

ETHYL ACETATE in urine by GC-FID
Code GC01510

BIOCHEMISTRY

The ethyl acetate at room temperature is presented as a volatile liquid, colorless and with a pleasant fruity smell, a compound is highly flammable and irritating. Is widely used as a solvent for paints, resins and glues and it is relatively less toxic than other chlorinated solvents. The proposed method determines the ethyl acetate inject in GC / FID a rate of urine sample previously treated in an appropriate solvent.



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This product fulfills all the requirements of Directive 98/79/EC on in vitro diagnostic medical devices (IVD). The declaration of conformity is available upon request.

N° 002	Ethyl Acetate in urine by GC/FID	06/2024
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TECHNICAL FEATURES

Principle of the Method :

This method allows to determine the urinary ethyl acetate by GC-FID. The ethyl acetate is first diluted and then is directly injected into GC. aliquot of urine sample previously treated in an appropriate solvent.

Recovery: >95%

Sensitivity: 30 mg/l

Dynamic Range of the Method: 30 – 15.000 mg/l

Reference Values: n.d.

Components of the kit :

All Reagents are ready to use and stable 3 years at $\leq 20^{\circ}\text{C}$.

Reagent A – Stabilizing Solution, 1 x 150 ml

Reagent B – Test Solution / Chemical Standard, 1 x 5 ml **Store at 2-8 °C**

Minimum Instrumental equipment required:

GC/FID
Operational Computer

Optional Equipment:

Autosampler

Urine Collection Procedure:

After work shift, collect 10 ml of urine in a suitable test tube.

Stable 4 weeks at -20°C .

IMPORTANT: USE ONLY IN GLASS TUBE EVERY STEP - DO NOT USE PLASTIC TUBES

PREANALYTICAL PROCEDURE

Preparation of Test Solution.

Dispense in a 10 ml glass tube:

- 450 µl of **Reagent A – Stabilizing Solution**
- 50 µl of **Reagent B – Test Solution**

Vortex for 10 sec.

The samples are injected directly transferring the supernatant into vials for GC

Inject 2 µl of solution into gas chromatograph GC. Verify that the Test solution has retention time similar to fig. 1. If the Test is all right you can start with the analytical procedure; if not, check the functionality of the analytical system.

ANALYTICAL PROCEDURE

STEP 1: Preparation of Calibration Standard at **450 mg/l**

Dispense in a **glass tube** of 10ml:

- 200 µl of **H₂O**
- 200 µl of **Reagent B – Test Solution**

Mix at Vortex

Dispense in a **glass tube**:

- 900 µl of **Urine** without Ethyl Acetate
- 100 µl of **Test Solution previously diluted**

IMPORTANT: This Calibration Standard Solution is prepared from time to time

To verify that the urine is effectively free from Ethyl Acetate, to prepare a Blank:

- 900 µl of **Urine**
- 100 µl of **H₂O HPLC grade**

If the Blank urine presented the peak of Ethyl Acetate, proceed to identify the quantitative difference between the areas / heights of the peaks of Ethyl Acetate in urine enriched and blank.

Dispense in a **glass tube**:

	Calibration Standard	Control	Sample	Blank
Calibration Standard	100 µl			
Control		100 µl		
Sample			100 µl	
Blank				100 µl
Reagent A – Stabilization Solution	900 µl	900 µl	900 µl	900 µl

Close vials hermetically

- Centrifuge 2 minutes at 5000 rpm
- Put all the supernatant in vials for GC-FID. Inject 2 µl in GC-FID.

Prepare work list and start the series according to the system's specifications.

ETHYL ACETATE - Warnings

REAGENT B : TEST SOLUTION / CHEMICAL STANDARD

ETHYL ACETATE	9000 mg/l
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SET OF GAS-CROMATOGRAPH:

- Rxi-624 Sil MS Column 30 m x 0,32 mm x 1,80 µm (conditioned)
- Injector Temperature 280 °C
- Splitting Ratio:
 - In: OFF
 - 0' ON:10
- Temperature 40 °C x 3,9 minutes + 20 °C/min till up 150 °C x 0 minutes + 50 °C/min till up 280 °C x 0 minutes (run 12 minutes)
- Column Flow: 1 ml/min
- Detector Temperature (FID): 240 °C
- Range (sensitivity) Detector: 12 (max)

CONDITIONING OF FACTOR FOUR VF-624 MS COLUMN:

Follow the manufacturer prescription.

CLEANING OF THE COLUMN ANF SYRINGE:

Before injection wash the syringe with ACETONE.
Disconnect the detector. Keep the column at the highest temperature for the recommended time. (See the manufacturer 's instructions)

ACCESSORIES AND CONSUMABLES

CODE	DESCRIPTION	PACKAGING
GC01520	Chemical Standard for Ethyl Acetate	1 x 2 ml
ZRE13870	Rxi-624 Sil MS (30 m x 0,32 mm – 1,8 um) Capillary Column	1 Pc
S29057U	Standard glass vials of 2 ml with screw cap	1 x 100 Pcs
S29046U	Caps for Standard glass vials of 2 ml with screw cap	1 x 100 Pcs
S24717	Insert 100 ul for vials of 2 ml	1 x 100 Pcs



ETHYL ACETATE IN URINE

(Reference Chromatograms)

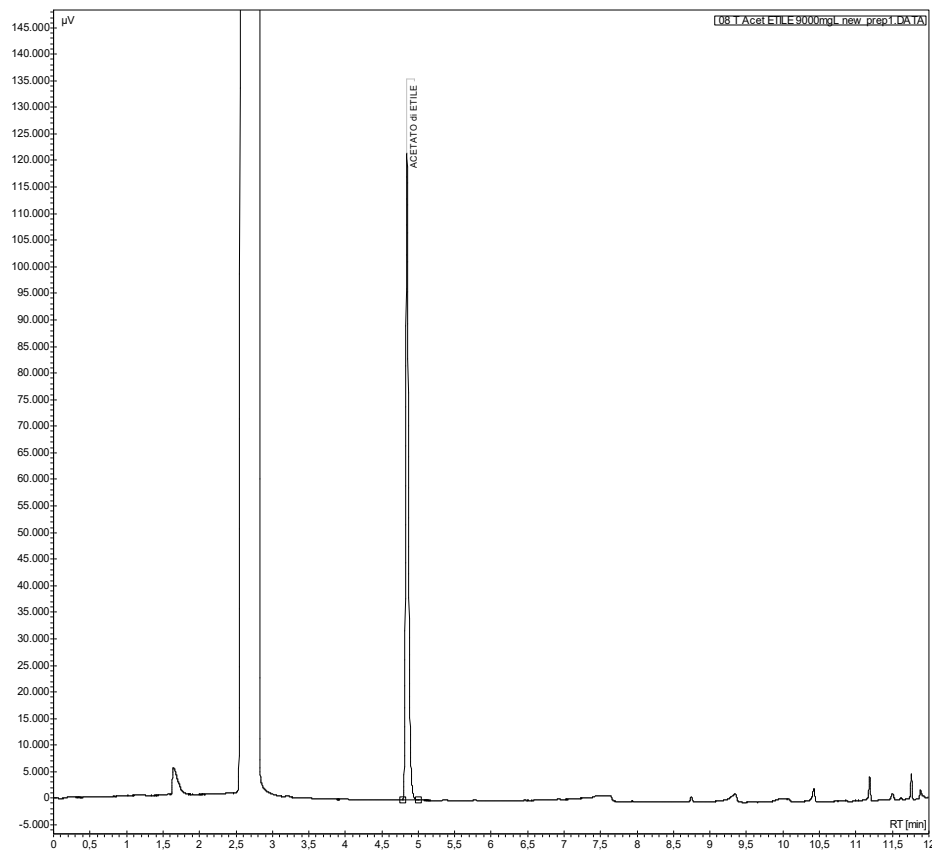


Fig. 1 :	Test Solution
	R.T. 4.9 ETHYL ACETATE

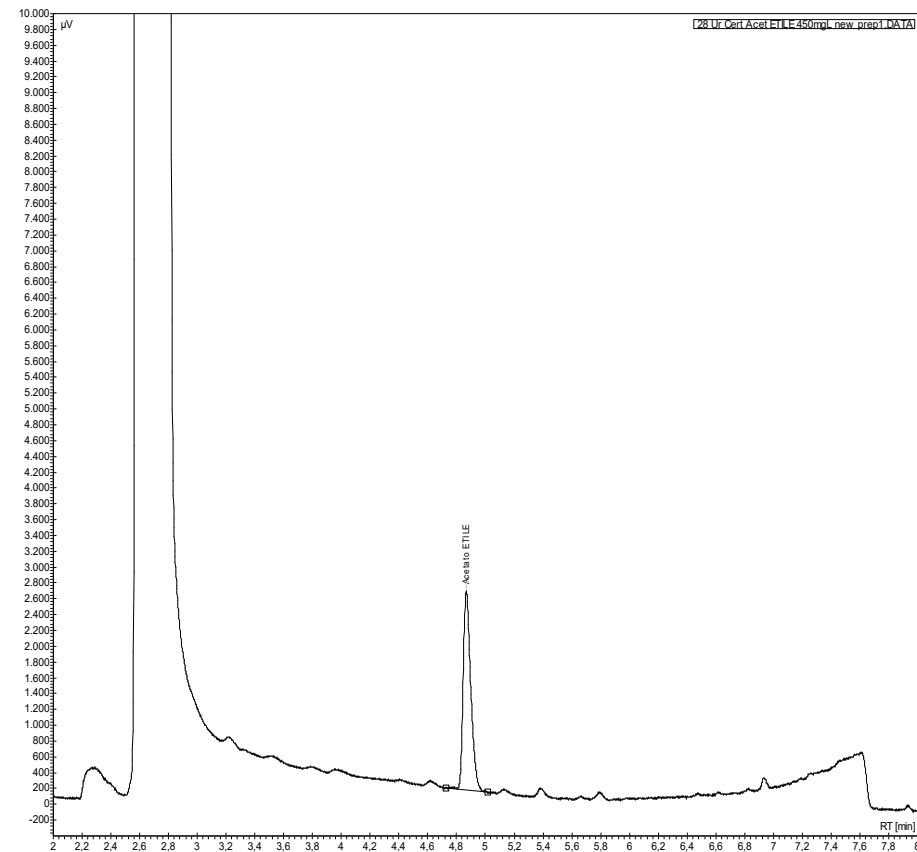


Fig. 2 :	Calibration Standard
	R.T. 4.9 ETHYL ACETATE 450 mg/l

ETHYL ACETATE IN URINE

(Reference Chromatograms)

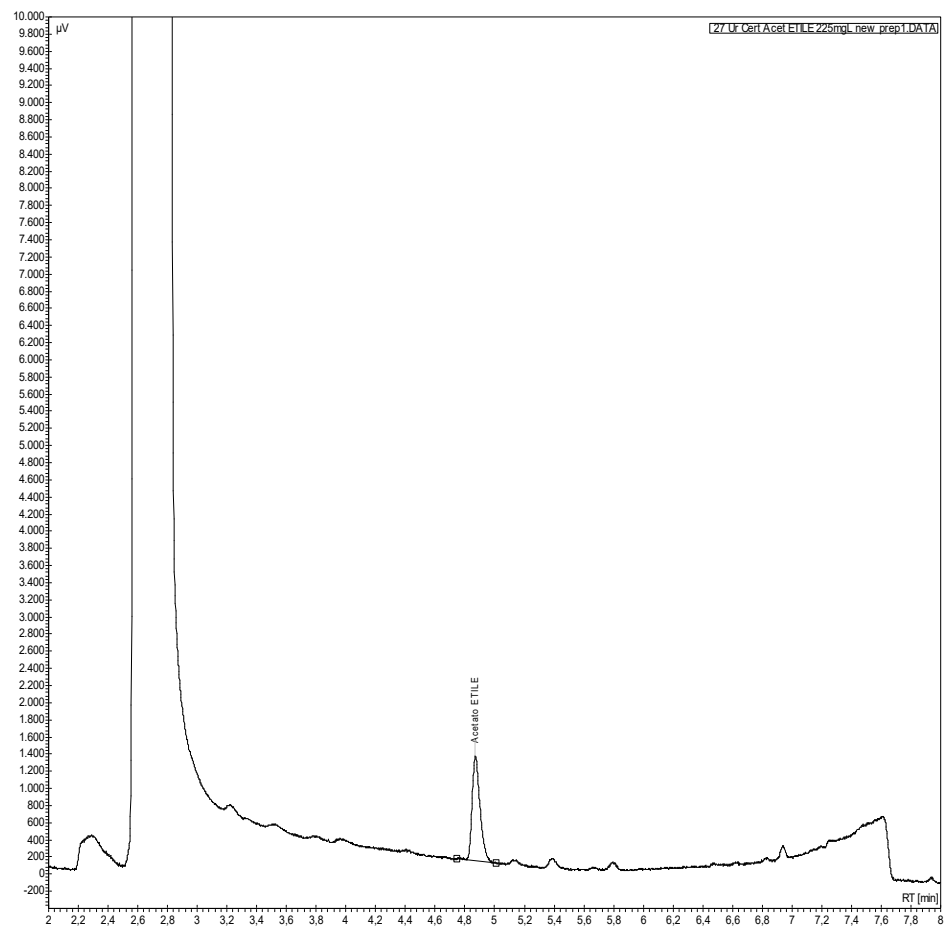


Fig. 3 :	Urine Sample
	R.T. 4.9 ETHYL ACETATE 225 mg/l