

PROPYL ALCOHOL in urine by GC-FID
Code GC06510

BIOCHEMISTRY

Propyl alcohol is alcohol, which at room temperature is presented as a colorless liquid smelling of alcohol. It is composed of highly flammable, irritant, which is used as a solvent in pharmaceutical preparations of resins and cellulose esters. In nature is formed in small amounts in many fermentation processes. The proposed method determines the propyl alcohol injected in GC / FID 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.

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TECHNICAL FEATURES

Principle of the Method :

This method enables the propyl alcohol urine by GC-FID. The propyl alcohol is first diluted and then is directly injected into GC.

Recovery: 100%

Sensitivity: < 1 mg/l

Dynamic Range of the Method: 1 – 300 mg/l

Normal Values: n.d.

Components of the kit :

All the reagents are ready-to-use and stable 3 years at Room Temperature $\leq 20^{\circ}\text{C}$.

Reagent A – Diluting Solution, 1 x 100 ml

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

Minimum Instrumental equipment required:

GC/MS
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 .

PREANALYTICAL PROCEDURE

Preparation of Test Solution.

Dispense in a vial of 10 ml:

- 900 µl of **Reagent A – Diluting Solution**
- 100 µl of **Reagent B – Test Solution**

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 Solution at 16 µg/l

Dispense in a tube:

- 900 µl of **Urine**
- 100 µl of **Reagent B – Chemical Standard**

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

To verify that the urine is effectively free from Propyl Alcohol, to prepare a Blank:

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

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

Dispense in a tube:

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

- Put all the supernatant in vials for GC-FID. Inject 2 µl in GC-FID.

Close vials hermetically

Mix at Vortex

Place them in the Sampler

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

PROPYL ALCOHOL - Warnings

REAGENT B : TEST SOLUTION / CHEMICAL STANDARD

PROPYL ALCOHOL	160 mg/l
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SET OF GAS-CROMATOGRAPH:

- Factor Four VF- 624 ms 30 m x 0,32 mm x 1,80 µm Column (conditioned)
- Injector's Temperature 250 °C
- Splitting Ratio about 1:5
- Temperature 60 °C x 3 minutes + 20 °C/min up to 160 °C x 1 minute + 40 °C/min up to 280 °C x 2 minutes (run 14 minutes)
- Column Flow: 1 ml/min
- Detector (FID) Temperature: 250 °C
- Range (sensitivity) of Detector: 12 (max)
- Make Up Flow N₂: 25 ml/min
- H₂: 30 ml/min
- Air: 300 ml/min

CONDITIONING OF FACTOR FOUR VF-624 MS COLUMN

Follow the manufacturer prescription.

CLEANING OF THE COLUMN

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
GC06520	Chemical Standard for Propyl Alcohol	1 x 2 ml
ZRE13870	Rxi-624 Sil MS (30 m x 0,32 mm – 1,8 µm) 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 µl for vials of 2 ml	1 x 100 Pcs

PROPYL ALCOHOL IN URINE (Reference Chromatograms)

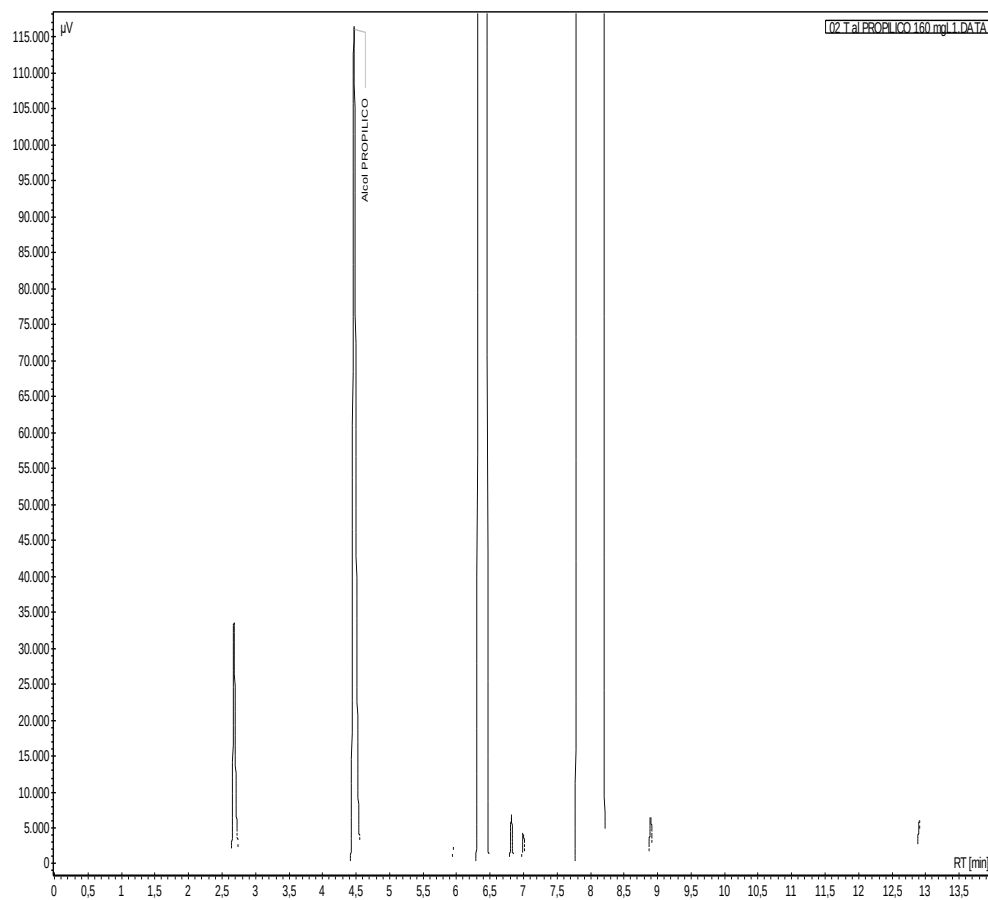


Fig. 1 :	Test Solution
	R.T. 4.5 PROPYL ALCOHOL 160 mg/l

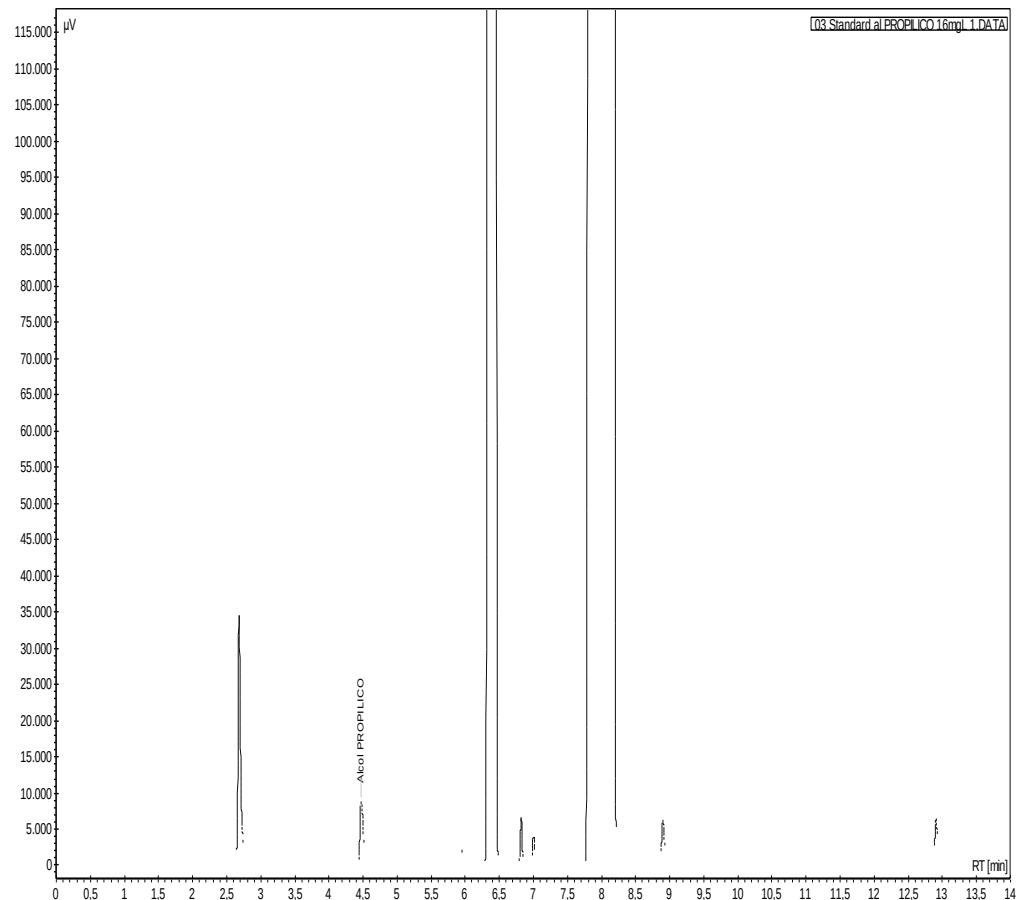


Fig. 2 :	Calibration Standard
	R.T. 4.5 PROPYL ALCOHOL 16 mg/l

PROPYL ALCOHOL IN URINE (Reference Chromatograms)

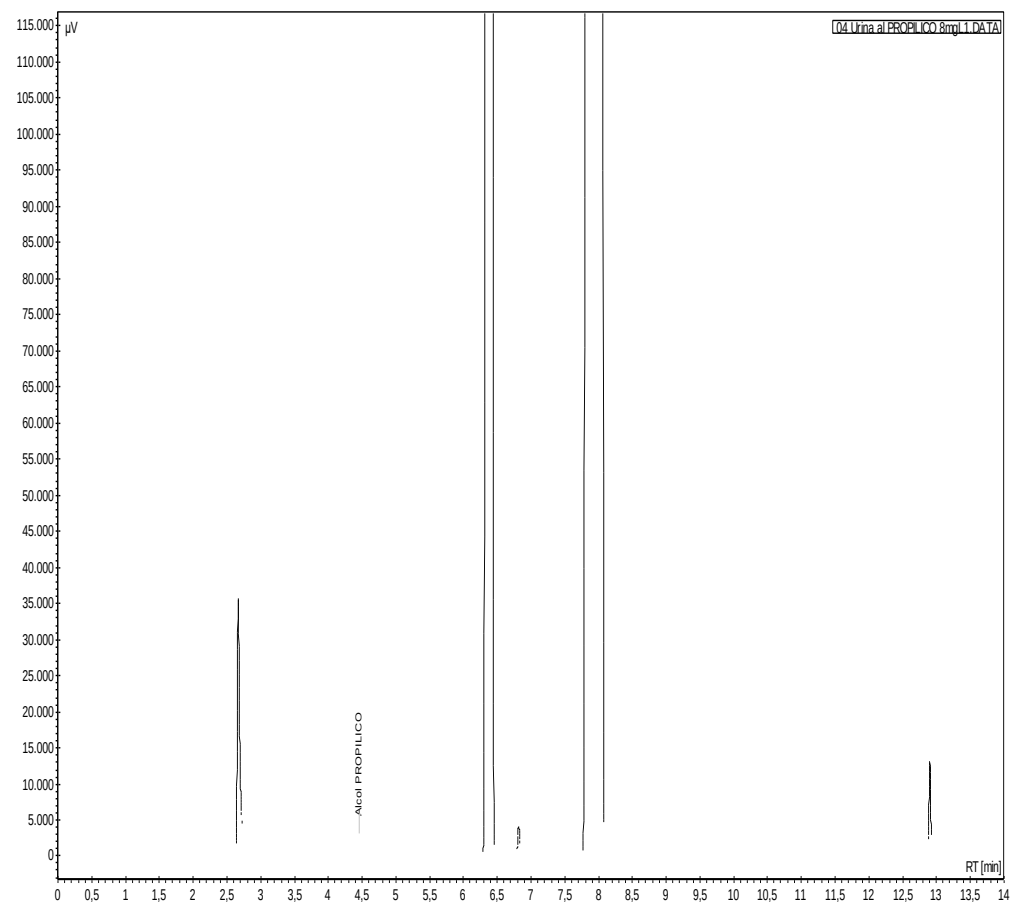


Fig. 3 :	Urine Sample
	R.T. 4.5 PROPYL ALCOHOL 8 mg/l