

102.5 - Copper "Benchmark" (block, chip and rod forms)

SRMs with a "C" prefix are chill-cast blocks approximately 32 mm square and 19 mm thick.

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	399	454	457	494	495	498	500	C1251a	C1252a
Description	Unalloyed Copper - Cu VI	Unalloyed Copper XI (chips)	Unalloyed Copper IV (solid)	Unalloyed Copper I (solid)	Unalloyed Copper II (solid)	Unalloyed Copper V (solid)	Unalloyed Copper - Cu VII	Phosphorus Deoxidized Copper - Cu VIII	Phosphorus Deoxidized Copper - Cu IX
Unit of Issue	(50 g)	(35 g)	(rod)	(rod)	(rod)	(rod)	(rod)	(block)	(block)

Concentration are expressed as mass fraction, in mg/kg (unless noted by an asterisk * for %).

Aluminum (Al)	(<2)			(<2)	(<2)	(<2)	(<2)	(<20)	(<20)
Antimony (Sb)	30	24	0.214	4.5	8.0	7.4	102	14.9	42
Arsenic (As)	47	46	(<2)	2.6	1.6	25	140	16	118
Bismuth (Bi)	10.5	19	0.22	0.35	0.50	2.0	24.5	3.7	(19)
Cadmium (Cd)	(<1)		(<1)	(0.5)	(0.4)	(<22)	(<1)	(<3)	16.9
Chromium (Cr)	(0.5)		(<2)	2.0	6.0	(0.3)	(0.5)	(3)	19
Cobalt (Co)	0.5	(4)	0.227	0.5		2.7	0.6	13.2	87
Copper (Cu)	99.79*	99.84*	99.97*	99.908*	99.944*	99.98*	99.70*	99.89*	99.87*
Gold (Au)	(4)	7.5	(<0.05)	(0.07)	(0.13)	(0.1)	(10)	15.5	33.9
Iron (Fe)	20.0	(50)	2.4	147	96	11	41	285	72
Lead (Pb)	114	66	0.512	26.5	3.25	10	128	23.5	60
Magnesium (Mg)	(<1)		(<1)	(<1)	(<1)	(<1)	(<1)	(<20)	(<20)
Manganese (Mn)	(0.3)		(<0.1)	3.7	5.3	(0.3)	(0.2)	4.6	43
Nickel (Ni)	506	(150)	0.67	11.7	5.4	7.0	603	23.6	128

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Oxygen (O)			367						
Palladium (Pd)		(0.1)							
Phosphorus (P)								420	125
Selenium (Se)	95	479	4.05	2.00	0.63	17.5	214	11	56

* Mass fraction in %

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Silicon (Si)	(<i><2</i>)		(<i><1</i>)	(<i><2</i>)	(<i><2</i>)	(<i><2</i>)	(<i><2</i>)	(<i><50</i>)	(<i><100</i>)
Silver (Ag)	117	286	8.086	50.5	12.2	20.1	181	80	158
Sulfur (S)	(10)		4	15	13	(11)	(9)	(35)	(70)
Tellurium (Te)	50	27	0.296	0.58	0.32	10.1	153	16	54.6
Tin (Sn)	(~90)	2.2	(<i><0.1</i>)	70	1.5	5	(~200)	16	120
Titanium (Ti)			(<i><1</i>)						
Zinc (Zn)	45	7	(<i><3</i>)	405	12.2	25	114	24	69.4

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