

t,t-Muconic acid is a minor metabolite of benzene and serves for the assessment of an occupational benzene exposure. In contrast to phenol (see pages 96 - 97), t,t-muconic acid is not a physiological component of urine and thus provides a higher diagnostic specificity. This ClinTox® Complete Kit represents a robust and sensitive method with a highly selective sample preparation, followed by isocratic separation with UV detection.

Benzene and Derivatives

t,t-Muconic Acid in Urine

Test Data

Linearity: 0.24 - 20 mg/l
 Recovery: 75 - 80 %
 LOD: 0.07 mg/l
 LLOQ: 0.24 mg/l
 Intraassay precision: 5.9 %
 Interassay precision: 5.5 %

HPLC Parameters

Pump: gradient pump,
 flow rate: 1.0 ml/min
 Injection volume: 50 µl
 Injection interval: 18 min
 UV-Detector: 264 nm
 HPLC-Thermostat: 45 °C

Sample Preparation

Dilution:

1 ml urine	150 µl Internal Standard IS	1 ml Reagent B
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Extraction:

Transfer the whole sample to a conditioned sample preparation column



Elution:

wash (2 x 1.5 ml Reagent C)

Elute with 2 x 1.5 ml Reagent D

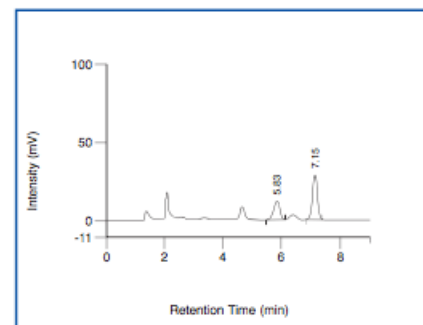


HPLC Analysis:

collect the eluates

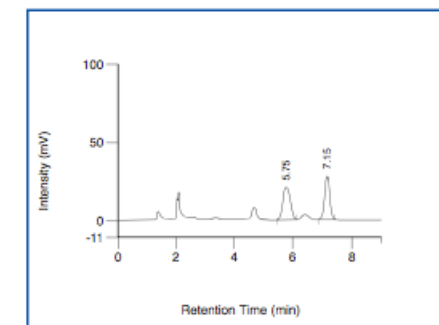
Inject 50 µl

ClinChek® Urine Control, Level I:



t,t-Muconic acid: 5.83 min, IS: 7.15 min

ClinChek® Urine Control, Level II:



t,t-Muconic acid: 5.75 min, IS: 7.15 min

Ordering Information

Order No.	Description	Quantity
51000	ClinTox® Complete Kit for t,t-Muconic Acid in Urine for 100 assays	1 pce.
Kit Components (order no. 51000):		
51008	Mobile Phase A	2 x 51008 (2 x 1000 ml)
51009	Mobile Phase B	800 ml
51011	Standard Solution	3 ml
51012	Internal Standard IS	15 ml
9922	Urine Calibrator, lyophil.	5 x 5 ml
51020	Sample Preparation Columns	2 x 51020 (2 x 50 pcs.)
51021	Reagent A	300 ml
51022	Reagent B	400 ml
51023	Reagent C	300 ml
51024	Reagent D	300 ml
	Manual	1 pce.
	Quick Reference	1 pce.
Start Accessories:		
51030	Analytical Column with test chromatogram	1 pce.
Accessories:		
FK5810	PEEK tubing (connection of prefilter and column)	1 pce.
FK5820	Stainless steel prefilter holder	1 pce.
FK5821	Replacement filter for stainless steel prefilter holder	10 pcs.
ClinChek® Controls:		
8922	Urine Control, lyophil., Level I, II	2 x 5 x 5 ml

→ High diagnostic specificity

→ Highly selective sample preparation

→ High analytical sensitivity

