

# URIC ACID T FL

AU F100 CH	5 x 20 ml
AU F250 CH	5 x 50 ml
AU F402 CH	4 x 100 ml

## INTENDED USE

Reagent for quantitative in vitro determination of uric acid in biological fluids.

## SUMMARY OF TEST

In humans, uric acid is the major product of the catabolism of the purine nucleosides, adenosine and guanosine. The daily synthesis rate of uric acid is approximately 400 mg; dietary sources contribute another 300 mg. In men consuming a purine-free diet, the total body pool of exchangeable urate is estimated at 1200 mg; this same value is estimated to be 600 mg in women.

## PRINCIPLE OF THE METHOD

Uric acid in sample is oxidized to allantoin in presence of the enzyme uricase and  $H_2O_2$  is generated. The  $H_2O_2$  reacts with ADPS and 4-aminoantipyrine in the presence of peroxidase to form a violet dye. The intensity of color formed is proportional to the uric acid concentration and can be measured photometrically to 546 (510 - 560) nm.

## KIT COMPONENTS

### For in vitro diagnostic use only.

The components of the kit are stable until expiration date on the label.

Keep away from direct light sources.

**UA T R1** F100: 4 x 20 ml (liquid) blue cap  
F250: 4 x 50 ml (liquid) blue cap  
F402: 4 x 80 ml (liquid) blue cap

**UA T R2** F100: 1 x 20 ml (liquid) red cap  
F250: 1 x 50 ml (liquid) red cap  
F402: 1 x 80 ml (liquid) red cap

Composition in the test: phosphate buffer pH 7.0, ADPS  $\geq 0.2$  mM, 4-aminoantipyrine 0.3 mM, uricase  $\geq 450$  U/l, POD  $\geq 2500$  U/l, surfactant.

**Standard:** uric acid 5 mg/dl - 5 ml

Store all components at 2-8°C.

## MATERIALS REQUIRED BUT NOT SUPPLIED

Current laboratory instrumentation. Spectrophotometer UV/VIS with thermostatic cuvette holder. Automatic micropipettes. Glass or high quality polystyrene cuvettes. Saline solution.

## REAGENT PREPARATION

Code F100: add 5 ml of reagent R2 to a bottle of reagent R1.

Code F250: add 12.5 ml of reagent R2 to a bottle of reagent R1.

Code F402: add 20 ml of reagent R2 to a bottle of reagent R1.

If reagents are mixed in reduced quantities, mix 4 parts of reagent R1 with 1 part of reagent R2.

Stability of working reagent: use preferably within 15 days at 2-8°C, away from light sources.

Stability of unmixed reagents: up to expiration date on labels at 2-8°C;

Stability since first opening of vials of unmixed reagents: use preferably within 60 days at 2-8°C.

## PRECAUTIONS

**UA T R1: Danger.** Causes serious eye damage (H318).



Causes skin irritation (H315). Wear protective gloves. Eye protection (P280). IF ON SKIN: Wash with plenty of water (P302+P352). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing (P305+P351+P338). Immediately call a doctor (P310). If eye irritation persists: get medical advice (P337+P313).

**UA T R2: Warning.** Causes serious eye irritation



(H319). Causes skin irritation (H315). Wear protective gloves. Eye protection (P280). IF ON SKIN: Wash with plenty of water (P302+P352). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing (P305+P351+P338). If eye irritation persists: get medical advice (P337+P313).

**Standard:** It is not classified as hazardous.

## SPECIMEN

Serum, plasma heparinate. Oxalate, citrate and fluoride could yield a small decrease of uric acid. Urine.

Uric acid is stable 5 days at 4-25°C.

Dilute urine sample 1:10 with deionized water.

## TEST PROCEDURE

Wavelength: 546 nm (allowed 510  $\div$  560 nm)  
Lightpath: 1 cm  
Temperature: 37°C

	blank	standard	sample
dispense:			
reagent	1 ml	1 ml	1 ml
water	25 $\mu$ l	-	-
standard	-	25 $\mu$ l	-
sample	-	-	25 $\mu$ l

Mix, incubate at 37°C for 5 minutes.  
Read absorbances of standard (As) and samples (Ax) against reagent blank.

## RESULTS CALCULATION

Serum/plasma sample:

uric acid mg/dl =  $Ax/As \times 5$  (standard value)

Random urine sample:

uric acid mg/dl =  $Ax/As \times 5 \times 10$   
(standard value and dilution)

24 hours urine sample (uric acid mg/24h):

uric acid mg/24h =  $Ax/As \times 5 \times 10 \times$  diuresis (dl)  
(standard value, dilution and diuresis in dl)

## EXPECTED VALUES

Serum/plasma samples:

Men: 3.5 - 7.2 mg/dl (0.21 - 0.42 mmol/l)

Women: 2.6 - 6.0 mg/dl (0.15 - 0.35 mmol/l)

24h urine:

250 - 750 mg/24h (1.50 - 4.50 mmol/l)

Each laboratory should establish appropriate reference intervals related to its population.

## QUALITY CONTROL AND CALIBRATION

It is suggested to perform an internal quality control. For this purpose the following human based control sera are available:

### QUANTINORM CHEMA

with normal or close to normal control values

### QUANTIPATH CHEMA

with pathological control values.

If required, a multiparametric, human based calibrator is available:

### AUTOCAL H

Please contact Customer Care for further information.

## TEST PERFORMANCE

### Linearity

the method is linear up to 30 mg/dl.

If the value is exceeded, it is suggested to dilute sample 1+9 with saline and to repeat the test, multiplying the result by 10.

### Sensitivity/limit of detection (LOD)

the limit of detection is 0.04 mg/dl.

### Interferences

no interference was observed by the presence of:

hemoglobin	$\leq 50$ mg/dl
bilirubin	$\leq 33$ mg/dl
lipids	$\leq 1200$ mg/dl

### Precision

intra-assay (n=10)	mean (mg/dl)	SD (mg/dl)	CV%
sample 1	4.88	0.08	1.73
sample 2	10.30	0.06	0.56

inter-assay (n=20)	mean (mg/dl)	SD (mg/dl)	CV%
sample 1	4.82	0.12	2.41
sample 2	10.28	0.24	2.35

### Methods comparison

a comparison between Chema and a commercially available product gave the following results:

Uric acid T FL Chema = x  
Uric acid competitor = y  
n = 85

$y = 0.9832x - 0.0883$  mg/dl  $r^2 = 0.999$

## WASTE DISPOSAL

This product is made to be used in professional laboratories.

P501: Dispose of contents according to national/international regulations.

## REFERENCES

Barham D., Trinder P. - Analyst, 97 142 (1972)

Fossati P., Prencipe L., Berti G. - Clin. Chem. 26, 277 (1980).

Tietz Textbook of Clinical Chemistry, Second Edition, Burtis-Ashwood (1994).

Milena Jelkic-Stankov, Predrag Djurdjevic and Dejan Stankov - J. Serb. Chem. Soc, 68 (8-9), 691-698 (2003).

## MANUFACTURER

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## SYMBOLS

	in vitro diagnostic medical device
	batch code
	catalogue number
	temperature limit
	use by date
	caution
	consult instructions for use