

Last update: 11/2005

Reference values
for arsenic (As) and metals (Pb, Cd, Hg, Pt, Ni) in blood or urine

Parameter and Matrix [bibliographical data]	Population group / period of life	Year of study	Reference value
Arsenic in urine [39, 50]	Children (6 to 12 years) without fish consumption 48 hours before sample collection ^{1,2}	2001/2003	15.0 µg/l
	Adults (18 to 69 years) without fish consumption 48 hours before sample collection ³	1997/99	
Lead in blood [6,34,42, 50]	Children (6 to 12 years) ^{1,2}	2001/2003	50 µg/l^a
	Females (18 to 69 years) ³	1997/99	70 µg/l^a
	Males (18 to 69 years) ³	1997/99	90 µg/l^a
Cadmium in urine [11,42,50]	Non-smoking children (6 to 12 years) ¹	2001/2002	0.5 µg/l^a
	Non-smoking adults (18 to 69 years) ³	1997/99	0.8 µg/l
Cadmium in blood [11,42,50]	Non-smoking children (6 to 12 years) ¹	2001/2003	0.5 µg/l^a
	Non-smoking adults (18 to 69 years) ³	1997/99	1.0 µg/l
Mercury in urine [13,42,50]	Children (6 to 12 years) without amalgam fillings ^{1,2}	2001/2003	0.7 µg/l^a
	Adults (18 to 69 years) without amalgam fillings ³	1997/99	1.0 µg/l
Mercury in blood [13,42,50]	Children (6 to 12 years), fish consumption ≤ 3 times per month ¹	2001/2002	1.5 µg/l^a
	Adults (18 to 69 years) fish consumption ≤ 3 times per month ³	1997/99	2.0 µg/l
Nickel in urine [32]	Adults (but not a strictly representative reference sample) ⁴	⁴	3 µg/l
Platinum in urine [13,42]	Adults (18 to 69 years) without teeth with dental inlays, crowns, bridge elements of precious metal ³	1997/99	10 ng/l

Notes: [xy] bibliographical data [publication](#):<http://www.umweltbundesamt.de/uba-info-daten-e/daten-e/monitor/pub.htm>;¹ Source: Pilot study for the German Environmental Survey on Children 2001/2002 (GerES IV);² Source: Project of the "Sentinel Health Department of Baden-Württemberg" 2002/2003 (BW-EHS);³ Source: German Environmental Survey 1998 (GerES III);⁴ Source: based on publicational data;^a An analytical uncertainty of ± 20 % has to be considered.