

Micro Trace Minerals Laboratory

environmental & clinical laboratory

Röhrenstrasse 20, 91217 Hersbruck, Germany
P.O.Box 4613; Boulder, CO 80306-4613, USA

Phone: +49 (0) 9151/4332
Facsimile: +49 (0) 9151/2306
<https://microtrace.de>
service@microtrace.de



MINERAL ANALYSIS

Hair

		Lab Number		1H271240	
Doctor/Clinic	Dr. Iva Keene MRMed. ND.			Test Date	13/06/2023
Patient Name	Jürgen Palz	Sex	m	D.O.B.	10/06/1990
Clinical Information				Page	1/4

	Acceptable Range	Test Value	
Essential Trace Elements (ppm = mg/kg = mcg/g)			
Chromium (Cr)	0,020 --- 0,210	0,090	
Cobalt (Co)	0,010 --- 0,300	0,011	
Copper (Cu)	10,000 --- 41,000	13,026	
Iodine (I)	0,050 --- 5,000	0,253	
Iron (Fe)	4,600 --- 17,700	10,161	
Manganese (Mn)	0,050 --- 0,920	0,159	
Molybdenum (Mo)	0,030 --- 1,100	0,050	
Selenium (Se)	0,400 --- 1,700	1,139	
Vanadium (V)	0,010 --- 0,200	0,009	
Zinc (Zn)	150,000 --- 272,000	232,368	
Essential Macroelements (ppm = mg/kg = mcg/g)			
Calcium (Ca)	220,000 --- 1 600,000	645,055	
Magnesium (Mg)	20,000 --- 130,000	59,314	
Nonessential Trace Elements (ppm = mg/kg = mcg/g)			
Boron (B)	< 0,840	0,368	
Germanium (Ge)	< 1,650	0,003	
Lithium (Li)	< 0,300	0,003	
Strontium (Sr)	0,650 --- 6,900	0,862	
Tungsten (W)	< 0,010	< 0,001	
Potentially Toxic Elements (ppm = mg/kg = mcg/g)			
Aluminum (Al)	< 8,000	3,612	
Antimony (Sb)	< 0,300	0,014	

n.n. = not detected, < x = below Detection Limit

Quality control: Dipl. Ing. Friedle, Accreditation: DIN EN ISO 17025; Validation: Dr. E. Blaurock-Busch PhD;

Analytical method: ICP-MS with collision cell technique

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Potentially Toxic Elements (ppm = mg/kg = mcg/g)					
Arsenic-total (As)	< 0,200	0,066			
Barium (Ba)	< 4,640	0,429			
Beryllium (Be)	< 0,100	< 0,010			
Bismuth (Bi)	< 0,200	< 0,010			
Cadmium (Cd)	< 0,200	0,005			
Cerium (Ce)	< 0,100	0,061			
Cesium (Cs)	< 0,010	< 0,005			
Dysprosium (Dy)	< 0,006	< 0,001			
Erbium (Er)	< 0,005	< 0,001			
Europium (Eu)	< 0,005	< 0,001			
Gadolinium (Gd)	< 0,100	< 0,001			
Gallium (Ga)	< 0,200	0,016			
Iridium (Ir)	< 0,006	n.n.			
Lanthanum (La)	< 0,032	0,007			
Lead (Pb)	< 3,000	0,309			
Lutetium (Lu)	< 0,010	< 0,001			
Mercury (Hg)	< 0,600	0,095			
Nickel (Ni)	< 1,000	0,209			
Palladium (Pd)	< 0,100	< 0,050			
Platinum (Pt)	< 0,010	< 0,005			
Praseodymium (Pr)	< 0,013	< 0,005			
Rhenium (Re)	< 0,005	< 0,005			
Rhodium (Rh)	< 0,007	n.n.			

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Patient Name Jürgen Palz Lab Number 1H271240 Page 3/4

Acceptable Range

Test Value

Potentially Toxic Elements (ppm = mg/kg = mcg/g)

Ruthenium (Ru)	< 0,100	< 0,001	
Samarium (Sm)	< 0,011	< 0,001	
Silver (Ag)	< 1,000	0,020	
Tantalum (Ta)	< 0,011	n.n.	
Tellurium (Te)	< 0,010	n.n.	
Thallium (Tl)	< 0,010	< 0,001	
Thorium (Th)	< 0,010	< 0,010	
Thulium (Tm)	< 0,002	< 0,001	
Tin (Sn)	< 0,700	0,326	
Titanium (Ti)	< 1,500	0,115	
Uranium (U)	< 0,100	0,006	
Ytterbium (Yb)	< 0,010	< 0,001	
Zirconium (Zr)	< 0,500	< 0,050	

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Your Analysis Determined The Following Mineral Deficiencies And Excesses. Since it is difficult to distinguish treated samples from untreated ones, it is assumed that the spectroanalytical analysis was performed on chemically untreated hair as requested in our laboratory brochure. Chemically treated hair does not provide reliable results and TMI does not assume responsibility for data obtained from treated hair. The information contained in this elemental analysis report is designed as an interpretive adjunct to normally conducted diagnostic procedures. The findings are best viewed in the context of a medical examination and history.

VANADIUM (V):

The biological function of this trace element has not been substantiated and deficiency symptoms have not been established; however there is evidence that this trace element influences the glucose metabolism, the sodium/potassium transport and the adrenal catecholamine metabolism. Vanadium appears to catalyze the oxidation of catecholamine's and inhibit cholesterol synthesis and lower phospholipid levels. It may have anti-diabetic, weight-reducing function and anti-caries effects.

SOURCE: Fiber-rich foods, dill seeds, parsley and black pepper. Vanadium is highly concentrated in vegetable oils.

THERAPEUTIC CONSIDERATION: High fiber diet, use of vegetable oil instead of animal fats.

The following nutritional program is aimed at providing optimum health. The program is suitable for patients 12 years and older. It is recommended for 3-4 months, after which a repeat analysis is recommended. A follow-up test would evaluate and determine your body's ability to digest and absorb nutrients. If any questions or problems arise, consult your medical doctor or health care provider.

Vanadium (V)

A daily intake of 0.5 to 1.0mg is recommended for adults, and is achieved through a normal diet. Good vanadium sources are black pepper, dill seed, peanut butter, cod fish, scallops, egg yolk, chicken breast, mushrooms, olives and vegetable oils.

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