



**CENTRAL METALLURGICAL RESEARCH  
AND DEVELOPMENT INSTITUTE**

Central Metallurgical Research and Development Institute (CMRDI)		Test Certificate (Material Test Report)		Page 01/02	
Issue Date	24 December 2020				
Issued to	TEBA for TRADING & ENG. LTD				
Date of Receiving	2020 December 2	Code of sample	3187/20	File No.	1171
Date of Testing	The samples were tested between December 2 and December 23, 2020.				
Name of Sample	<b>Copper Tape (Electrolytic Copper Bar) - أرضي</b>				
Sample Trade Name	<b>Teba</b>				
Test Method	Copper Tape test samples have been investigated by CMRDI Laboratories in accordance with the standards indicated in this certificate according to customer requirements.				
Test Standard	BS EN 13601:2013				
Test Name		Test Name	Results (According to BS EN 13601:2013)		
	1	Chemical Analysis	Pass		
	2	Yield Strength	Pass		
	3	Ultimate Strength	Pass		
	4	Elongation	Pass		
	5	Hardness	Pass		
	6	Electrical Conductivity	Pass		
	7	Electrical Resistivity	Pass		
Certificate Validity	This test certificate valid from (2020 December 24 until 2021 December 24)				
Authorized by	Central Metallurgical Research and Development Institute (CMRDI) Ministry of Higher Education and Scientific Research (MHESR), Egypt.				

**Conclusion :**

We certify that the submitted product described herein was tested and inspected in accordance with test standard specifications and fulfill requirements in such respect.

This results in this test certificate valid for namely submitted sample only not for all products of the company or any others copper tape.

- The customer can not mark standard marks on the tested product according to this testing certificate.
- A certified copy of this primary original certificate can only be issued by CMRDI.
- Any correction, adding, scraping and changing in this certificate are prohibited and any modification on it by any way, the certificate will be cancelled

**Report Approved**

*Maamoun*

**DrrMTA. Maamoun**

**Investigation by**

*Yehia*

**Tech. Yehia Makhlouf**

**Head of Lab.**

*Zeinab Abdel Hamid*

**Prof. Dr. Zeinab A. Hamid**

*25/12/2020*



## Test Results

### 1- Sample Dimensions :

Length (mm)	Width (mm)	Thickness (mm)	Weight (kg)
500	50	5	1.120

### 2- Chemical Analysis :

Elements	Cu	Zn	Pb	Sn	P	Mn	Fe
%	99.9	0.005	0.004	0.004	0.0006	0.0002	0.006
Elements	Cr	Ni	Si	Al	Mg	As	Sb
%	0.0009	0.0005	0.011	0.0005	0.0005	0.002	0.022

### 3- Mechanical Test

	Test	Test Result
1	Yield Strength (N/mm <sup>2</sup> )	234
2	Ultimate Strength (N/mm <sup>2</sup> )	340
3	Elongation (%)	15
4	Hardness (HV)	115
5	Electrical Conductivity (MS/m) - (10.E6 Siemens/m) - ( $\Omega \cdot \text{mm}^2/\text{m}$ ) <sup>-1</sup>	59
6	Electrical Resistivity (10.E-8 Ohms.m) - ( $\Omega \cdot \text{mm}^2/\text{m}$ )	1.694



Copper Tape (Electrolytic Copper Bar) - 2 - بارة أرضي

Zenab Abdel Monem  
201/12/2020