

Test Report

Report No.: WTH20H03009357C-1

Date: Mar. 18, 2020

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Applicant: Shenzhen Tuofeng Semiconductor Technology Co.,Ltd

Address: Room 809-811、821-823,Baoyuan huafeng headquarters economy building,xixiang avenue ,Baoan dist, Shenzhen.

Sample Information:

Sample Name: Inline transistor

Sample Description:

1. Pale golden printed black body
2. Silver metal pin

Sample Model: TO-92, TO-251, TO-252, TO-263, TO-126, TO-220, TO-220F,TO-220H, DIP-4, DIP-8

Sample No.: WTH20H03009357C01

Sample Received Date: Mar. 12, 2020

Testing Period: Mar. 12, 2020 - Mar. 18, 2020

Test Result: Please refer to the following page(s).

Test Requested:	Conclusion
As specified by client, to determine the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs content in the sample with reference to EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863.	PASS

Signed for and on behalf of HCT



Michael Huang



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Test Result(s):

Unit: mg/kg

Test Items	Test Method/ Equipment	MDL	Content	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
			1	
Lead(Pb)	IEC 62321-5:2013. ICP-OES/AAS	2	N.D.	1000
Cadmium(Cd)		2	N.D.	100
Mercury(Hg)	IEC 62321-4:2013 +AMD1:2017. ICP-OES	2	N.D.	1000
Hexavalent Chromium(Cr(VI))	IEC 62321-5:2013/ IEC 62321-7-2:2017. ICP-OES/AAS UV-VIS	8	N.D.	1000
Mono-bromobiphenyl	IEC 62321-6:2015. GC-MS	5	N.D.	—
Di-bromobiphenyl		5	N.D.	
Tri-bromobiphenyl		5	N.D.	
Tetra-bromobiphenyl		5	N.D.	
Penta-bromobiphenyl		5	N.D.	
Hexa-bromobiphenyl		5	N.D.	
Hepta-bromobiphenyl		5	N.D.	
Octa-bromobiphenyl		5	N.D.	
Nona-bromobiphenyl		5	N.D.	
Deca-bromobiphenyl		5	N.D.	
Polybrominated Biphenyls(PBBs)		—	N.D.	
Mono-bromodiphenyl ether	IEC 62321-6:2015. GC-MS	5	N.D.	—
Di-bromodiphenyl ether		5	N.D.	
Tri-bromodiphenyl ether		5	N.D.	
Tetra-bromodiphenyl ether		5	N.D.	
Penta-bromodiphenyl ether		5	N.D.	
Hexa-bromodiphenyl ether		5	N.D.	
Hepta-bromodiphenyl ether		5	N.D.	
Octa-bromodiphenyl ether		5	N.D.	
Nona-bromodiphenyl ether		5	N.D.	
Deca-bromodiphenyl ether		5	N.D.	
Polybrominated DiphenylEthers(PBDEs)	—	N.D.	1000	



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Test Items	Test Method/ Equipment	MDL	Content	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
			2	
Lead(Pb)	IEC 62321-5:2013. ICP-OES/AAS	2	N.D.	1000
Cadmium(Cd)		2	N.D.	100
Mercury(Hg)	IEC 62321-4:2013 +AMD1:2017. ICP-OES	2	N.D.	1000

Test Item	Test Method/ Equipment	MDL ($\mu\text{g}/\text{cm}^2$)	Result ($\mu\text{g}/\text{cm}^2$)	Qualitative Result	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
			2		
Hexavalent Chromium(Cr(VI)) \blacklozenge	IEC 62321-7-1:2015. UV-VIS	0.10	N.D.	Negative	—

Note: N.D.=not detected (less than method detection limit), “—”=Not regulated

MDL=method detection limit mg/kg=ppm= parts per million

Results shown as N.D. are ignored in the sum calculation.

As specified by client, only test the designated sample.

The detected Chromium (Cr) content is "N.D.", therefore, the Hexavalent Chromium (Cr (VI)) content is "N.D.", No need for validation test of the Hexavalent Chromium (Cr (VI)).

If Chromium (Cr) content exceeds Hexavalent Chromium (Cr (VI)) method detection limit, Validation test of the Hexavalent Chromium (Cr (VI)) is required.

- \blacklozenge = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than $0.13\mu\text{g}/\text{cm}^2$. The sample coating is considered to contain Cr(VI);
 - b. The sample is negative for Cr(VI) if Cr(VI) is N.D. (concentration less than $0.10\mu\text{g}/\text{cm}^2$). The coating is considered a non-Cr(VI) based coating;
 - c. The result between $0.10\mu\text{g}/\text{cm}^2$ and $0.13\mu\text{g}/\text{cm}^2$ is considered to be inconclusive -unavoidable coating variations may influence the determination;
- Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



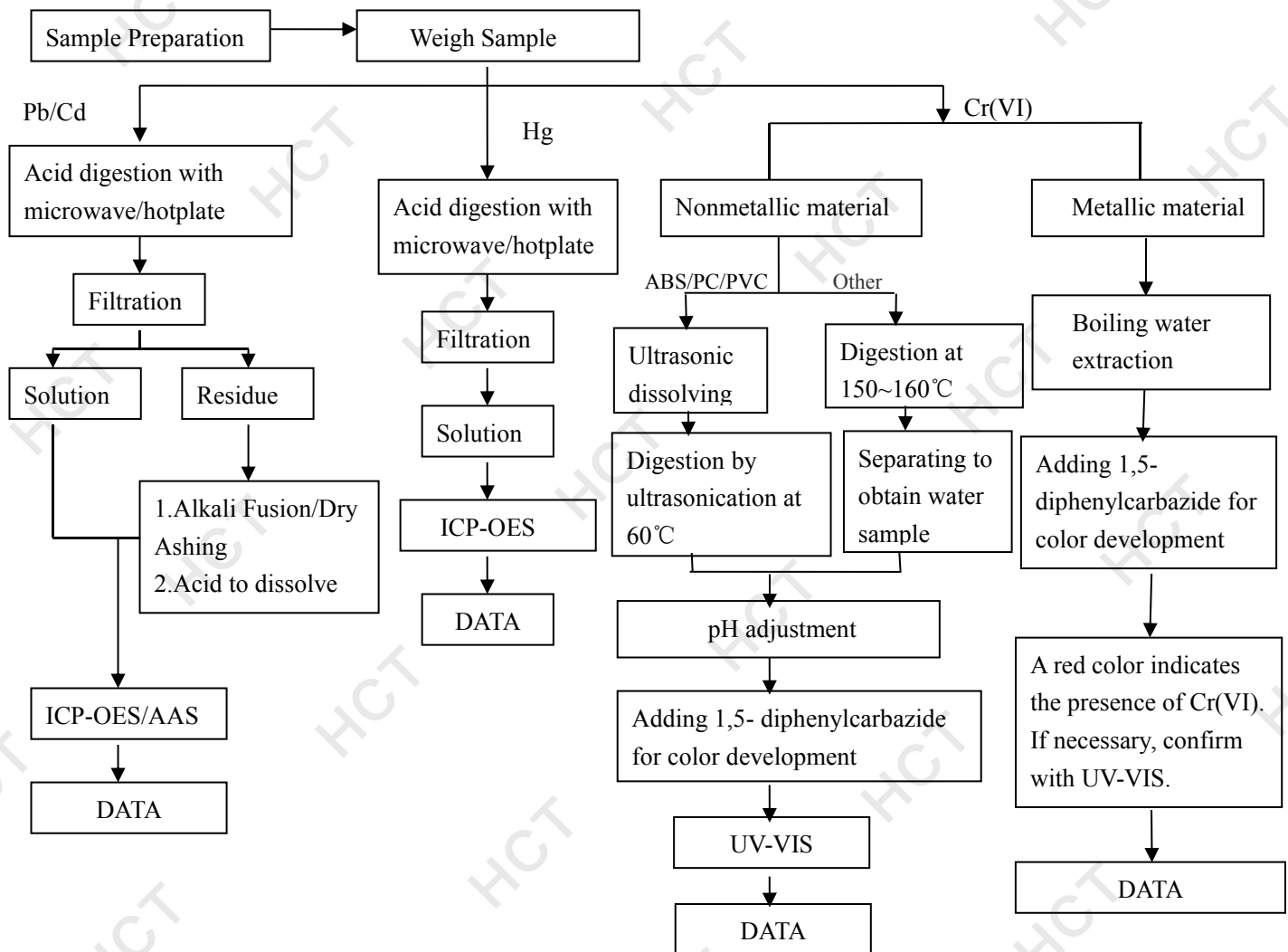
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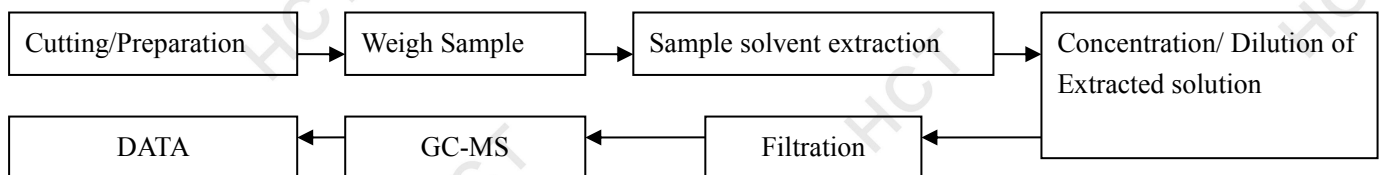
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Test Flow Chart



These sample were dissolved totally by pre-conditioning method according to above flow chart(Cr(VI) test method excluded)

PBBs/PBDEs



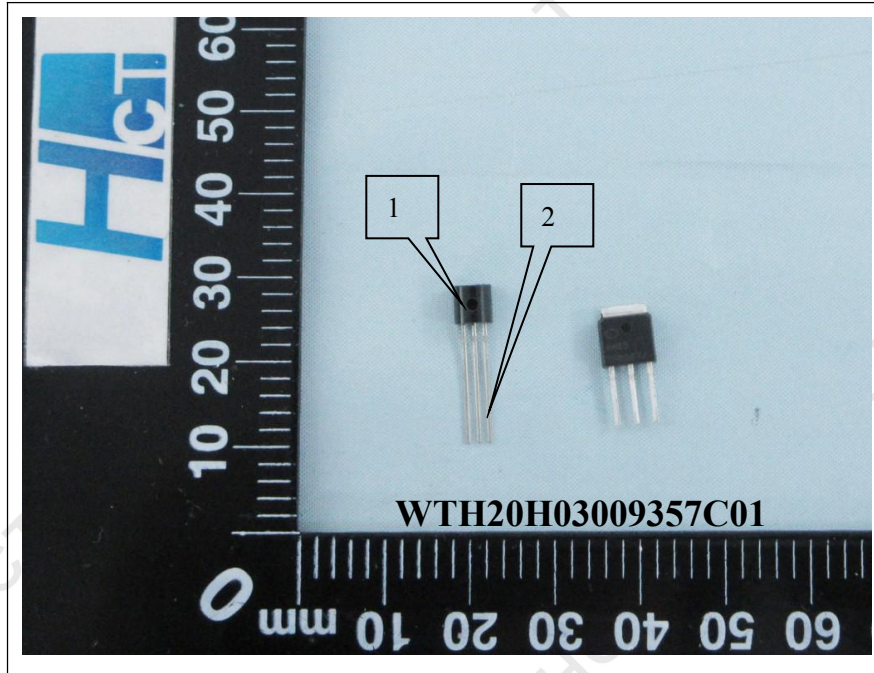
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The photo of the sample



End

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