

# HAIR ELEMENTS



**PATIENT: Number 244**  
**SEX: Male**  
**AGE: 12**  
**LOCATION: Stellenbosch, RSA**

## POTENTIALLY TOXIC ELEMENTS

TOXIC ELEMENTS	RESULT $\mu\text{g/g}$	REFERENCE RANGE	PERCENTILE	
			68 <sup>th</sup>	95 <sup>th</sup>
Aluminum	9.0	< 8.0		
Antimony	0.034	< 0.066		
Arsenic	0.42	< 0.080		
Barium	0.17	< 0.75		
Beryllium	< 0.01	< 0.020		
Bismuth	0.007	< 2.0		
Cadmium	0.29	< 0.060		
Lead	0.92	< 1.0		
Mercury	< 0.03	< 0.40		
Platinum	< 0.003	< 0.005		
Thallium	< 0.001	< 0.002		
Thorium	0.001	< 0.002		
Uranium	0.030	< 0.060		
Nickel	0.10	< 0.20		
Silver	0.12	< 0.10		
Tin	0.26	< 0.30		
Titanium	0.35	< 0.60		
Total Toxic Representation				

## ESSENTIAL AND OTHER ELEMENTS

ELEMENTS	RESULT $\mu\text{g/g}$	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	351	200- 700					
Magnesium	15	18- 70					
Sodium	260	20- 200					
Potassium	45	9- 80					
Copper	270	11- 32					
Zinc	300	150- 230					
Manganese	0.12	0.08- 0.50					
Chromium	0.51	0.40- 0.70					
Vanadium	0.072	0.020- 0.075					
Molybdenum	0.024	0.030- 0.060					
Boron	1.2	0.34- 3.0					
Iodine	0.18	0.25- 1.3					
Lithium	< 0.004	0.007- 0.020					
Phosphorus	155	150- 220					
Selenium	0.70	0.70- 1.2					
Strontium	0.90	0.30- 3.2					
Sulfur	45400	44000- 50000					
Cobalt	0.007	0.004- 0.020					
Iron	12	7.0- 16					
Germanium	0.036	0.030- 0.040					
Rubidium	0.035	0.009- 0.090					
Zirconium	0.036	0.047- 0.70					

### SPECIMEN DATA

**COMMENTS:**  
 Date Collected: 12/15/2008      Sample Size: 0.198 g  
 Date Received: 1/10/2009      Sample Type: Head  
 Date Completed: 1/13/2009      Hair Color: Brown  
 Client Reference:      Treatment:  
 Methodology: ICP-MS      Shampoo: Dry Skull

### RATIOS

ELEMENTS	RATIOS	EXPECTED RANGE
Ca/Mg	23.4	4- 30
Ca/P	2.26	0.8- 8
Na/K	5.78	0.5- 10
Zn/Cu	1.11	4- 20
Zn/Cd	> 999	> 800

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