

SUPER PURE OXYGEN-FREE COPPER
Chemical composition and Purity of Grade "A+ " (extra)

SUPER PURE OXYGEN-FREE COPPER - Grade "A+ " (extra) according to GOST 859-2001, ASTM B 170.										
Method \ Impurity	LMS, AES			LMS+AES+SSMS *+GDMS * (mg/kg, ppm)						
	Grade "A+ " (extra)			Grade "A+ " (extra)						
	min		max	min	~	median	~	average	max	
1 O	≤	2	≤	2	≤	2	≤	2	≤	2
2 P	<	0.1	<	0.1	<	0.02	<	0.02	<	0.04
3 S	<	3	<	3	<	0.1	<	0.2	<	0.3
4 Mn	<	0.1	<	0.1	<	0.005	<	0.005	<	0.02
5 Fe	<	0.1		0.5	<	0.01	≤	0.1	≤	0.2
6 Ni	<	0.1	<	0.1	<	0.005	<	0.005	<	0.02
7 Zn	<	0.1	<	0.1	<	0.02	<	0.02	<	0.02
8 As	<	0.1	<	0.1	<	0.02	<	0.02	<	0.02
9 Se	<	0.2	<	0.2	<	0.02	<	0.05	<	0.1
10 Ag	<	0.1		0.8	<	0.01	≤	0.1	≤	0.3
11 Cd	<	0.2	<	0.2	<	0.005	<	0.005	<	0.02
12 Sn	<	0.2	<	0.2	<	0.02	<	0.02	<	0.02
13 Sb	<	0.2	<	0.2	<	0.02	<	0.02	<	0.02
14 Te	<	0.2	<	0.2	<	0.02	<	0.02	<	0.02
15 Pb	<	0.2	<	0.2	<	0.005	<	0.005	<	0.02
16 Bi	<	0.2	<	0.2	<	0.005	<	0.005	<	0.02
<i>Fe + Ag</i>			≤	0.8					≤	0.85
Oxygen is measured "not more 2 ppm" - a limit of the equipment , oxygen can be < 1 ppm and < 0.1-0.5 ppm.										
% wt	max		min		max	~	median	~	average	min
Cu	≥	99.9993	≥	99.9992	≥	99.9998	≥	99.9997	≥	99.9997
Cu + S	≥	99.9996	≥	99.9995	≥	99.9998	≥	99.9998	≥	99.9997
<i>Cu + Ag</i>	≥	99.9993	≥	99.9993	≥	99.9998	≥	99.9998	≥	99.9997
Cu + S + Ag	≥	99.9996	≥	99.9996	≥	99.9998	≥	99.9998	≥	99.9997
Cu+O	≥	99.9995	≥	99.9994	≥	99.99997	≥	99.99994	≥	99.99991
Cu+O + S	≥	99.9998	≥	99.9997	≥	99.99998	≥	99.99996	≥	99.99993
<i>Cu+O + Ag</i>	≥	99.9995	≥	99.9995	≥	99.99997	≥	99.99995	≥	99.99994
Cu+O + S + Ag	≥	99.9998	≥	99.9998	≥	99.99998	≥	99.99997	≥	99.99996
+ According to Metals basis (All metals : > 60)										
% wt	max		min		max	~	median	~	average	min
<i>Cu</i>	≥	99.999	≥	99.999	≥	99.99996	≥	99.99994	≥	99.99991
<i>Cu + Ag</i>	≥	99.999	≥	99.999	≥	99.99996	≥	99.99995	≥	99.99994

* Results are not for the best measurement, but for the sufficiently qualified measurement. Results are for lots. The buyer can specify the additional requirements if it is possible to measure it. Basic methods are LMS, AES. P.S. Limits of sensitivity " < x - < 0.00x " of the equipment/methods are considered at calculation of purity as corresponding number/quantity of impurity !