

# Test Report

**Report No.** ECL01J072676003

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**Applicant** CYG WAYON CIRCUIT PROTECTION CO.,LTD

**Address** 1001 SHIWAN 7TH ROAD, SHANGHAI, 201207 P.R. CHINA

**The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client**

**Sample Name** Solder

**Flux content** 11.2%

**Sample Received Date** Nov. 20, 2017

**Testing Period** Nov. 20, 2017 to Nov. 28, 2017

**Test Requested** As specified by client, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Chlorine(Cl), Bromine(Br), Antimony(Sb), Beryllium(Be), Phthalates in the submitted sample(s).

**Test Method** Please refer to the following page(s).

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

Tested by

*Liu Jie*  
*Su Hongwei*

Approved by

Su Hongwei

Senior Laboratory Manager

Centre Testing International Pinbiao(Shanghai) Co., Ltd.

Reviewed by

*Taoying*

Date

Nov. 28, 2017

No. R131279013

No.1996,Xinjinqiao Road, Pudong New District,Shanghai,China

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## Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES
Mercury(Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013 Ed.1.0	UV-Vis/ICP-OES
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates(DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Chlorine (Cl)	Refer to IPC-TM-650 & EN14582:2016	IC
Bromine (Br)	Refer to IPC-TM-650 & EN14582:2016	IC
Antimony(Sb)	Refer to US EPA 3052:1996 & US EPA 6010D:2014	ICP-OES
Beryllium(Be)	Refer to US EPA 3052:1996 & US EPA 6010D:2014	ICP-OES
Phthalates (DMP,DIBP,DPP,DCHP,DNOP,DINP DIDP,DNHP,DHNUP,DIHP)	Refer to EN 14372:2004(E)	GC-MS

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## Test Result(s)

Tested Item(s)	Result	MDL
Lead (Pb)	50 mg/kg	2 mg/kg
Cadmium (Cd)	N.D.	2 mg/kg
Mercury (Hg)	N.D.	2 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	8 mg/kg

Tested Item(s)	Result	MDL
<b>Polybrominated Biphenyls(PBBs)</b>		
Monobromobiphenyl	N.D.	5 mg/kg
Dibromobiphenyl	N.D.	5 mg/kg
Tribromobiphenyl	N.D.	5 mg/kg
Tetrabromobiphenyl	N.D.	5 mg/kg
Pentabromobiphenyl	N.D.	5 mg/kg
Hexabromobiphenyl	N.D.	5 mg/kg
Heptabromobiphenyl	N.D.	5 mg/kg
Octabromobiphenyl	N.D.	5 mg/kg
Nonabromobiphenyl	N.D.	5 mg/kg
Decabromobiphenyl	N.D.	5 mg/kg

Tested Item(s)	Result	MDL
<b>Polybrominated Diphenyl Ethers(PBDEs)</b>		
Monobromodiphenyl ether	N.D.	5 mg/kg
Dibromodiphenyl ether	N.D.	5 mg/kg
Tribromodiphenyl ether	N.D.	5 mg/kg
Tetrabromodiphenyl ether	N.D.	5 mg/kg
Pentabromodiphenyl ether	N.D.	5 mg/kg
Hexabromodiphenyl ether	N.D.	5 mg/kg
Heptabromodiphenyl ether	N.D.	5 mg/kg
Octabromodiphenyl ether	N.D.	5 mg/kg
Nonabromodiphenyl ether	N.D.	5 mg/kg
Decabromodiphenyl ether	N.D.	5 mg/kg

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Tested Item(s)	Result	MDL
<b>Phthalates</b>		
Dibutyl phthalate(DBP) CAS#:84-74-2	N.D.	50 mg/kg
Butylbenzyl phthalate(BBP) CAS#:85-68-7	N.D.	50 mg/kg
Di-2-ethylhexyl phthalate(DEHP) CAS#:117-81-7	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg

Tested Item(s)	Result* <sup>1</sup>	MDL
<b>Halogen</b>		
Chlorine (Cl)	462 mg/kg	10mg/kg
Bromine (Br)	141 mg/kg	10mg/kg

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Tested Item(s)	Result	MDL
<b>Phthalates</b>		
Dimethyl phthalate(DMP) CAS#:131-11-3	N.D.	50 mg/kg
Diisobutyl phthalate(DIBP) CAS#:84-69-5	N.D.	50 mg/kg
Di-n-Pentyl Phthalate (DPP) CAS#:131-18-0	N.D.	50 mg/kg
Dicyclohexyl phthalate(DCHP) CAS#:84-61-7	N.D.	50 mg/kg
Di-n-octyl phthalate(DNOP) CAS#:117-84-0	N.D.	50 mg/kg
Diisononyl phthalate(DINP) CAS#:28553-12-0,68515-48-0	N.D.	50 mg/kg
Diisodecyl phthalate(DIDP) CAS#:26761-40-0,68515-49-1	N.D.	50 mg/kg
Di-n-hexyl phthalate (DNHP) CAS#:84-75-3	N.D.	50 mg/kg
*1,2-Benzenedicarboxylic acid, di-(C7-11)-branched and linear alkyl esters (DHNUP) CAS#:68515-42-4	N.D.	100 mg/kg
*1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich(DIHP) CAS#:71888-89-6	N.D.	100 mg/kg
Tested Item(s)	Result	MDL
Antimony(Sb)	52 mg/kg	5 mg/kg
Beryllium(Be)	N.D.	10 mg/kg

**Tested Sample/Part Description** Grey paste

**Remark:** The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury, Antimony, Beryllium.

-MDL = Method Detection Limit -N.D. = Not Detected (&lt;MDL)

-mg/kg = ppm = parts per million

-\*=In view of the substances are established as UVCB substances (substances of unknown or variable composition, complex reaction products or biological materials) consisting of different and variable constituents, the test results are calculated based on the main constituents of the representative compounds for substances.

-\*=Test results were based on the weight of solder paste, and calculated according to the following formula:

Halogen content in solder paste(mg/kg)=Halogen content in Flux(mg/kg)×Flux content(11.2%)



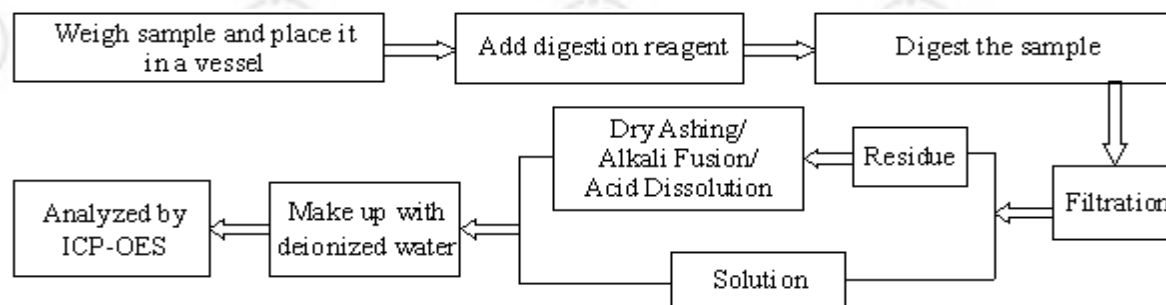
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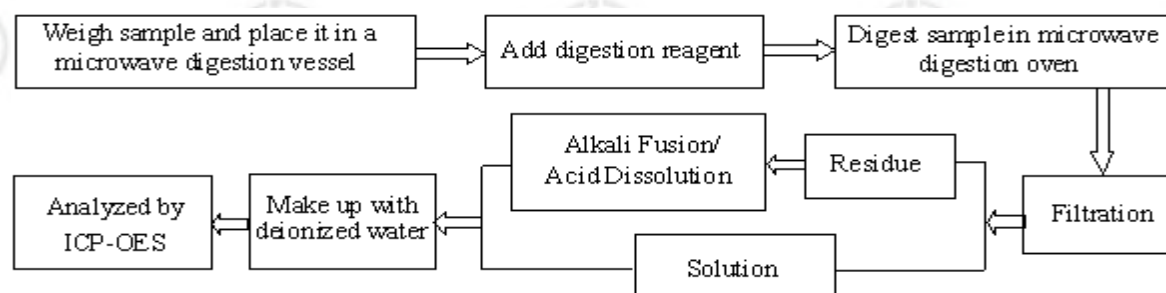
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## Test Process

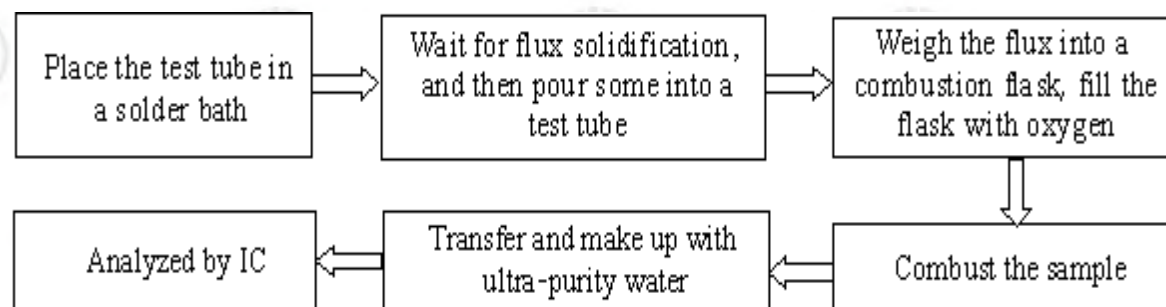
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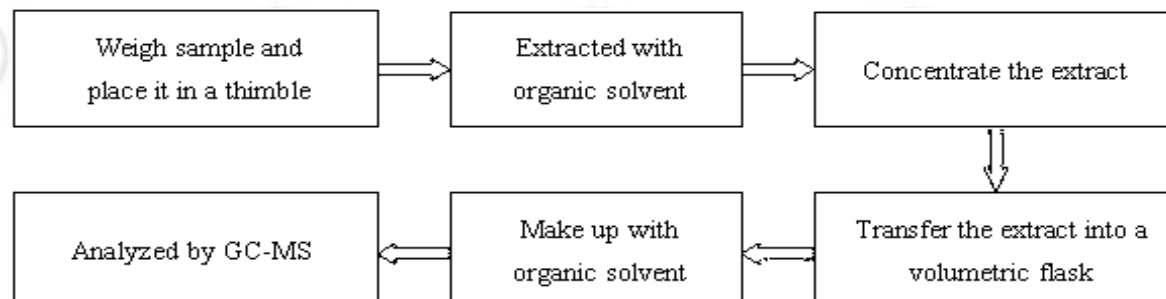
### 2. Mercury (Hg)



### 3. Chlorine(Cl), Bromine (Br)



### 4. Polybrominated Biphenyls(PBBs) , Polybrominated Diphenyl Ethers(PBDEs)

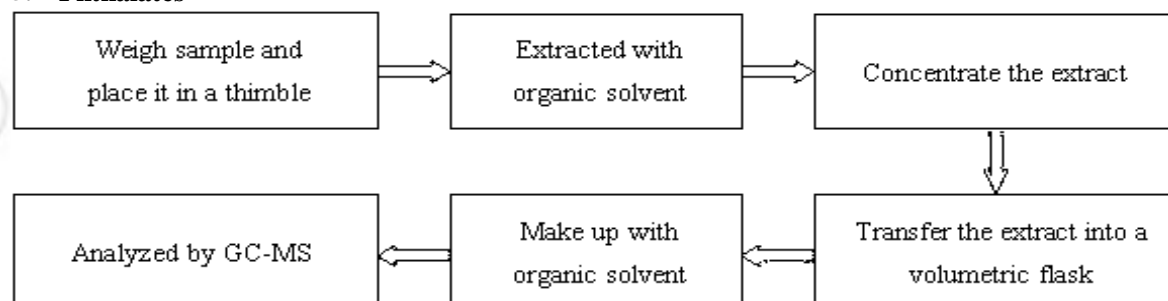


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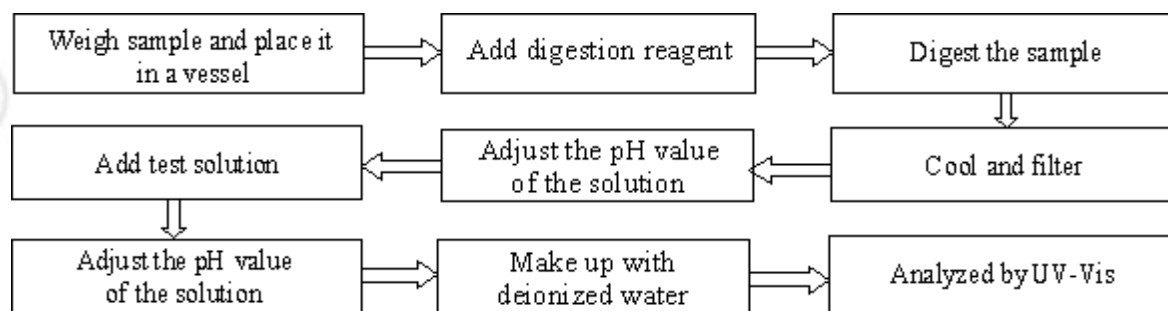
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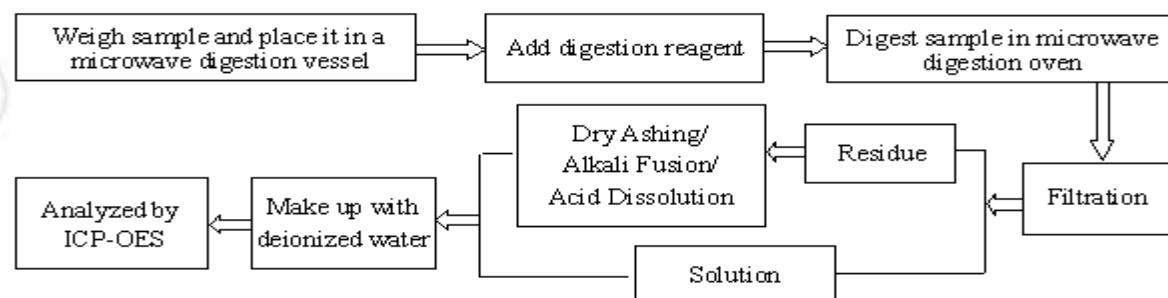
## 5. Phthalates



## 6. Hexavalent Chromium(Cr(VI))



## 7. Antimony(Sb), Beryllium(Be)



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## Photo(s) of the sample(s)



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

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