitrazepam	Cocaine	Methadone
Mephedrone	Desmethylflunitrazepam	Benzoyllecgonine	6-Monoacetylmorphine
Methamphetamine	Diazepam	Cocaethylene	Morphine
Methaqualone	Estazolam	Cocaine	Naloxone
Methylone	Flunitrazepam	Norcocaine	Naltrexone
Methylphenidate	Flurazepam		Norbuprenorphine
PMA	Lorazepam		Norcodeine
Ritalinic Acid	Lormetazepam		Norfentanyl
	Medazepam	Others	Normeperidine
	Midazolam	Ketamine	Nortapentadol
Barbiturates	Nitrazepam	LSD	Nortilidine
Allobarbitol	Norclobazam	Mescaline	O-Desmethyldiamadol
Amobarbitol	Nordiazepam	Norketamine	Oxycodone
Barbitol	α-OH-Alprazolam	O-H-LSD	Oxymorphone
Butalbital	3-OH-Bromazepam	PCP	Papaverine
Hexobarbitol	α-OH-Midazolam		Propoxyphene
Pentobarbitol	α-OH-Triazolam		Sufentanil
Phenobarbitol	Oxazepam	Z-Drugs	Tapentadol
Secbutabarbitol	Prazepam	Zaleplon	Thebaine
Secobarbitol	Temazepam	Zolpidem	Tilidine
Thiopental	Triazolam	Zopiclone	Tramadol

Sample Preparation: Fast and Easy

Sample Preparation in Reaction Vials*



Pre-analytic Treatment

Specimen	urine
Stability	according to the Swiss Guidelines Committee for Drugs of Abuse Testing (SCDAT), samples are stable for seven days at +2 to +8 °C and for six months at -18 °C

* Assay also available for 96 Well Plates

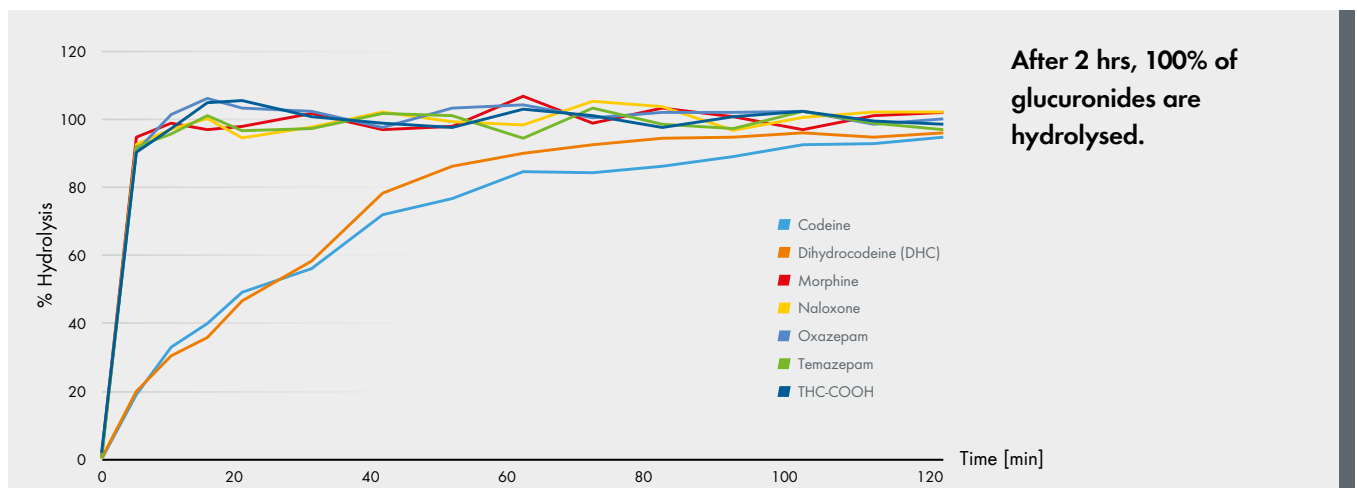
Specifications

Linearity for all analytes	from 0.25 to 30 x of cut-off value
Limit of quantification	down to 13 ng/l
Intraassay	CV = 1-9 %
Interassay	CV = 1-11 %
Recovery	85-115 %
Analysis time	12 min

100% Hydrolysis – 0% Doubt

Many drugs undergo glucuronidation prior to excretion, which requires an enzymatic or acidic hydrolysis – a challenge for most assays and in-house methods^[1]. In contrast, the **MassTox**® Drugs of Abuse Testing assay from Chromsystems includes a carefully selected enzyme that

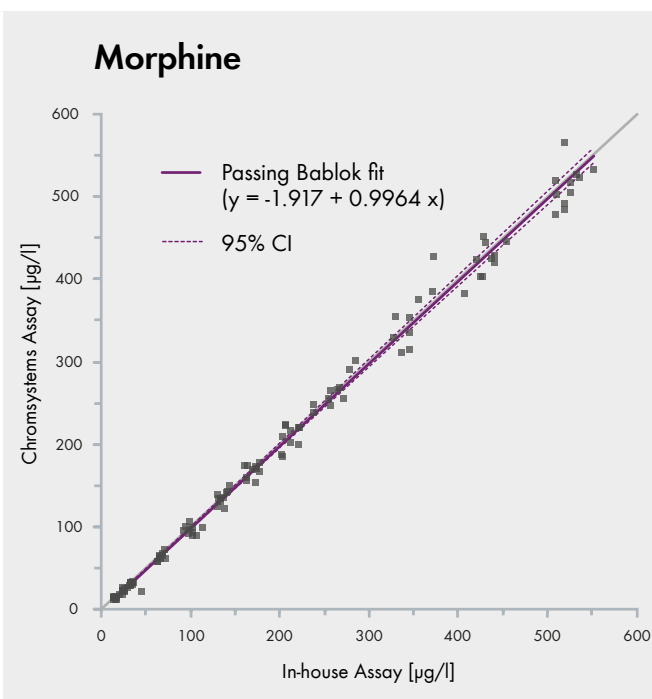
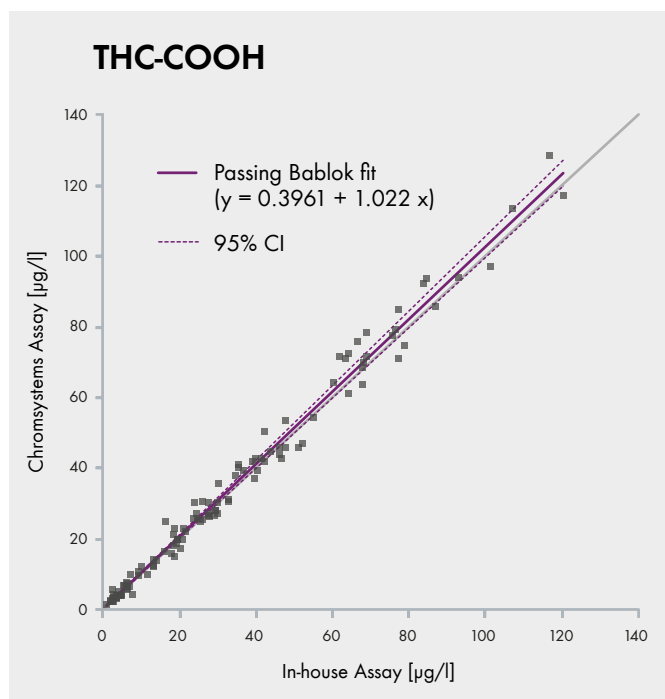
has proven to function with all drugs, including codeine and other substances usually difficult to hydrolyse. This ensures a complete and selective hydrolysis of all drugs covered in the assay.



Proven Accuracy and Reliability for the Daily Workflow

A lab experienced in routine drugs of abuse testing performed a comparative analysis of the **MassTox**® assay with an LC-MS/MS based in-house method. Values obtained correspond very well with each other at concentrations within the linearity of the method. This demonstrates the

accuracy of data and the suitability of the Chromsystems assay to replace LC-MS/MS based in-house methods in the forensic and clinical laboratory. The **MassTox**® assay also has been successfully used in proficiency testing schemes of GTFCh, Instand and RfB.



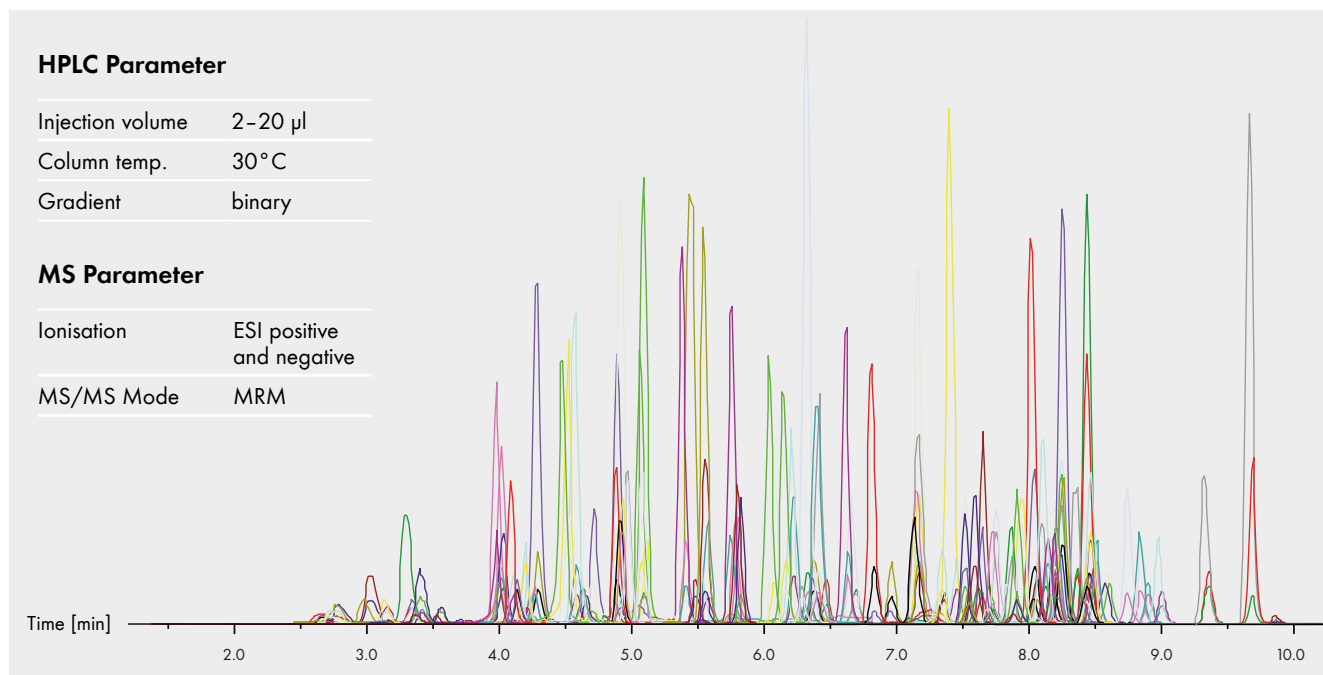
LC-MS/MS: Faster Sample Prep – Lower Workload

A comparison of the utility of the LC-MS/MS assay in the daily routine with GC-MS also has been made. Results not surprisingly demonstrate that LC-MS/MS allows the direct analysis of the specimens and eliminates the need for derivatisation steps. This makes the sample prep much simpler and less time-consuming in comparison to GC-MS. Another advantage is the need for much lower sample volumes.

This means: when comparing our LC-MS/MS assay with GC-MS, then it provides comparable data, but with the advantage for LC-MS/MS to offer a faster sample prep and lower sample volumes.

	LC-MS/MS	GC-MS
Total run time	12 min	10–15 min
Sample prep time (excluding hydrolysis)	2 h per day	6 h per day
Sample volume	50 µl	1000–5000 µl

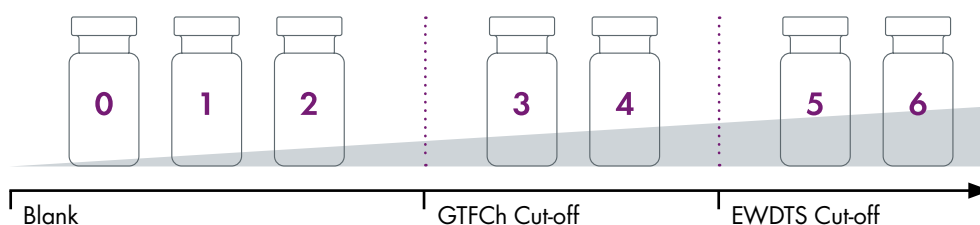
108 Drugs/Metabolites – 1 Analytical Run



Calibrator and Control Material

The Chromsystems assay is provided with a 6PLUS1® Multilevel Urine Calibrator Set and **MassCheck**® controls with three levels that cover the relevant concentration range, including cut-off values from GTFCh and EWDTs.

The material includes a lyophilised urine matrix that is reconstituted with a buffer. Developed to provide highest stability for all 108 analytes. For target screening alone, a Urine Screening Standard Set is available.



The Chromsystems assay covers the cut-off values defined by GTFCh and EWDTs.

Take control of your data!

CSQUANT® eases the evaluation of your drugs of abuse testing data

Clinical laboratories performing routine LC-MS/MS are required to evaluate large amounts of data – and the more analytes an assay covers, the more data there is to consider.

CSQUANT® simplifies and accelerates the evaluation of the data generated by Chromsystems assays – from batch generation through data mining to reporting.

For further information and a demonstration, please contact your local sales representative or visit: chromsystems.com/csquant



Ordering Information

Order no. Product

96000 **MassTox**[®] Drugs of Abuse Testing in Urine with Reaction Vials
For 400 Tests

96000/WP **MassTox**[®] Drugs of Abuse Testing in Urine with 96 Well Plates
For 400 Tests

Components available separately

96001 Mobile Phase A, 700 ml

96002 Mobile Phase B, 700 ml

96005 Precipitation Reagent, 40 ml

96009 Rinsing Solution, 500 ml

96010 Dilution Buffer, 30 ml

96046 Internal Standard Set, consisting of:
Internal Standard Mix (lyoph.), 4 x 1 ml & Reconstitution Buffer, 5 ml

96078 Enzyme Solution Set, consisting of:
Enzyme Reagent (lyoph.) 2 x 8 ml & Hydrolysis Buffer, 20 ml

33006 Reaction Vials, 100 pcs. (for 96000)

96057 96 Well Plates, 5 pcs. (for 96000/WP)

96058 Collection Plates, 5 pcs. (for 96000/WP)

96059 Pierceable Adhesive Seals for 96 Well Plates, 5 pcs. (for 96000/WP)

Startup Accessories

96100 Analytical Column, equilibrated, with test chromatogram, 1 pc.

96033 Urine Screening Standard Set (lyoph.), 4 x 1 ml

96012 System Check Solution, 1 ml

96015 Tuning Mix 1, Analytes and Internal Standards, 1 ml

96016 Tuning Mix 2, Analytes and Internal Standards, 1 ml

96017 Tuning Mix 3, Analytes and Internal Standards, 1 ml

15090 UHPLC Stainless Steel Prefilter Housing, 1 pc.

15091 Stainless Steel Prefilter, 0.2 µm, 3 pcs.

Chromsystems Multilevel Calibrator and **MassCheck**[®] Controls for Drugs of Abuse Testing in Urine

96040 6PLUS1[®] Multilevel Urine Calibrator Set (lyoph.), 7 x 1 ml

0410 **MassCheck**[®] Drugs of Abuse Testing Urine Control Set, Level I (lyoph.), 4 x 1 ml

0420 **MassCheck**[®] Drugs of Abuse Testing Urine Control Set, Level II (lyoph.), 4 x 1 ml

0430 **MassCheck**[®] Drugs of Abuse Testing Urine Control Set, Level III (lyoph.), 4 x 1 ml

Hydrolysis Products

0470 **MassCheck**[®] Drugs of Abuse Testing Urine Hydrolysis Control Set (lyoph.), 4 x 1 ml

96078 Enzyme Solution Set, consisting of:
Enzyme Reagent (lyoph.) 2 x 8 ml & Hydrolysis Buffer, 20 ml

Software (non-IVD)

42999 **CSQUANT**[®] Base Package (one or more Add-ons required)

42996 **CSQUANT**[®] Add-on for **MassTox**[®] Drugs of Abuse Testing in Urine

Please Note: **CSQUANT**[®] is not intended to give the user any information, recommendation or advice on any diagnostic decision on patients.
For research use only, not for use in diagnostic procedures.

These products are not available in all countries. Please contact your local Chromsystems sales representative for availability in your region.

Please note: The product information provided shows typical values as an example only. Please review the information provided in instruction manual and product information leaflets.

Reference: [1] Wang et al., Incomplete Recovery of Prescription Opioids in Urine using Enzymatic Hydrolysis of Glucuronide Metabolites. J. Analytical Toxicology, (2019), 571-575.