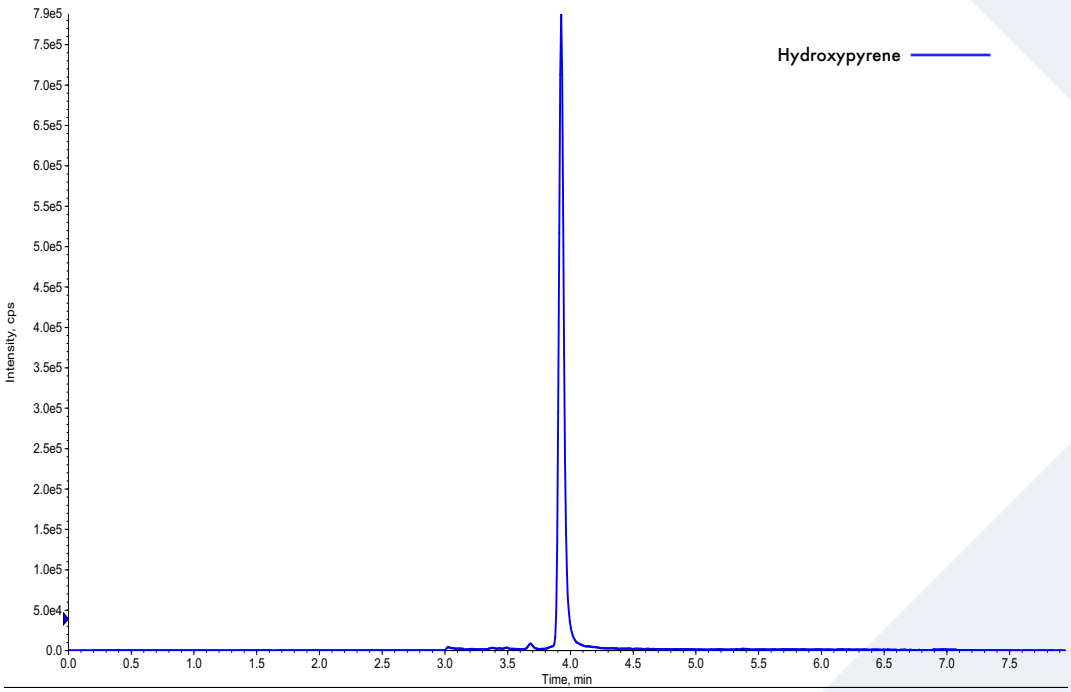
METHOD AT A GLANCE

FLOMASS® HYDROXIPIRENE IN URINE

1(OH)Pyr is formed in the body following a hydroxylation of pyrene as its elimination metabolite and can be used as a biomarker to assess the internal load of polycyclic aromatic hydrocarbons (PAHs). PAHs are formed during incomplete combustion of organic material, such as oil, fuels, tobacco and wood and can consist of 2 to 6 condensed benzene rings. Some of these substances are potentially carcinogenic or mutagenic. For this reason, it is important to control the levels of PAHs absorbed by the body, especially in the professional field. In this regard, the sectors with the greatest exposure are those of coke processing, coal gasification and gas refining, tar and asphalt processing, aluminum production, construction of roofs and cleaning the flues. As for the non-professional sector, however, the major sources of these substances are exhaust gases, fossil fuels, wood and tobacco smoke and some food cooking process. Once introduced into the body, PAHs undergo liver metabolism, forming epoxides that can bind DNA, thus causing mutations that could initiate a carcinogenic process. The main route of elimination of these substances is in the urine in the form of complexes with glucuronic acid or sulphate. PAHs are a blend, but the largest share is made up of pyrene. For this reason, the 1(OH)Pyr allows you to obtain information on the total amount of PAHs absorbed.



PROVIDE PERSONAL SOLUTIONS

B.S.N. S.r.l. | Biological Sales Network
Tel. +39.0374.351005
Via Coelli, 18 26012 Castelleone (CR)

contact@bsn-srl.it
bsn-srl.it

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HPLC-MS/MS system conditions

Ionization: ESI negative mode
MS/MS: specific MRM
Injection volume: 5-15 µL (variable according to instrumental sensitivity)
Running time: 8 min
Column heater: 45°C
Column conditioning: column should be conditioned for 5 min at chromatographic gradient initial condition. Then, run 3 blank injections (MPA only) using the gradient as indicate in IFU

Sample preparation

- Prepare a mix with 30 µL Buffer Solution + 2 µL Internal Standard + 1 µL Hydrolysis Solution sufficient for the number of samples to be analyzed
- Add 100 µL sample in a vial and 30 µL solution mix as previously prepared
- Incubate at 37°C for 3 h
- Centrifuge at 12000 rpm for 5 min
- Transfer supernatant in an autosampler vial
- Inject 5-15 µL according to instrumental sensitivity and analyze with HPLC-MS/MS technique

Performance

INSTRUMENT	ANALYTE	LINEARITY (ng/mL)	LLOD (ng/mL)	LLOQ (ng/mL)	CV% INTRA	CV% INTER
Sciex 6500	Hydroxypirene 1	0.14 – 50	0.04	0.14	4.2 – 8.8	5.1 – 11.1
	Hydroxypirene 2	0.23 – 50	0.07	0.23	6.3 – 9.4	8.5 -10.7
Waters Xevo TQ-S Micro	Hydroxypirene 1	0.22 – 50	0.06	0.22	2.0 – 2.1	6.3 – 8.6
	Hydroxipirene 2	0.30 - 50	0.09	0.30	4.5 – 6.0	8.8 – 10.1

Ordering guide

EUM27200	FloMass® Hydroxypirene in Urine	200 assays
EUM27041	6-Levels Calibrators, lyophil.	2 x 6 x 1.0 mL
EUM27051	2-Levels Controls, lyophil.	2 x 2 x 1.0 mL
EUM00C27	Chromatographic Column	1 pc
EUM00A14	Precolumn	1 pc

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