



中国认可  
国际互认  
检测  
TESTING  
CNAS L7673

# TEST REPORT

Applicant : ChangSha RESI Electronics Technology Co., Ltd.  
Address : 102, 202, 302 and 402, Block B, Building 15, Depu Wuhe Enterprise Park, No. 1 and 3,  
Luositang Road ChangSha City, Hunan Province, P. R. China

The following merchandise was (were) submitted and identified by the client as:

Name of Sample : Shunt Resistor (Nickel plated)  
Test Type : Commission  
Analysis No. : GXH23030977  
Sample Quantity : 6 pcs  
Batch No. /Brand/Model : /  
Sample Received : 2023/03/29  
Test Period : 2023/03/30-2023/04/06  
Test Method : Please refer to next page(s).  
Test Result : Please refer to next page(s).  
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Cr(VI)), Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.

Edited by: 郑沫沫

Approved by:         

Checked by: 林川

Official Seal:         



**TEST RESULT:**

Sample Description:

Material No.	Description
001	Silvery surfaced metal sheet

Remark:

- 1) 1 mg/kg = 0.0001%;
- 2) MDL = Method Detection Limit;
- 3) ND = The test result was below the method detection limit or limit of quantitation, i.e., the corresponding test item was not detected.;
- 4) “-” = Not Regulated;
- 5) for metal sample:
  - (a) The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu$ g/cm<sup>2</sup>. The sample coating is considered to contain Cr(VI);
  - (b) The sample is negative for Cr(VI) if Cr(VI) is ND (concentration is less than 0.10 $\mu$ g/cm<sup>2</sup>). The sample coating is considered a non-Cr(VI) based coating;
  - (c) The result between 0.10 $\mu$ g/cm<sup>2</sup> and 0.13 $\mu$ g/cm<sup>2</sup> is considered to be inconclusive – unavoidable coating variations may influence the determination.

**RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863**

Test Method:

- 1) Lead (Pb) and Cadmium (Cd): IEC 62321-5: 2013, analysis by ICP-OES/AAS;
- 2) Mercury (Hg): IEC 62321-4: 2013/AMD1: 2017, analysis by ICP-OES;
- 3) Hexavalent chromium (Cr(VI)): IEC 62321-7-1: 2015/IEC 62321-7-2: 2017, analysis by UV/VIS;
- 4) PBBs and PBDEs : IEC 62321-6: 2015 analysis by GC-MS;
- 5) DEHP , BBP , DBP and DIBP : IEC 62321-8: 2017 analysis by GC-MS.

\*\*\*\*\* TO BE CONTINUE \*\*\*\*\*

Limit Requirement:

According to Directive 2011/65/EU with its amendment Directive (EU) 2015/863, The maximum concentration values tolerated of Lead (Pb), Mercury (Hg), Hexavalent chromium (Cr(VI)), Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) are not greater than 0.1% (w/w), and Cadmium (Cd) is not greater than 0.01% (w/w) by weight in homogeneous materials of electrical and electronic products.

\*\*\*\*\* TO BE CONTINUE \*\*\*\*\*

检测

Test Item	Unit	Limit	MDL	Test Result	Conclusion
				001	001
Lead (Pb)	mg/kg	1000	10	ND	PASS
Cadmium (Cd)	mg/kg	100	10	ND	PASS
Mercury (Hg)	mg/kg	1000	10	ND	PASS
Hexavalent chromium (Cr(VI))	-	-	-	Negative	PASS
Sum of PBBs	mg/kg	1000	-	ND	PASS
Monobromobiphenyl	mg/kg	-	20	ND	-
Dibromobiphenyl	mg/kg	-	20	ND	-
Tribromobiphenyl	mg/kg	-	20	ND	-
Tetrabromobiphenyl	mg/kg	-	20	ND	-
Pentabromobiphenyl	mg/kg	-	20	ND	-
Hexabromobiphenyl	mg/kg	-	20	ND	-
Heptabromobiphenyl	mg/kg	-	20	ND	-
Octabromobiphenyl	mg/kg	-	20	ND	-
Nonabromobiphenyl	mg/kg	-	20	ND	-
Decabromobiphenyl	mg/kg	-	20	ND	-
Sum of PBDEs	mg/kg	1000	-	ND	PASS
Monobromodiphenyl ether	mg/kg	-	20	ND	-
Dibromodiphenyl ether	mg/kg	-	20	ND	-
Tribromodiphenyl ether	mg/kg	-	20	ND	-
Tetrabromodiphenyl ether	mg/kg	-	20	ND	-
Pentabromodiphenyl ether	mg/kg	-	20	ND	-
Hexabromodiphenyl ether	mg/kg	-	20	ND	-
Heptabromodiphenyl ether	mg/kg	-	20	ND	-
Octabromodiphenyl ether	mg/kg	-	20	ND	-
Nonabromodiphenyl ether	mg/kg	-	20	ND	-
Decabromodiphenyl ether	mg/kg	-	20	ND	-
Dibutyl phthalate (DBP)	mg/kg	1000	100	ND	PASS
Butyl benzyl phthalate (BBP)	mg/kg	1000	100	ND	PASS
Bis(2-ethylhexyl) phthalate (DEHP)	mg/kg	1000	100	ND	PASS
Diisobutyl phthalate (DIBP)	mg/kg	1000	100	ND	PASS

\*\*\*\*\* TO BE CONTINUE \*\*\*\*\*

**SAMPLE PHOTO**



\*\*\*\*\* **END OF REPORT** \*\*\*\*\*

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## Statement

1. This report is issued by The CAS Testing Technical Services (GuangZhou) Co.,Ltd. (hereinafter referred to as "Our Company").
2. This report is invalid if not affixed with authorized stamp of test and paging seal.
3. This report is invalid without signature of verifier and approver.
4. This report is invalid if being supplemented, deleted or altered.
5. Without written permission of our Company, this report can not be reproduced in part (except in whole).
6. The result(s) shown in this report refer only to the sample(s) tested.
7. Objections to this report must be submitted to our Company within 15 days. Otherwise, it will automatically deem to have accepted this report.
8. The Client shall be responsible for the accuracy, authenticity and completeness of the samples and information submitted for inspection, and the disputes arising therefrom shall be borne by the Client.
9. As any reports is issued as a result of this application for testing services, our Company will strictly keep confidentiality to the Clients. Except where disclosure is required on the basis of laws, regulations, judgments, and rulings (including in accordance with summons, court, or government proceedings).
10. The result(s) or conclusion(s) shown in this report about the description of the characteristics, composition, properties or quality are based on the specific time, methods and applicable criteria. Using different methods and criteria or under different environmental conditions for testing may come to different conclusions.
11. The data result(s) just for scientific research,teaching,internal quality control etc.
12. Since our Company's causes lead to modify the contents of this report, our Company shall reissue this report and bear the modification cost. The Client shall return the original report. Since the Client's causes lead to modify the contents of this report, the Client need to submit an application form for the change of report to our Company. The Client shall bear the modification cost and return the original report if our Company approves to reissue this report.
13. The English version of this statement is translated from the Chinese one. If there is any disagreement between them, the Chinese version will be the final explanation.



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# TEST REPORT

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Luositang Road ChangSha City, Hunan Province, P. R. China

The following merchandise was (were) submitted and identified by the client as:

Name of Sample : Shunt Resistor (PIN/M3/ Standard)  
Test Type : Commission  
Analysis No. : GXH23030978  
Sample Quantity : 6 pcs  
Batch No. /Brand/Model : /  
Sample Received : 2023/03/29  
Test Period : 2023/03/30-2023/04/06  
Test Method : Please refer to next page(s).  
Test Result : Please refer to next page(s).  
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Cr(VI)), Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.

Edited by: 郑沫娣

Approved by: 林川

Checked by: 林川

Official Seal: 

**TEST RESULT:**

Sample Description:

Material No.	Description
001	Copper-colored metal sheet

Remark:

- 1) 1 mg/kg = 0.0001%;
- 2) MDL = Method Detection Limit;
- 3) ND = The test result was below the method detection limit or limit of quantitation , i.e., the corresponding test item was not detected.;
- 4) “-” = Not Regulated;
- 5) for metal sample:
  - (a) The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu$ g/cm<sup>2</sup>. The sample coating is considered to contain Cr(VI);
  - (b) The sample is negative for Cr(VI) if Cr(VI) is ND (concentration is less than 0.10 $\mu$ g/cm<sup>2</sup>). The sample coating is considered a non-Cr(VI) based coating;
  - (c) The result between 0.10 $\mu$ g/cm<sup>2</sup> and 0.13 $\mu$ g/cm<sup>2</sup> is considered to be inconclusive – unavoidable coating variations may influence the determination.

**RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863**

Test Method:

- 1) Lead (Pb) and Cadmium (Cd): IEC 62321-5: 2013, analysis by ICP-OES/AAS;
- 2) Mercury (Hg): IEC 62321-4: 2013/AMD1: 2017, analysis by ICP-OES;
- 3) Hexavalent chromium (Cr(VI)) : IEC 62321-7-1: 2015/IEC 62321-7-2: 2017, analysis by UV/VIS;
- 4) PBBs and PBDEs : IEC 62321-6: 2015 analysis by GC-MS;
- 5) DEHP , BBP , DBP and DIBP : IEC 62321-8: 2017 analysis by GC-MS.

\*\*\*\*\* TO BE CONTINUE \*\*\*\*\*



Report No. :GXH23030978(E)

Date : 2023/04/07

Page No. : 3 of 6

Limit Requirement:

According to Directive 2011/65/EU with its amendment Directive (EU) 2015/863, The maximum concentration values tolerated of Lead (Pb), Mercury (Hg), Hexavalent chromium (Cr(VI)), Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) are not greater than 0.1% (w/w), and Cadmium (Cd) is not greater than 0.01% (w/w) by weight in homogeneous materials of electrical and electronic products.

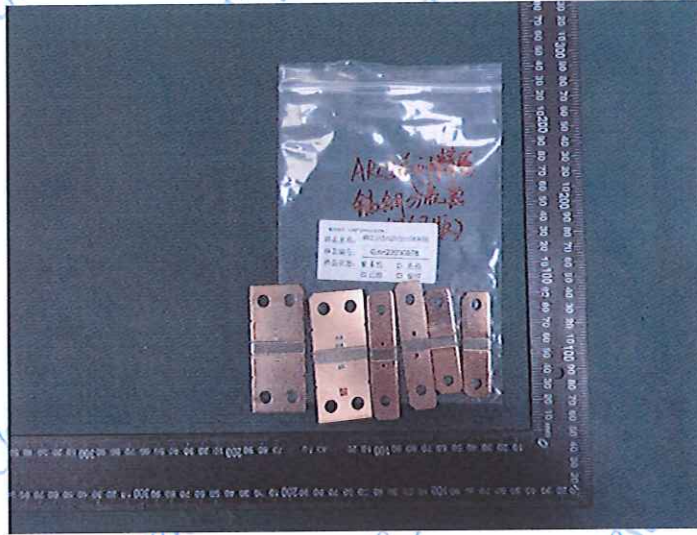
\*\*\*\*\* TO BE CONTINUE \*\*\*\*\*

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Test Item	Unit	Limit	MDL	Test Result	Conclusion
				001	001
Lead (Pb)	mg/kg	1000	10	ND	PASS
Cadmium (Cd)	mg/kg	100	10	ND	PASS
Mercury (Hg)	mg/kg	1000	10	ND	PASS
Hexavalent chromium (Cr(VI))	-	-	-	Negative	PASS
Sum of PBBs	mg/kg	1000	-	ND	PASS
Monobromobiphenyl	mg/kg	-	20	ND	-
Dibromobiphenyl	mg/kg	-	20	ND	-
Tribromobiphenyl	mg/kg	-	20	ND	-
Tetrabromobiphenyl	mg/kg	-	20	ND	-
Pentabromobiphenyl	mg/kg	-	20	ND	-
Hexabromobiphenyl	mg/kg	-	20	ND	-
Heptabromobiphenyl	mg/kg	-	20	ND	-
Octabromobiphenyl	mg/kg	-	20	ND	-
Nonabromobiphenyl	mg/kg	-	20	ND	-
Decabromobiphenyl	mg/kg	-	20	ND	-
Sum of PBDEs	mg/kg	1000	-	ND	PASS
Monobromodiphenyl ether	mg/kg	-	20	ND	-
Dibromodiphenyl ether	mg/kg	-	20	ND	-
Tribromodiphenyl ether	mg/kg	-	20	ND	-
Tetrabromodiphenyl ether	mg/kg	-	20	ND	-
Pentabromodiphenyl ether	mg/kg	-	20	ND	-
Hexabromodiphenyl ether	mg/kg	-	20	ND	-
Heptabromodiphenyl ether	mg/kg	-	20	ND	-
Octabromodiphenyl ether	mg/kg	-	20	ND	-
Nonabromodiphenyl ether	mg/kg	-	20	ND	-
Decabromodiphenyl ether	mg/kg	-	20	ND	-
Dibutyl phthalate (DBP)	mg/kg	1000	100	ND	PASS
Butyl benzyl phthalate (BBP)	mg/kg	1000	100	ND	PASS
Bis(2-ethylhexyl) phthalate (DEHP)	mg/kg	1000	100	ND	PASS
Diisobutyl phthalate (DIBP)	mg/kg	1000	100	ND	PASS

\*\*\*\*\* TO BE CONTINUE \*\*\*\*\*

**SAMPLE PHOTO**



\*\*\*\*\* **END OF REPORT** \*\*\*\*\*

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