

# Test Report

No. CANEC1905076308

Date: 08 Apr 2019

Page 1 of 11

SHENGYI TECHNOLOGY CO., LTD.

5 WESTERN INDUSTRY ROAD, SONGSHAN LAKE, DONGGUAN CITY, GUANGDONG, P.R. CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : Copper Clad Laminate

SGS Job No. : CP19-014676 - GZ

Model No. : Autolad3

Date of Sample Received : 01 Apr 2019

Testing Period : 01 Apr 2019 - 08 Apr 2019

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).

Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, 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 (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

*Dongyu Xie*

Dongyu Xie  
Approved Signatory



SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch Testing Center Chemical Laboratory.

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Date: 08 Apr 2019

Page 2 of 11

Test Results :

### Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN19-050763.007	Copper-colored board

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+A1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017 , IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	007
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	7
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND
Sum of PBBs	1,000	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	1,000	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



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## Test Report

No. CANEC1905076308

Date: 08 Apr 2019

Page 3 of 11

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>007</u>
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
Dibutyl phthalate (DBP)	1,000	mg/kg	50	ND
Butyl benzyl phthalate (BBP)	1,000	mg/kg	50	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1,000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1,000	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  
[http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)

### Element(s)

Test Method : SGS In-house method (GZTC CHEM-TOP-004-01, with reference to US EPA Method 3052:1996), analysis was performed by ICP-OES.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>007</u>
Beryllium (Be)	mg/kg	5	ND
Antimony (Sb)	mg/kg	10	ND

### Hexabromocyclododecane (HBCDD)

Test Method : With reference to IEC 62321:2008, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>007</u>
Hexabromocyclododecane (HBCDD)	mg/kg	10	ND

### Phthalate

Test Method : With reference to EN14372: 2004. Analysis was performed by GC-MS.



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## Test Report

No. CANEC1905076308

Date: 08 Apr 2019

Page 4 of 11

Test Item(s)	CAS NO.	Unit	MDL	007
Dibutyl Phthalate (DBP)	84-74-2	%(w/w)	0.003	ND
Benzylbutyl Phthalate (BBP)	85-68-7	%(w/w)	0.003	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	%(w/w)	0.003	ND
Diisononyl Phthalate (DINP)	28553-12-0 / 68515-48-0	%(w/w)	0.010	ND
Di-n-octyl Phthalate (DNOP)	117-84-0	%(w/w)	0.003	ND
Diisodecyl Phthalate (DIDP)	26761-40-0 / 68515-49-1	%(w/w)	0.010	ND
Di-n-hexyl Phthalate (DnHP)	84-75-3	%(w/w)	0.003	ND
Diisobutyl Phthalate (DIBP)	84-69-5	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4	%(w/w)	0.010	ND
Bis(2-methoxyethyl) Phthalate (DMEP)	117-82-8	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6	%(w/w)	0.010	ND
Diisopentyl Phthalate (DIPP)	605-50-5	%(w/w)	0.003	ND
n-pentyl Isopentyl Phthalate (nPIPP)	776297-69-9	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear (DPP)	84777-06-0	%(w/w)	0.010	ND
Di-n-pentyl Phthalate (DnPP)	131-18-0	%(w/w)	0.003	ND
1,2-Benzenedicarboxylic acid, dihexyl ester branched and linear(DHP)	68515-50-4	%(w/w)	0.010	ND

### Notes :

- (1) DBP, BBP, DEHP, DIBP Reference information: Entry 51 of Regulation (EU) No 2018/2005 amending Annex XVII of REACH Regulation (EC) No 1907/2006:
- i) Shall not be used as substances or in mixtures, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material, in toys and childcare articles.
  - ii) Shall not be placed on the market in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material. In addition, DIBP shall not be placed on the market after 7 July 2020 in toys or childcare articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material.
  - iii) shall not be placed on the market after 7 July 2020 in articles, individually or in any combination of DBP, BBP, DEHP & DIBP, in concentrations equal to or greater than 0.1 % by weight of the plasticised material in the articles.
- Please refer to Regulation (EU) No 2018/2005 to get more detail information.
- (2) DINP, DNOP, DIDP Reference information: Entry 52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC).
- i) Shall not be used as substances or in mixtures, in concentrations greater than 0.1 % by weight of the plasticised material, in toys and childcare articles which can be placed in the mouth by children.





## Test Report

No. CANEC1905076308

Date: 08 Apr 2019

Page 5 of 11

ii) Such toys and childcare articles containing these phthalates in a concentration greater than 0.1 % by weight of the plasticised material shall not be placed on the market.

Please refer to Regulation (EC) No 552/2009 to get more detail information.

### PFOA & PFOS (Perfluorooctanoic acid & Perfluorooctane sulfonates)

Test Method : With reference to CEN/TS15968:2010, analysis was performed by LC-MS / GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>007</u>
Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg	0.025	ND
Perfluorooctane Sulfonates (PFOS)^		mg/kg	10	ND

Notes :

(1) ^: PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluorooctanesulfonic acid, Perfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamide, N-Ethylperfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamidoethanol and N-Ethylperfluorooctane sulfonamidoethanol.



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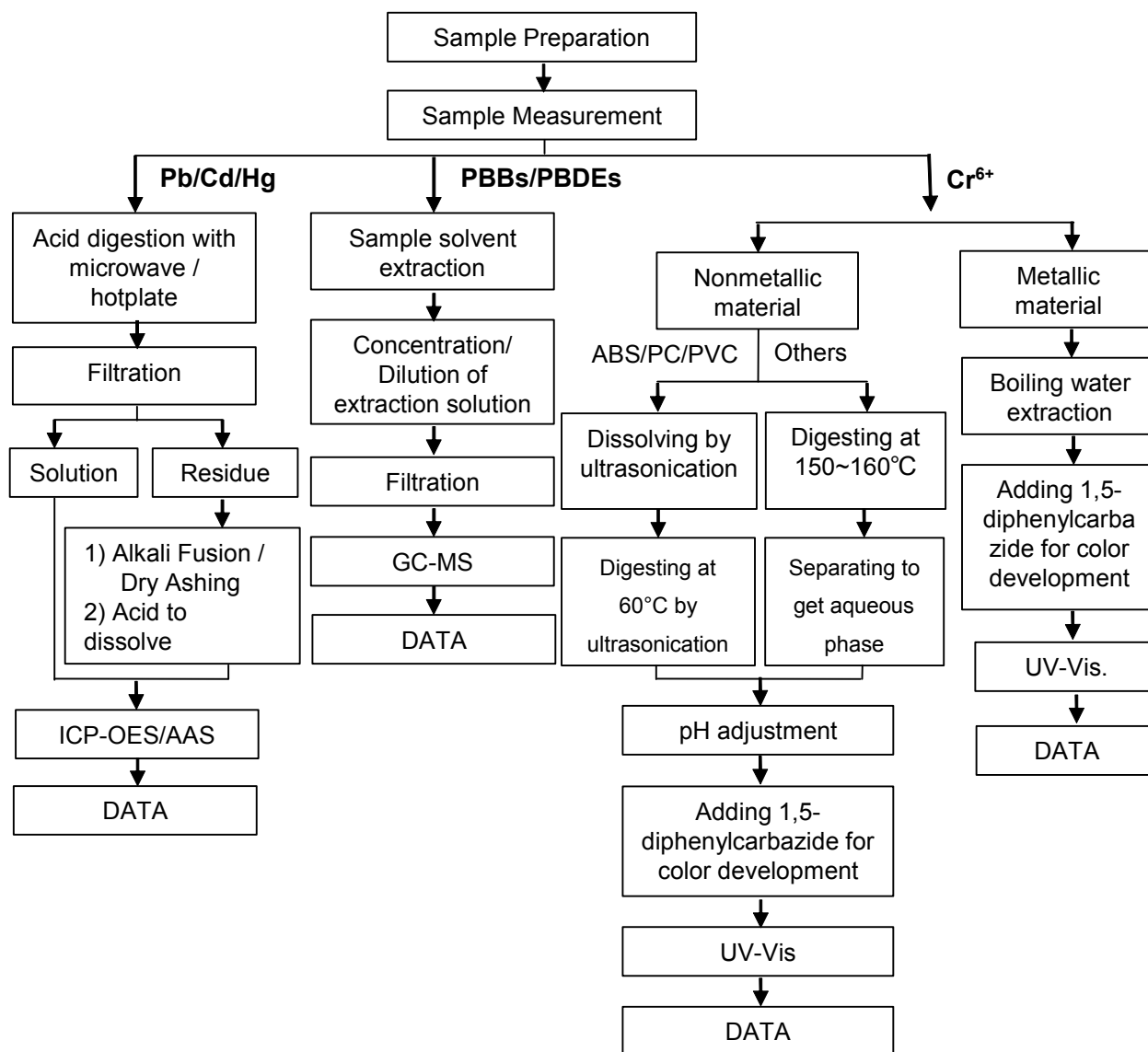
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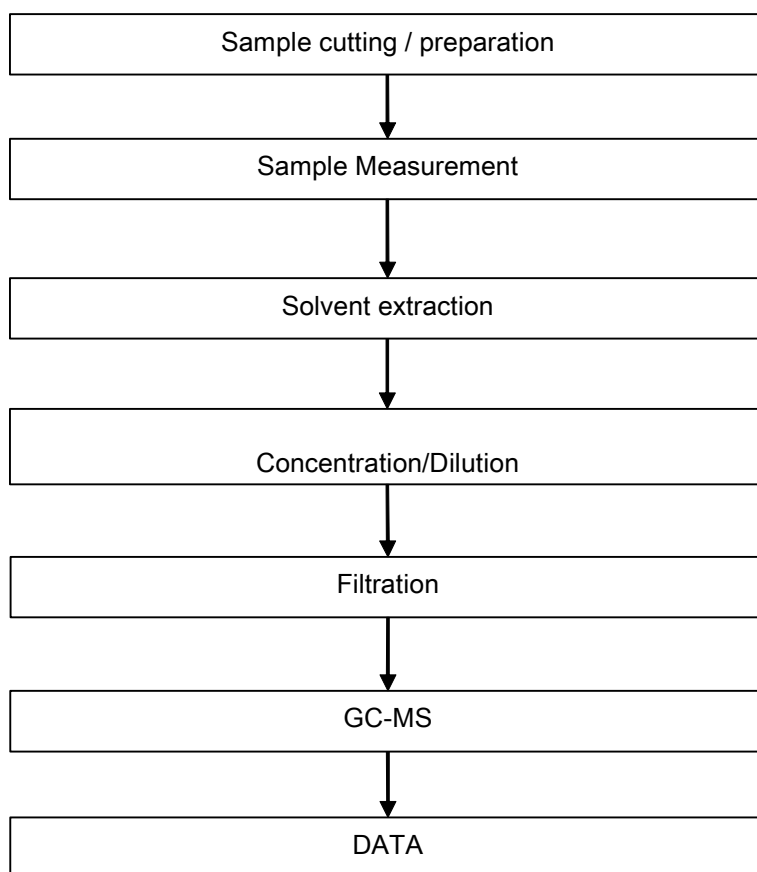
#### Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart

- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



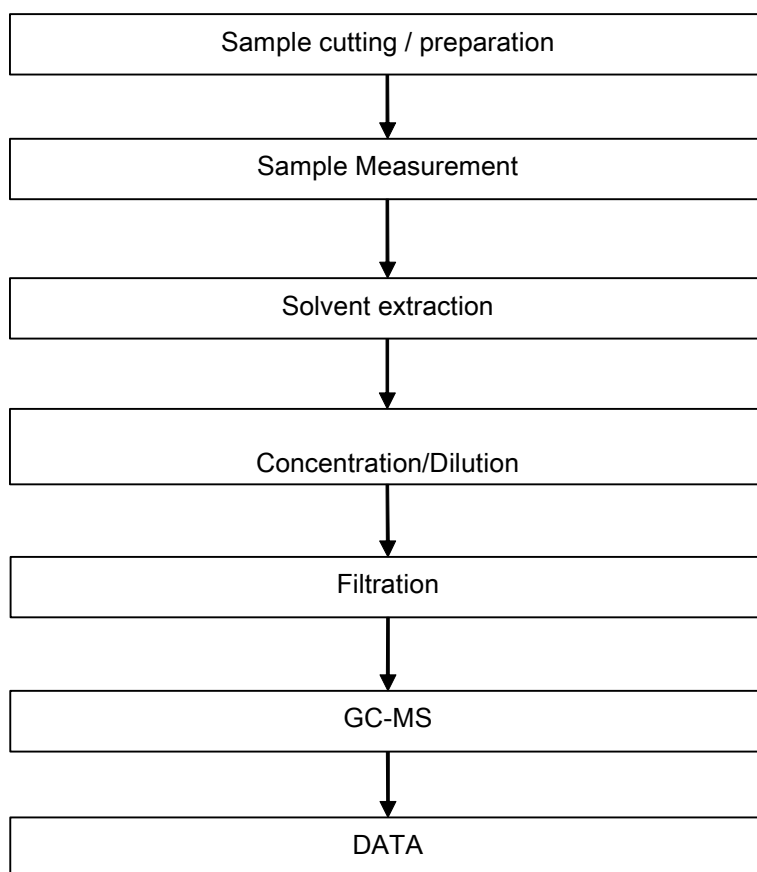
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### Phthalates Testing Flow Chart



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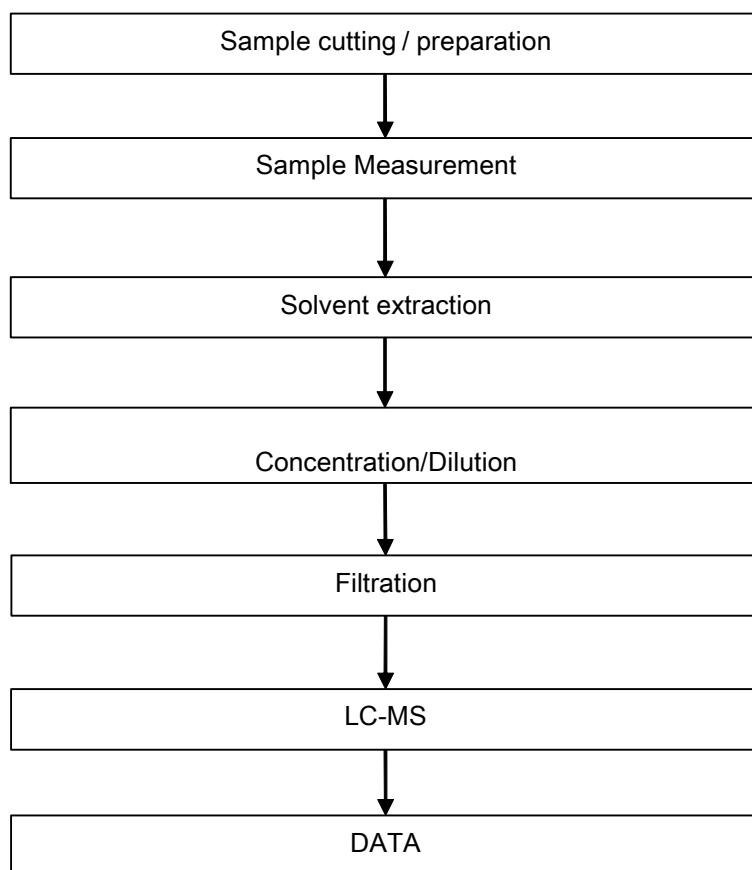
### HBCDD Testing Flow Chart





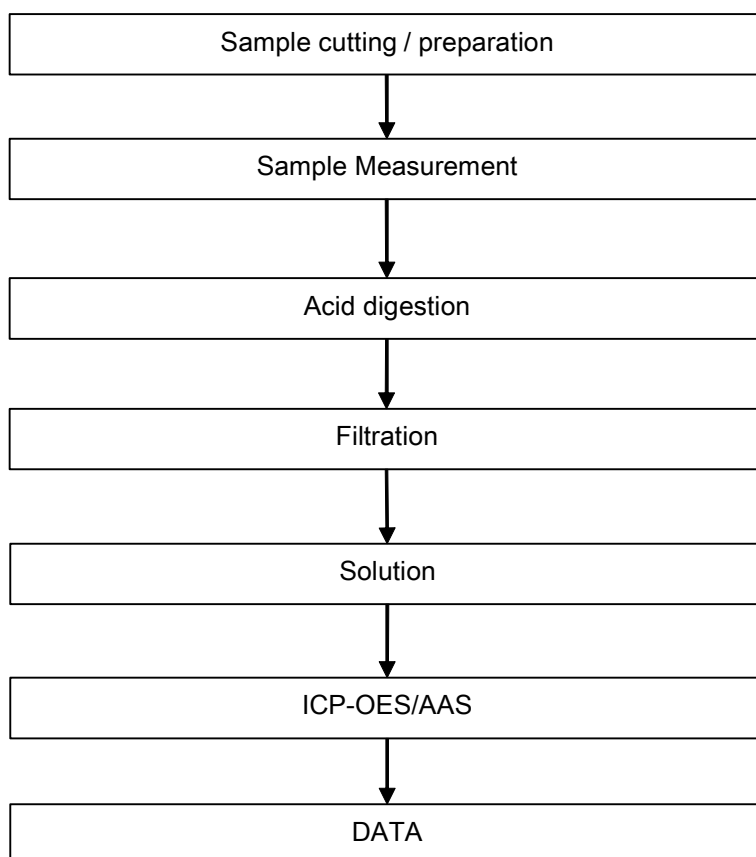
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### PFOA / PFOS Testing Flow Chart



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### Elementary Testing Flow Chart



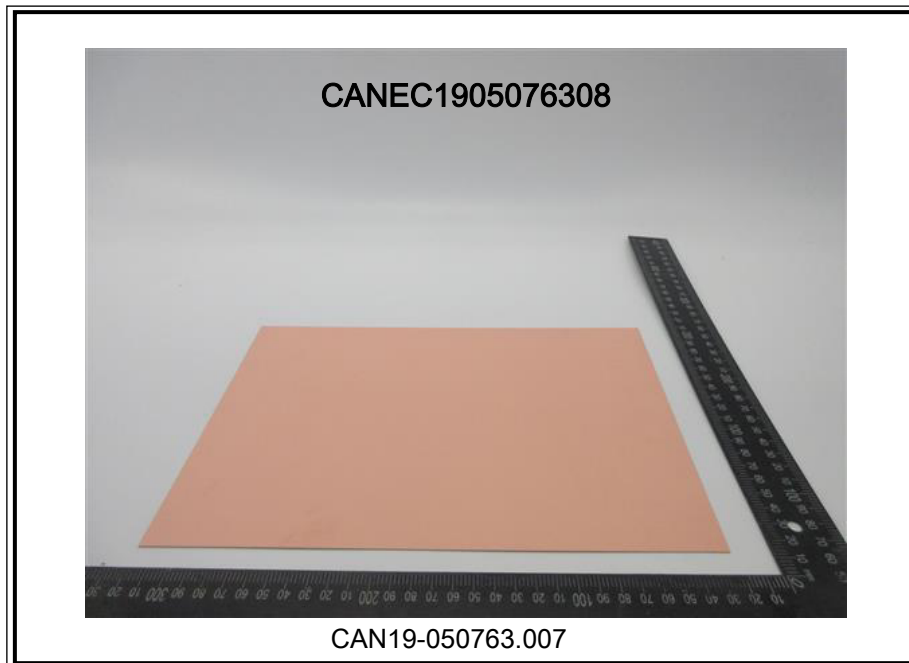
## Test Report

No. CANEC1905076308

Date: 08 Apr 2019

Page 11 of 11

Sample photo:



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