

# HAIR ELEMENTS



**PATIENT:** Number 68  
**SEX:** Female  
**AGE:** 39  
**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	29	< 7.0			
Antimony	4.6	< 0.050			
Arsenic	0.078	< 0.060			
Beryllium	< 0.01	< 0.020			
Bismuth	0.041	< 2.0			
Cadmium	0.35	< 0.10			
Lead	60	< 1.0			
Mercury	1.4	< 1.1			
Platinum	< 0.003	< 0.005			
Thallium	< 0.001	< 0.010			
Thorium	< 0.001	< 0.005			
Uranium	0.014	< 0.060			
Nickel	2.1	< 0.40			
Silver	1.2	< 0.15			
Tin	1.1	< 0.30			
Titanium	0.39	< 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	876	300- 1200					
Magnesium	37	35- 120					
Sodium	23	12- 90					
Potassium	24	8- 38					
Copper	120	12- 35					
Zinc	120	140- 220					
Manganese	0.46	0.15- 0.65					
Chromium	0.45	0.20- 0.40					
Vanadium	0.046	0.018- 0.065					
Molybdenum	0.037	0.028- 0.056					
Boron	0.54	0.30- 2.0					
Iodine	0.21	0.25- 1.3					
Lithium	0.004	0.007- 0.023					
Phosphorus	142	160- 250					
Selenium	0.88	0.95- 1.7					
Strontium	2.4	0.50- 7.6					
Sulfur	46600	44500- 52000					
Barium	1.1	0.26- 3.0					
Cobalt	0.044	0.013- 0.050					
Iron	17	5.4- 14					
Germanium	0.034	0.045- 0.065					
Rubidium	0.034	0.007- 0.096					
Zirconium	0.30	0.020- 0.42					

SPECIMEN DATA				RATIOS		
<b>COMMENTS:</b>				<b>ELEMENTS</b>	<b>RATIOS</b>	<b>EXPECTED RANGE</b>
Date Collected: 3/12/2007	Sample Size: 0.199 g			Ca/Mg	23.7	4- 30
Date Received: 3/22/2007	Sample Type: Head			Ca/P	6.17	1- 12
Date Completed: 3/27/2007	Hair Color: Brown			Na/K	0.958	0.5- 10
	Treatment: Dye			Zn/Cu	1	4- 20
Methodology: ICP-MS	Shampoo: John Freida			Zn/Cd	343	> 800