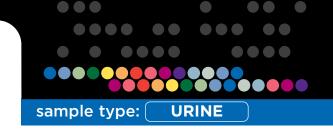


# **Toxic Element Clearance Profile**



This Toxic Element Clearance Profile measures urinary excretion of a diverse range of potentially harmful elements, both well known toxics such as lead and mercury, as well as new technology toxics such as niobium.

> The Toxic Element Clearance Profile offers an advanced, comprehensive assessment of toxic and potentially toxic elements excreted in the urine. In addition to measuring classic elemental toxics, this profile includes elements used in medical, aerospace, nuclear and high-tech electronics industries. Use of these potential toxins is increasing because of their growing commercial, industrial, and medical applications.

## Sources of Exposure:

Accumulations of these toxics can occur in the human body in response to occupational exposures or to environmental exposures from toxic release in air, soil, or industrial waste streams. These include:

- Metal refining
- Fabrication of nuclear reactor fuel assemblies

Alloying

- Electronics and computer manufacturing
- Plating and parts manufacture in aerospace and machine tool industries

According to the EPA, the U.S. has the largest electronics (including computer) workforce in the world. Exposures to the measured elements can occur in other occupations as well, including:

- Welding and metal shaping
- Military or police service (with weapons use)
- Plumbing

• Handling and disposal of wastes

Oil refining

- Petrochemical production
- Manufacture of pigments and coatings

# **Health Consequences of Exposure:**

Evidence suggests that chronic toxic element exposure can adversely affect:

- Energy levels
- Reproductive function
- Neurological development and function
- Respiratory, cardiac, hepatic and immune functions

Cancer risk

• Cognitive and emotional health

mercury antimony nickel niobium arsenic barium platinum bismuth rubidium thallium cadmium thorium cesium gadolinium tin gallium tungsten

- Toxic Elements (ratioed to

•Analytes:

creatinine):

aluminum

lead

• Degenerative conditions

- Nutritional Element: sulfur

# •Specimen requirements:

# 2 tubes of urine •Before Taking this Test:

 Avoid taking creatine supplements (2 days before test)

uranium

- Check with your healthcare provider about what medications and supplements to avoid (2 days before test)
- Do not collect urine during a menstrual period
- See instructions inside test kit for details

Researchers are discovering detrimental health effects of toxic heavy metals at lower and lower exposure levels. This raises the issue of whether any toxic element level in the body is safe.

## **Toxic Element Testing:**

The Toxic Element Clearance Profile assesses urinary excretion of elements acquired through either chronic or acute exposure. The test enables practitioners to effectively monitor the progress of detoxification regimens and nutrient element status during treatment. All toxic metals are reported as micrograms/g creatinine or as micrograms per 24 hours (if a 24-hour urine specimen is provided).

# "Provocation" Urine Testing:

Urine can be collected following the administration of a "challenge" agent (such as EDTA, DMSA, DMPS, and D-penicillamine) targeting specific toxic elements. Depending on the agent administered, urine collection may be spot or short-term (2-6 hours), intermediate (8-12 hours) or a complete 24-hour collection. Since many detoxification agents are element-specific, this approach is best utilised when the clinician suspects specific heavy metal toxicities.

NOTE: This form of testing requires specific instruction of appropriate chelation "provocation" protocol by the reviewing practitioner.





Innovative Testing for Optimal Health

Patient: SAMPLE Order Number:

PATIENT Completed: September 09, 2005

 Age: 40
 Received: July 20, 2005

 Sex: M
 Collected: July 20, 2005

MRN:

#### Toxic Elements Results in µg/g creatinine **TMPL** Element Reference Range Reference Range Lead 04 <= 14 0.86 <= 2.19 Mercury (1.2) <= 22.3 Aluminum (0.012) Antimony <= 0.149(o) <= 50 (0.1) <= 6.7 Barium (0.19) Rismuth $\leq = 0.76$ Cadmium (0.05) <= 0.64 (0.0) <= 10.5 Cesium Gadolinium (0.821) <= 0.019 (0.413) <= 0.028 Gallium (0.45) <= 3.88 Nickel 0.082 Niobium <= 0.084 0.078 <= 0.033 Platinum <= 2,263 Rubidium (0 0.133 Thallium <= 0.298 0.083 <= 0.124 0.78 <= 2.04 Tin Tungsten 0.094 <= 0.211 0.046 <= 0.026

# Results in mg/g creatinine Element Reference Range Range Sulfur\* 367-1,328 \* Elevated sulfur may indicate the presence of a chelating agent. \*\*Creatinine Concentration\*

Toxic Element Clearance Profile in µg/g Creatinine

Surrey KT3 6NB

Genova Diagnostics ( Europe Parkgate House 356 West Barnes Lane New Malden

# Urine Creatinine • 136.00 38.00-200.00 mg/dL

## **Collection Information**

Urine Total Volume (in milliliters): 1,200
Length of Collection: (in hours) 24.0

**Provocation Comment:** 

Information regarding provocation was not provided.

## TMPL

**Tentative Maximum Permissible Limit** (TMPL) - Element excretion is significantly elevated, consistent with increased body burden. Increased element concentrations can have a negative impact on overall health and well-being. These values are derived from Casaret and Doull's **Toxicology: The Basic Science of Poisons**, 5th Ed. 1996 McGraw Hill NY, NY p 997-998. Units have been standardized.

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ◆ as cleared by the U.S. Food and Drug Administration, assays are For Research Use Only.

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TX-CR RMS 314 Rev 7

For test kits, clinical support, or more information contact:

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More detailed publications with references are also available: www.GDXuk.net

# This test reveals important clinical information about:

- Urinary excretion of a diverse spectrum of toxic elements and elements, which are toxic at excessive levels, for a total of 20 potentially toxic elements
- The need for and progress of detoxification therapies
- Levels of toxic elements ratioed to creatinine, which provides enhanced accuracy and more flexibility in specimen collection (spot, shortterm, intermediate, or 24-hour)