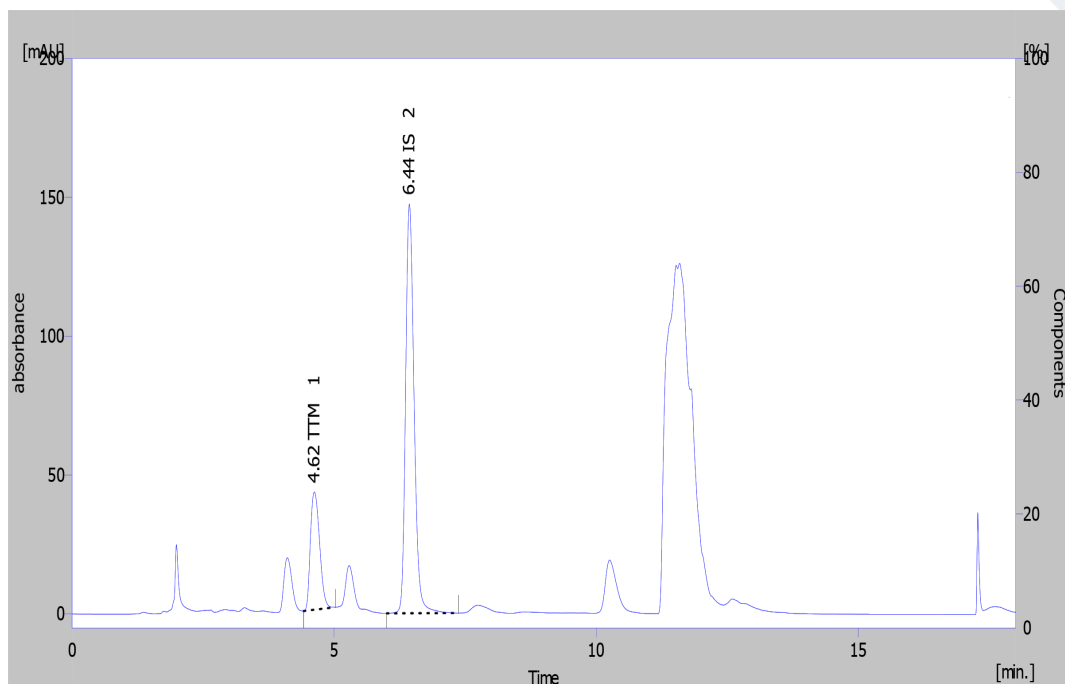


FLOCHROM[®] *t,t*-MUCONIC ACID IN URINE

Benzene is an important industrial chemical product, as it is an intermediate in the synthesis of numerous chemical products and a natural component of oil and petrol. It is also a ubiquitous environmental pollutant due to its formation in many combustion processes. Industrial emissions and traffic exhaust from burning fossil fuels, as well as personal smoking habits or exposure to environmental tobacco smoke can increase the risk of prolonged exposure to benzene. The main effect of benzene is the decrease of red blood cells, resulting in aplastic anemia and is associated with other blood disorders. It can also cause acute myeloid leukemia, also called acute non-lymphocytic leukemia. For this reason, the International Agency for Research on Cancer (IARC) has included it among the compounds of group 1, carcinogenic to humans. Currently, the Scientific Committee for Occupational Exposure Limits classifies it among the genotoxic carcinogens for which the existence of a threshold cannot be sufficiently supported because even low exposures are considered a significant risk. Benzene causes toxic effects through metabolism. It is metabolized by cytochrome P450 (CYP) enzymes to benzene oxide from which all other genotoxic metabolites are derived. *t,t*-MA is one of the minor urinary metabolites of benzene exposure and is recommended for biological monitoring of benzene in the workplace.



HPLC system conditions

Injection volume: 50 µL

Flow rate: 1.0 mL/min

Running time: 18 min

Column heater: 45°C

Fluorescence detector: 264 nm

Column conditioning: column should be conditioned for 10 min at flow rate of 1.0 mL/min with mobile phase

Sample preparation

- Add 1 mL sample in a 10 mL vial, 150 µL of Internal Standard (EUH11031) and vortex shortly
- Add 1 mL of Diluting Solution (EUH11021) and vortex shortly
- Place a SPE Column (EUH11061) on a manifold for each sample to analyze
- Dispense 3 mL of Activating Solution (EUH11022) and percolate under light vacuum
- Dispense 3 mL of Conditioning Solution (EUH11023) and percolate under light vacuum
- Dispense all contents of the sample tube
- Dispense 1.5 mL of Washing Solution (EUH11024) and percolate under light vacuum
- Dispense 1.5 mL of Washing solution (EUH11024) and percolate under high vacuum until the column is dry
- Dispense 1.5 mL of Eluting Solution (EUH11025) and percolate under light vacuum and collect the eluate in a clean test tube
- Dispense 1.5 mL of Eluting Solution (EUH11025) and percolate under light vacuum and collect the eluate in a clean test tube until the column is dry
- Vortex shortly the eluate and transfer it to an autosampler vial
- Inject 50 µL into the HPLC system

Performance

ANALYTE	LINEARITY (µg /mL)	LLOD (µg /mL)	LLOQ (µg /mL)	CV% INTRA	CV% INTER
<i>t,t</i> -MA	0.252 - 20	0.076	0.252	0.7 - 1.1	3.8 - 5.3

Ordering guide

EUH11100	FloChrom® <i>trans-trans</i> -muconic acid in Urine	100 assays
EUH10051	Control for Occupational Medicine	5 x 2 x 2.5 mL
EUH11090	Chromatographic Column	1 pc

CHR-8-22-REV.0