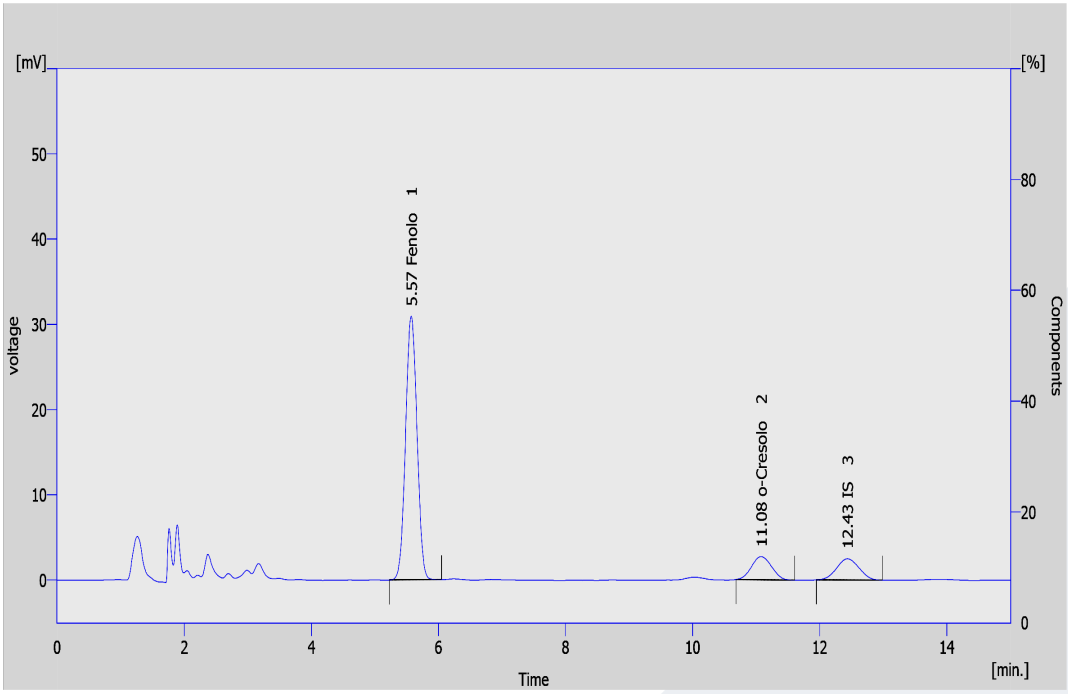
BSN
Biological Sales Network

METHOD AT A GLANCE

FLOCHROM® o-CRESOL AND PHENOL IN URINE

Occupational medicine monitors a risk survey for the health of exposed workers through the measurement of laboratory biomarkers.
Toluene, Benzene and Phenol are hazardous professional substances, which are biomonitored through the dosage of o-Cresol and Phenol. Toluene is one of the most important industrial chemicals widely used in fuels, fine chemicals, pharmaceuticals, paints, glues, varnishes and inks. Biological monitoring of Toluene exposed population includes the determination of Hippuric Acid and o-Cresol in the urine.
Hippuric acid is a physiological component of urine. For this reason, HPLC determination of Hippuric Acid is primarily used mostly as a rapid screening method for estimating exposure to Toluene. Unlike Hippuric Acid, o-Cresol is not physiologically contained in the urine and is therefore more suitable for evaluating the actual body load of Toluene.
Phenol is a toxic substance and is considered a potential human carcinogen. To assess occupational exposure, the concentration of phenol excreted in the urine is determined. Furthermore, Phenol is the main metabolite of Benzene, a powerful carcinogen, which is a component of mineral oils and fuels and which develops during combustion processes. The high volatility of Benzene causes ubiquitous diffusion in the environment. Tobacco smoke is also considered the most important source of individual exposure. Benzene is metabolized primarily to Phenol by the cytochrome P-450 2E1 system and is subsequently excreted in the urine. A minor part of benzene is oxidized to form t,t-Muconic Acid.



PROVIDE PERSONAL SOLUTIONS

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HPLC system conditions

Injection volume: 10-20 µL (variable according to instrumental sensitivity)
Flow rate: 1.0 mL/min
Running time: 15 min
Column heater: 30°C
Fluorescence detector: 277 nm excitation, 300 nm emission
Column conditioning: column should be conditioned for 10 min at flow rate of 1.0 mL/min with mobile phase

Sample preparation

- Prepare a volume of mix sufficient for the number of samples to be analyzed, containing 50 µL of Internal Standard + 250 µL of Buffer Solution + 50 µL of Hydrolysis Solution for each sample
- dispense 250 µL of sample into a test tube and add 350 µL of the Mix solution prepared previously
- Incubate at 37°C for at least 2 hours and up to 24 hours
- Place an SPE Column on a manifold for each sample to analyze
- Dispense 2 mL of Activation Solution and percolate under light vacuum
- Dispense 2 mL of Conditioning Solution and percolate under light vacuum
- Dispense all contents of the sample tube
- Dispense 2 mL of Washing Solution and percolate under light vacuum
- Dispense 2 mL of Washing Solution and percolate under high vacuum until the column is dry
- Dispense 2 mL of Eluent Solution and percolate under light vacuum and collect the eluate in a clean test tube
- Vortex the eluate and transfer it to an autosampler vial
- Inject 10 - 20 µL into the HPLC system

Performance

ANALYTE	LINEARITY (µg /mL)	LLOD (µg /mL)	LLOQ (µg /mL)	CV% INTRA	CV% INTER
o-Cresol	0.21 – 50.0	0.06	0.21	0.6 – 2.7	4.3 – 7.7
Phenol	0.36 – 400	0.11	0.36	0.9 – 2.9	3.7 – 6.2

Ordering guide

EUH10100	FloChrom® o-Cresol and Phenol in Urine	100 assays
EUH10051	Control for Occupational Medicine	5 x 2 x 2.5 mL
EUH01090	Analytical Column	1 pc

CHR-9-22-REV.0

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