
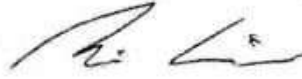


RUSSIAN FEDERATION		Your order PO EMAIL 27.7.2020	
		Our reference 106146	Invoice / Date VA10069546 18.09.2020
		Marks EMAIL 27.7.2020	
Item 003	Product , Grade and Size COPPER SHEET 20x300x1000 mm, HARD	544.00 KG	Lot number VA337124
<p>Due to the 100% micrographic inspection and other tests throughout our manufacturing process each piece of the following material is: Certified Grade Copper acc. to ASTM B152-13, F68-16 and EN 13604</p>			
Mechanical properties			
Item	Tensile strength R _m -N/mm ²	0.2 % proof strength R _{0.2} -N/mm ²	Elongation %
003	275	260	A5 25
			Hardness HV10 97
Chemical composition		Analytical methods:	
1) Specific value (ASTM B170-99)		Optical emissiospectrometer Spark and gas analyzator	
2) Specified value (EN CW009A)			
% min	ppm max		
Cu	Ag As Bi Cd Fe Mn Ni O P Pb S Sb Se Sn Te Zn		
1) 99.99	25 5 1 1 10 0.5 10 5 3 5 15 4 3 2 2 1		
2) 99.99	25 5 2.0 1 10 0.5 10 - 3 5 15 4 2.0 2 2.0 1		
Measured value			
99,996	13,9 2,4 0,7 0,4 1 <0,2 4,1 1,2 0,3 <0,7 6,6 1 <0,7 <0,7 <2 <0,1		
Electrical conductivity at 20 °C % IACS, annealed (>= 101): >101.5			
Metallographic examination (<= Class 2) :	Class A = 1 B = 1 C = 1	Material is free of mercury contaminates	
Hydrogen embrittlement test	pass	Material is ROHS and REACH compliant	
Quench test for oxide adherence:	good	Country of melt and manufacturing Finland	
These products have been produced under a certified Quality System ISO 9001:2015 / DNV GL Certificate No. 103791-2011-AQ-FIN-FINAS		 We hereby certify, that the material described above complies with the order. 	

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