

TEST REPORT

No. : SHIN2412021915ML01_EN

Date : 2024-12-23

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CUSTOMER NAME: SINO MATERIAL (JIANGSU) TECHNOLOGY CO., LTD.
ADDRESS: NO. 2 WOLONG ROAD, LAILONG TOWN, NEW MATERIALS INDUSTRIAL PARK, SUYU DISTRICT, SUQIAN CITY, JIANGSU PROVINCE, CHINA

Sample Name : Seamless Copper Tube for Air Conditioning and Refrigeration
Manufacturer : Sino Material (Jiangsu) Technology Co., Ltd. Address: No. 2 Wolong Road, Lailong Town, New Materials Industrial Park, Suyu District, Suqian City, Jiangsu Province, China

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

Test Required : Chemical Composition Analysis, Dimensional Measurement, Grain Size Test, Tensile Test, Flaring Test
SGS Ref. No. : SHIN2412010018PL01
Date of Receipt : 2024-12-12
Testing Period : 2024-12-12 ~ 2024-12-23
Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services (Shanghai) Co., Ltd..

Kant Xu
Authorized signatory



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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN_Doccheck@sgs.com

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1. Chemical Composition Analysis

Requirement: According to ASTM B280-20 material C12200

Element	Test Method	Req.(%)	Result 001-1 (%)	Con.
P	GB/T 5121.27-2008	0.015~0.040	0.025	Pass
Cu+Ag	GB/T5121.1-2008	≥99.90	99.95	Pass

2. Dimensional Measurement

Test Method: GB/T 3177-2009

Unit (mm)

Test Item			Theoretical Value			Results				Test Equipment
No.	Position	Dimension	Nominal	Tolerance (+)	Tolerance (-)	Measure	Deviation	Outtol	Con.	
1#										
1	-	outside diameter	9.52	0.051	0.051	9.526	0.01	0	○	micrometer
2	-	wall thickness	0.81	0.08	0.08	0.81	0.00	0	○	calipers
2#										
1	-	outside diameter	6.35	0.051	0.051	6.358	0.01	0	○	micrometer
2	-	wall thickness	0.76	0.08	0.08	0.75	-0.01	0	○	calipers

Note: "○" indicates Pass, "x" indicates Fail. Note2: The requirement is specified by customer.



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3. Grain Size Test:

Reference Standard: ASTM E112-24

Etching Reagent : Ferric trichloride hydrochloric aqueous solution

Step 1. Sampling from main body of material;

Step 2. Mounting, Cleaning, grinding, polishing and etching;

Step 3. Observing three or more representative fields with the microscope randomly, estimated by comparison method.

Test Result(s):

Sample	Average grain diameter (mm)				Req. (mm)	Con.
	1	2	3	Avg.		
001-1	0.045	0.050	0.050	0.050	0.015~0.060	Pass

Note: The requirement is specified by client.

4. Tensile Test

Test Method:ASTM E8/E8M-24

Test item	Specimen type	Tensile strength (MPa)	Elongation after fracture G=50.8mm (%)	Con.
Req.	-	≥205	≥40	-
Result-001-1	Full-size tubular specimen	256	53.0	Pass
Result-001-2	Full-size tubular specimen	252	40.0*	Pass

Note: The requirement is specified in ASTM B280-20 type C12200 O60.

Note: *The distance of samples between the fracture and the nearest gauge mark is less than $L_0/3$.



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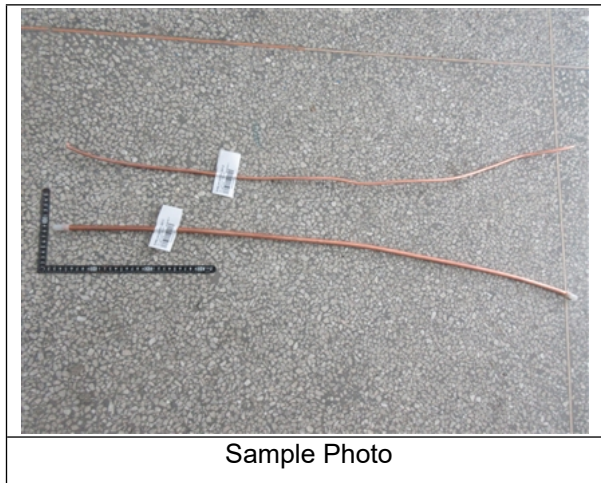
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5. Flaring Test

Test Method:ASTM A370-24SectionA2.5.1.5

Sample	Specification (mm)	Expansion rate (Inside) (%)	Angle of taper mandrel (°)	Result	Conclusion
001-1	Φ9.53x0.80	≥40	60	No crack	Pass
001-2	Φ6.34x0.80	≥40	60	No crack	Pass

Note: The results comply with client's requirement .



The test report shall only be used for clients' scientific research, teaching, internal quality control, product research and development, etc... and just for internal reference.

Unless otherwise stated, this report provides a declaration of conformity according to whether the test results are within the specified limits or specifications without considering the measurement uncertainty.

*****End of report*****



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