

# HAIR ELEMENTS



**PATIENT:** No 32  
**SEX:** Male  
**AGE:** 9  
**Location:** Cape Town, South Africa

POTENTIALLY TOXIC ELEMENTS				
TOXIC ELEMENTS	RESULT $\mu\text{g/g}$	REFERENCE RANGE	PERCENTILE	
			68 <sup>th</sup>	95 <sup>th</sup>
Aluminum	15	< 8.0		
Antimony	0.026	< 0.066		
Arsenic	0.069	< 0.080		
Beryllium	< 0.01	< 0.020		
Bismuth	0.027	< 0.12		
Cadmium	0.042	< 0.15		
Lead	1.7	< 1.0		
Mercury	0.47	< 0.40		
Platinum	< 0.003	< 0.005		
Thallium	0.001	< 0.010		
Thorium	< 0.001	< 0.005		
Uranium	0.13	< 0.060		
Nickel	0.06	< 0.40		
Silver	0.29	< 0.13		
Tin	0.08	< 0.30		
Titanium	0.73	< 1.0		
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	316	160- 500					
Magnesium	77	12- 50					
Sodium	520	12- 90					
Potassium	150	10- 40					
Copper	120	9.0- 30					
Zinc	180	110- 190					
Manganese	0.16	0.18- 0.60					
Chromium	0.48	0.23- 0.50					
Vanadium	0.058	0.025- 0.10					
Molybdenum	0.027	0.040- 0.089					
Boron	3.9	0.50- 3.5					
Iodine	0.24	0.25- 1.3					
Lithium	0.020	0.007- 0.023					
Phosphorus	181	160- 250					
Selenium	0.89	0.95- 1.7					
Strontium	1.3	0.21- 2.1					
Sulfur	45600	45500- 53000					
Barium	0.21	0.19- 1.6					
Cobalt	0.005	0.013- 0.035					
Iron	10	6.0- 17					
Germanium	0.043	0.045- 0.065					
Rubidium	0.088	0.008- 0.080					
Zirconium	0.12	0.060- 0.70					

SPECIMEN DATA				RATIOS		
<b>COMMENTS:</b>				<b>ELEMENTS</b>	<b>RATIOS</b>	<b>EXPECTED RANGE</b>
Date Collected: 9/11/2006	Sample Size: 0.204 g			Ca/Mg	4.1	4- 30
Date Received: 11/16/2006	Sample Type: Head			Ca/P	1.75	0.8- 8
Date Completed: 11/21/2006	Hair Color: Brown			Na/K	3.47	0.5- 10
	Treatment:			Zn/Cu	1.5	4- 20
Methodology: ICP-MS	Shampoo: Kerastase			Zn/Cd	> 999	> 800