

## Test Report

No. SHAEC2007685205

Date: 18 May 2020

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JIANGSU MICRO COMMERCIAL COMPONENTS CO., LTD

NO.6, WEST HEYE ROAD, WEIYANG ECONOMIC DEVELOPMENT ZONE, HANJIANG, YANGZHOU,  
JIANGSU,CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : THRO-HOLE PACKAGE DEVICES

SGS Job No. : SP20-013023 - SH  
Model No. : THRO-HOLE PACKAGE DEVICES(TO-220AB)  
Client Ref. Information : TO-126,TO-220AB,TO-220AC,ITO-220AB,ITO-220AC, TO-220AB(H)  
,ITO-220,TO-220,TO-220F,TO-247, TO-247AC , TO-247AD, TO-3P,TO-220  
BUTTON,TO-18,TO-39,TO-3,TO-66,TO-262, TO-262L  
,RB-15,WOM,WOL,BR-6,  
BR-8D,KBP,KBPL,KBPC,KBPM,  
KBU,KBJ,KBJL,PB-3,PB-6,PB-10,GBU,GBJ,GBJL,GBL,GBP,GBPC,GBPC-W,  
GBPC-H,RS-1,  
RS-4L,RS-4M,RS-6,RS-6M,DBL-1,TO-251,TO-251S,D3K,RS-15M,RS-20M,RS-  
25M,MB-35(W),MP-50(W),MT, DB-1,MB-1,KBPR,AK, MT-35A, JB, JA,  
D3K,TSB-5,  
Date of Sample Received : 11 May 2020  
Testing Period : 11 May 2020 - 15 May 2020  
Test Requested : Selected test(s) as requested by client.  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Dora Hu

Dora Hu  
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA20-076852.005	Silver metal
SN2	SHA20-076852.006	Black body back with silver metal (mix all*)

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>006</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	3013▲
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND



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# Test Report

No. SHAEC2007685205

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Test Item(s)	Limit	Unit	MDL	006
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl Phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series  
[https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)
- (2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.
- (4) ▲According to the declaration from the client, Lead (Pb) in No.006 is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 7(a)]: Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	005
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	7
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>005</u>
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl Phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

(1)The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series  
[https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)

(2)▼ = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm<sup>2</sup>. The sample coating is considered to contain CrVI  
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-CrVI based coating  
 c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> 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.

\*The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value and only for reference.



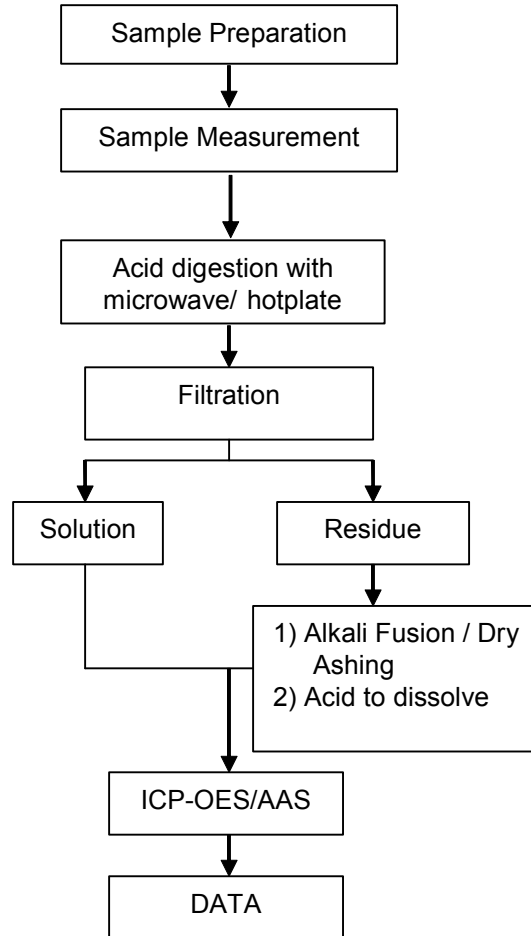
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

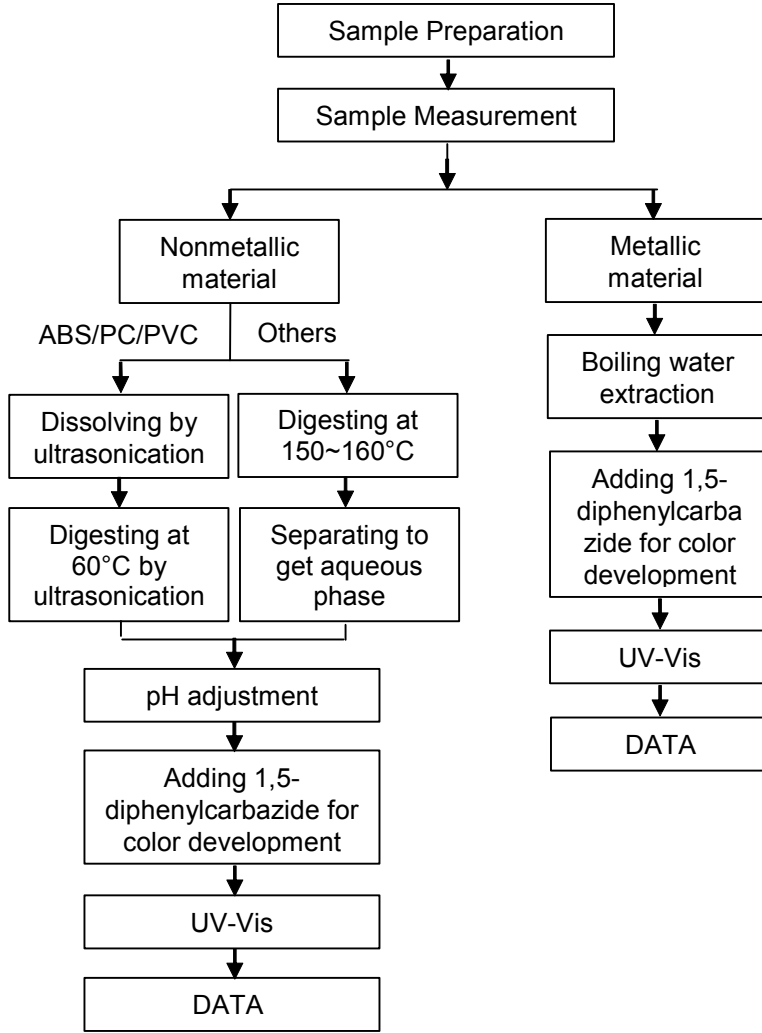


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart

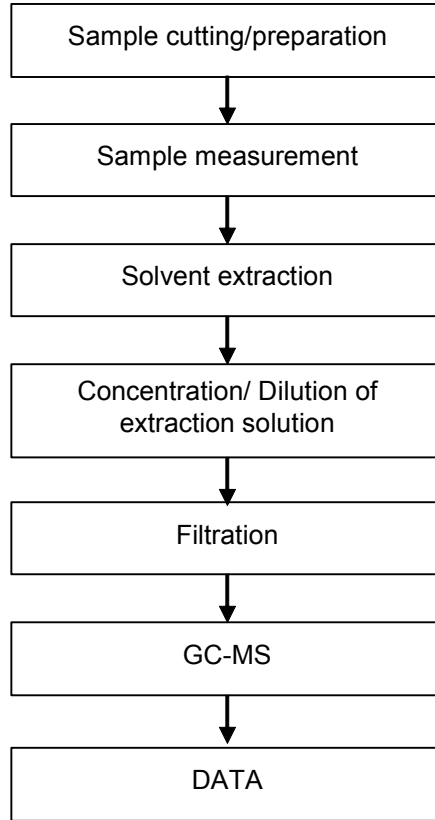


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PBBs/PBDEs Testing Flow Chart

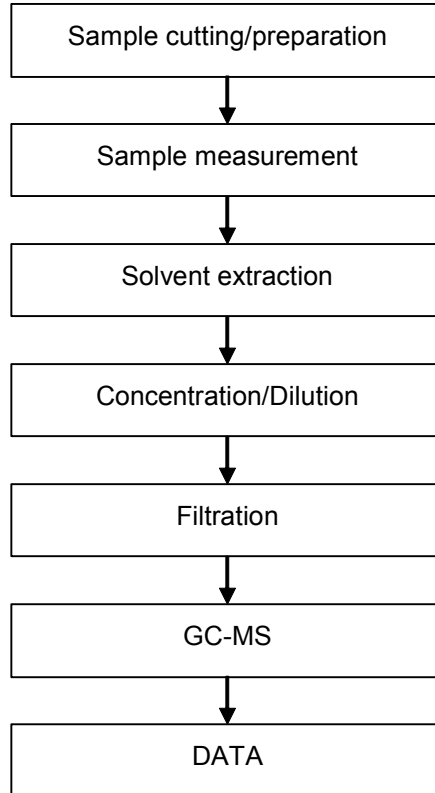


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### Phthalates Testing Flow Chart

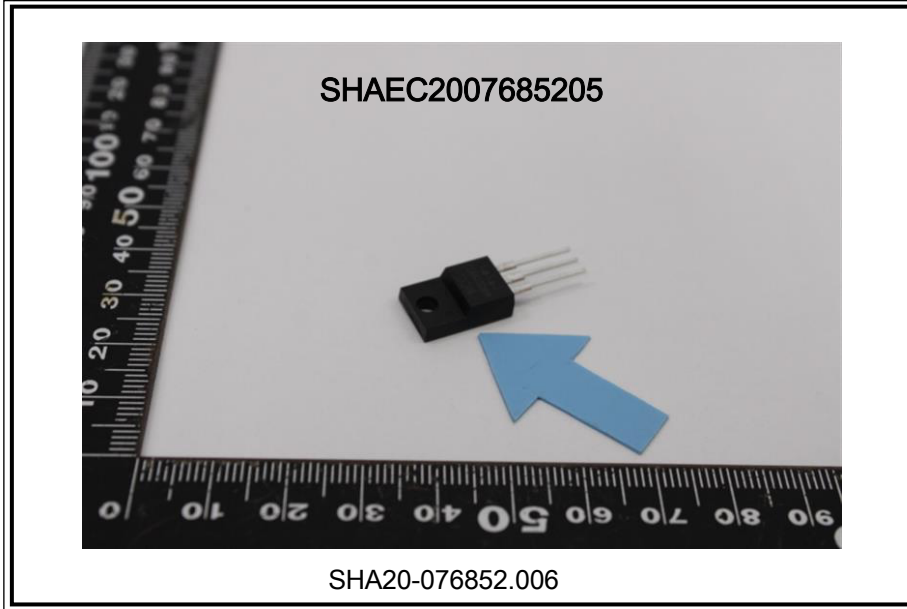
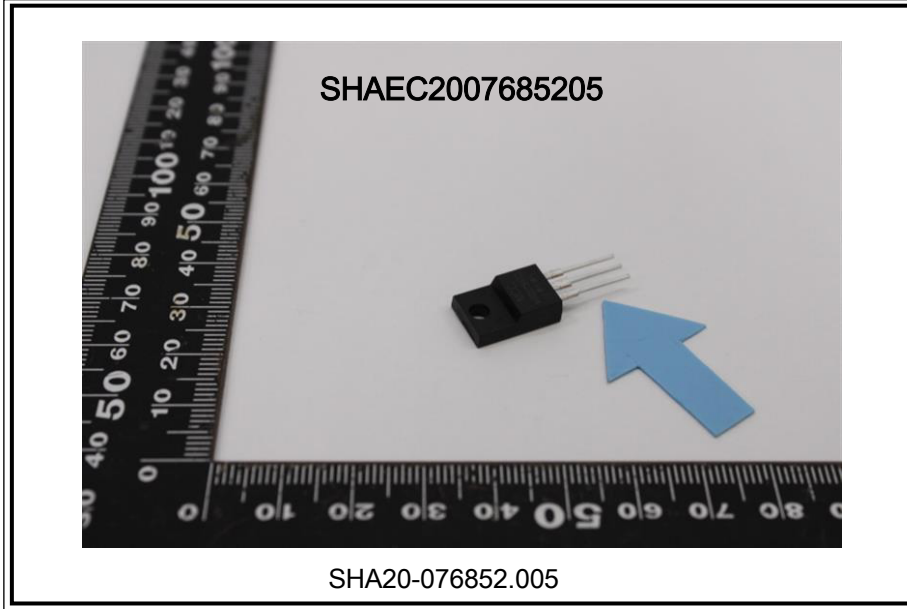


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