

Test Report

No. CANEC1726574607

Date: 17 Jan 2018

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BESTBRIGHT ELECTRONICS CO., LTD.

#3 BUILDING, MODERN ENTERPRISE ACCELERATOR PARK, SONG SHAN LAKE HIGH-TECH INDUSTRIAL DEVELOPMENT ZONE, DONGGUAN CITY, GUANGDONG PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : PTC AXIAL

SGS Job No. : CP17-070487 - SZ

Date of Sample Received : 29 Dec 2017

Testing Period : 29 Dec 2017 - 09 Jan 2018

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

Violet Shi

Violet, Shi
Approved Signatory



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

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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN17-265746.007	Silvery metal pin
SN2	CAN17-265746.008	Silvery body
SN3	CAN17-265746.009	Yellow material w/brown printing
SN4	CAN17-265746.010	"PTC AXIAL"(mixed)

Remarks :

- (1) 1 mg/kg = 1 ppm = 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, IEC62321-5:2013, IEC62321-7-2:2017 , IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES , UV-Vis and GC-MS .

Test Item(s)	Limit	Unit	MDL	008	009
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1,000	mg/kg	2	14	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	8	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND
Tribromobiphenyl	-	mg/kg	5	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND
Nonabromobiphenyl	-	mg/kg	5	ND	ND
Decabromobiphenyl	-	mg/kg	5	ND	ND
Sum of PBDEs	1,000	mg/kg	-	ND	ND
Monobromodiphenyl ether	-	mg/kg	5	ND	ND



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Guangzhou Branch Testing Center Chemical Laboratory

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Test Item(s)	Limit	Unit	MDL	008	009
Dibromodiphenyl ether	-	mg/kg	5	ND	ND
Tribromodiphenyl ether	-	mg/kg	5	ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND
Octabromodiphenyl ether	-	mg/kg	5	ND	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND
Decabromodiphenyl ether	-	mg/kg	5	ND	ND
Dibutyl phthalate (DBP)	1000	mg/kg	50	ND	ND
Butyl benzyl phthalate (BBP)	1000	mg/kg	50	ND	ND
Bis (2-ethylhexyl) phthalate (DEHP)	1000	mg/kg	50	ND	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND	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

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

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Unit	MDL	007
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	6
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	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

(2) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². 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/cm²). The coating is considered a non-CrVI based coating



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c. The result between 0.10 µg/cm² and 0.13 µg/cm² 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.

Halogen

Test Method : With reference to EN 14582:2016, analysis was performed by IC.

Test Item(s)	Unit	MDL	010
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	138
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

PFOA & PFOS (Perfluorooctanoic acid & Perfluorooctane sulfonates)

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

Test Item(s)	CAS NO.	Unit	MDL	010
Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg	10	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.

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2014:01 PAK, analysis was performed by GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	010
Naphthalene(NAP)	91-20-3	mg/kg	0.1	ND
Acenaphthylene(ANY)	208-96-8	mg/kg	0.1	ND
Acenaphthene(ANA)	83-32-9	mg/kg	0.1	ND
Fluorene(FLU)	86-73-7	mg/kg	0.1	ND
Phenanthrene(PHE)	85-01-8	mg/kg	0.1	ND
Anthracene(ANT)	120-12-7	mg/kg	0.1	ND
Fluoranthene(FLT)	206-44-0	mg/kg	0.1	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>010</u>
Pyrene(PYR)	129-00-0	mg/kg	0.1	0.7
Benzo(a)anthracene(BaA)	56-55-3	mg/kg	0.1	ND
Chrysene(CHR)	218-01-9	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF)	205-99-2	mg/kg	0.1	ND
Benzo(j)fluoranthene(BjF)	205-82-3	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	207-08-9	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	50-32-8	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	192-97-2	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	193-39-5	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	53-70-3	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	191-24-2	mg/kg	0.1	ND
Sum of 7 PAHs Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	-	mg/kg	-	0.7
Sum of 18 PAHs	-	mg/kg	-	0.7



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AFPS (German commission for Product Safety) : GS PAHs requirements

Parameter	Category 1	Category 2		Category 3	
	Material indented to be put in the mouth or toys with intended skin contact (longer than 30 s).	Materials not falling under category 1 with foreseeable contact to skin for longer than 30 s (long-term skin) or frequent contact.		Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 s (short-term skin contact).	
		Toy under 2009/48/EC	Other products under ProdSG	Toy under 2009/48/EC	Other products under ProdSG
Benzo(a)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(e)pyrene Mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(a)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(b)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(j)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(k)fluoranthene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo(a,h)anthracene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo(g,h,i)perylene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno(1,2,3-cd)pyrene mg/kg	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Acenaphthylene, Acenaphthene, fluorene, phenanthrene , pyrene, anthracene, fluoranthene, mg/kg	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Naphthalene, mg/kg	< 1	< 2		< 10	
Sum of 18 PAHs	<1	< 5	< 10	< 20	< 50

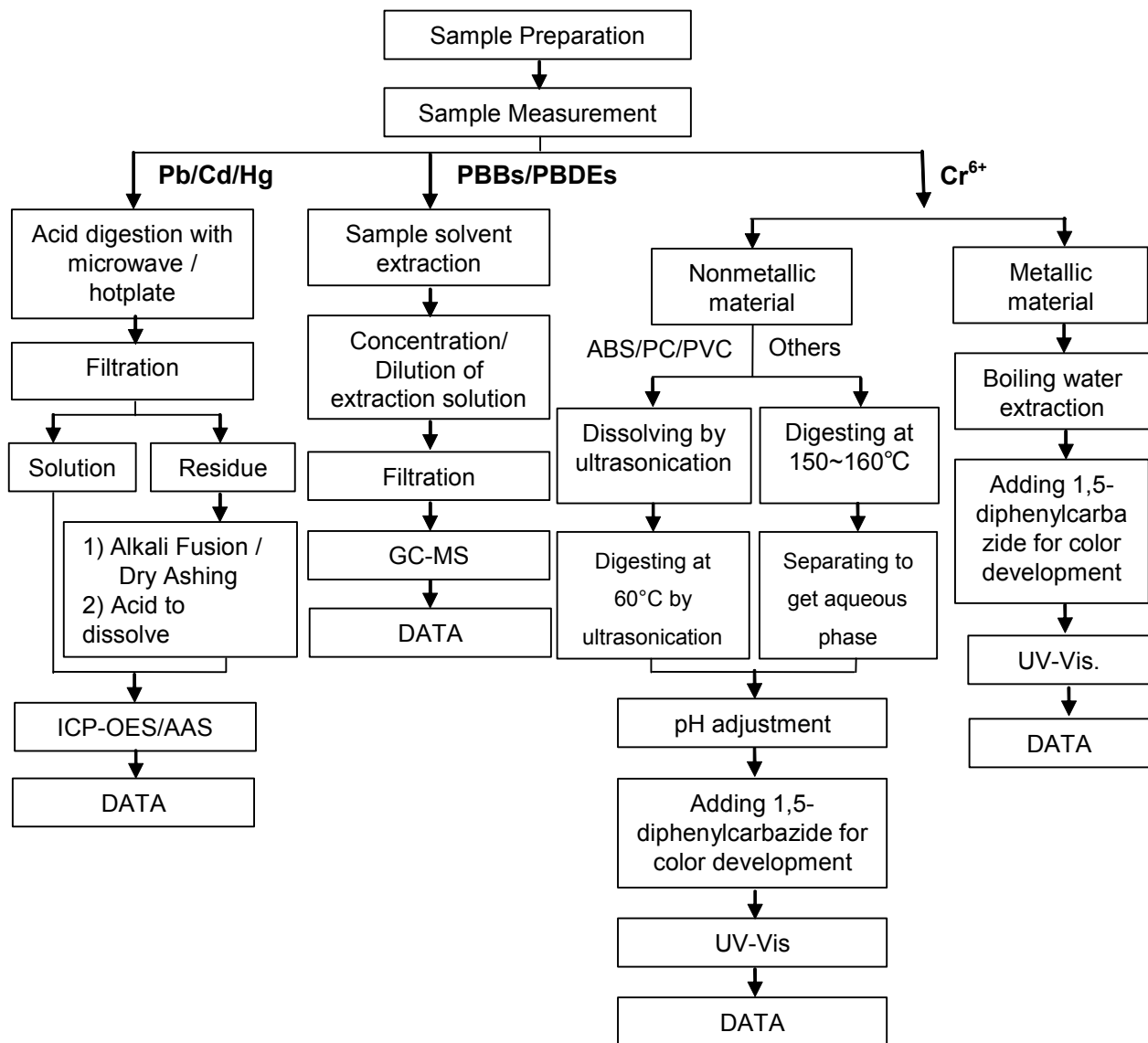
Remark: The sample(s) 010 was/were analyzed on behalf of the applicant as mixing sample in one testing. The above result(s) was/were only given as the informality value and only for reference.



ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

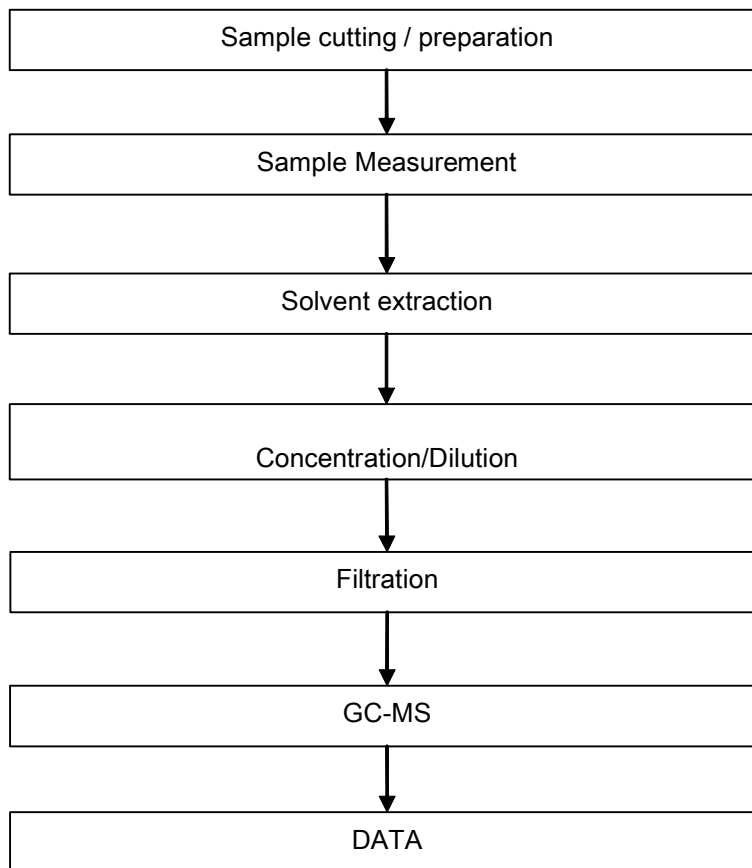
- 1) Name of the person who made testing: Edith Zhang / Sunny Hu
- 2) Name of the person in charge of testing: Bella Wang / Qiong Liu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ and PBBs/PBDEs test method excluded).



ATTACHMENTS

Phthalates Testing Flow Chart

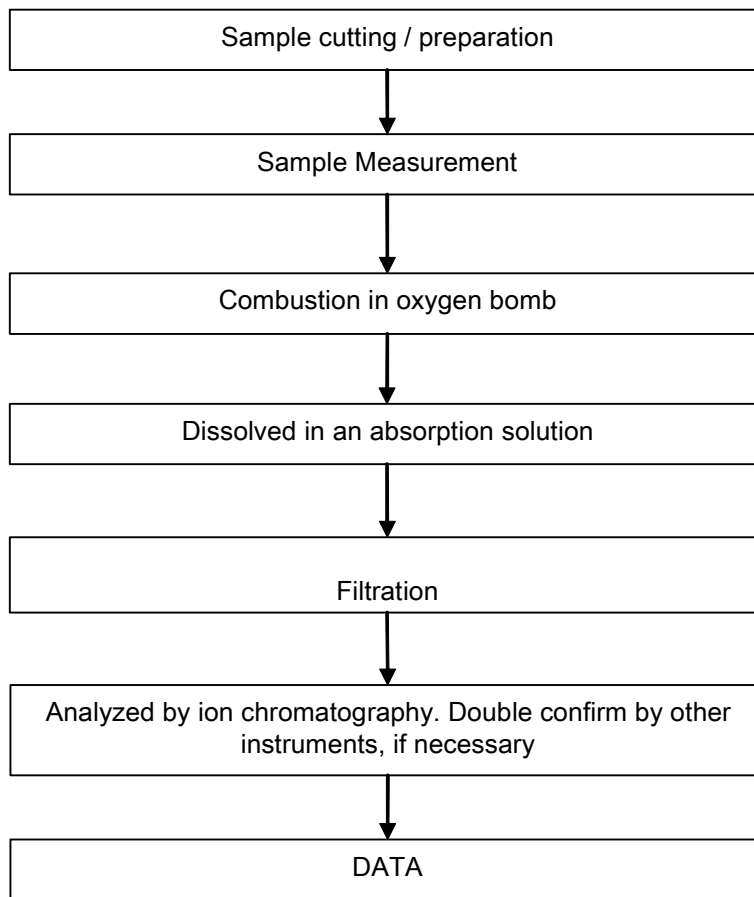
- 1) Name of the person who made testing: Sunny Hu
- 2) Name of the person in charge of testing: Qiong Liu



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Halogen Testing Flow Chart

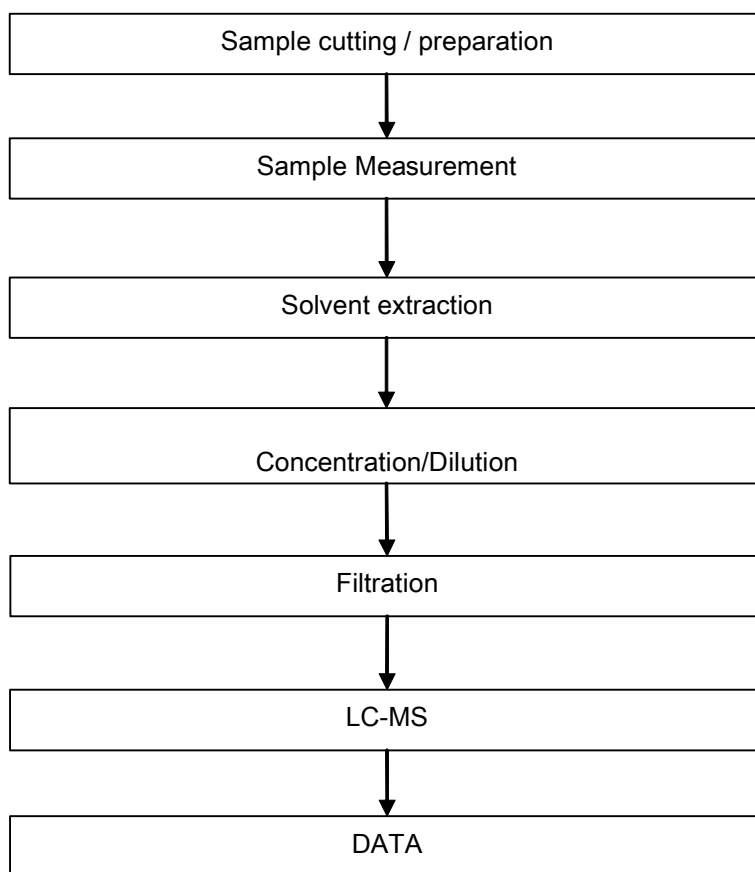
- 1) Name of the person who made testing: Bruce Xiao
- 2) Name of the person in charge of testing: Bella Wang



ATTACHMENTS

PFOA / PFOS Testing Flow Chart

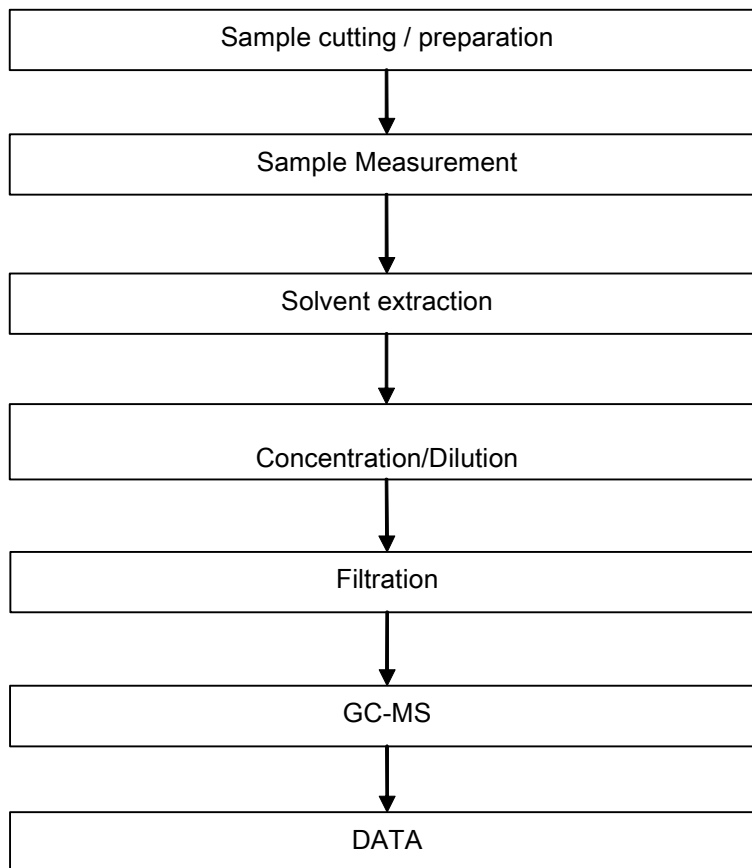
- 1) Name of the person who made testing: Zhihong Wang
- 2) Name of the person in charge of testing: Qiong Liu



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PAHs Testing Flow Chart

- 1) Name of the person who made testing: Sunny Hu
- 2) Name of the person in charge of testing: Qiong Liu



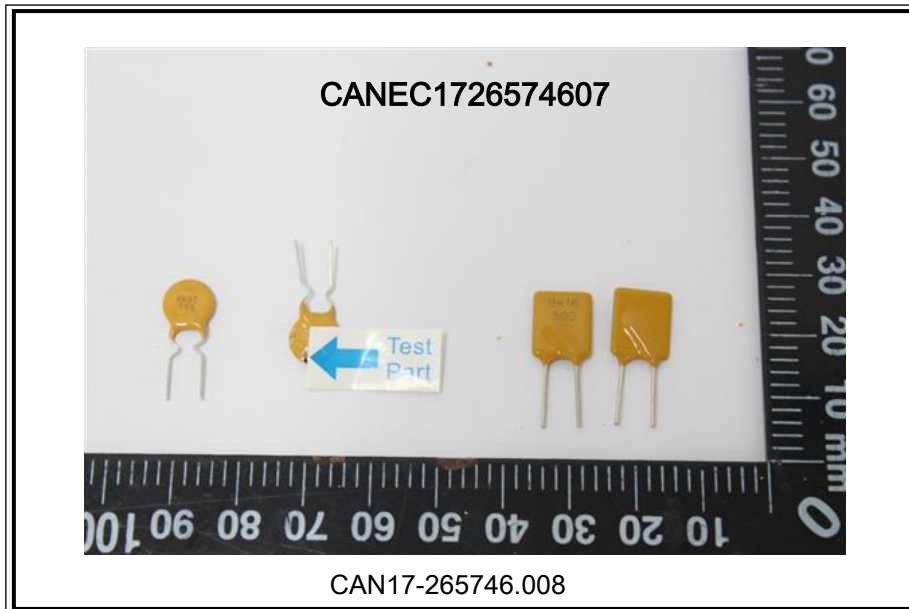
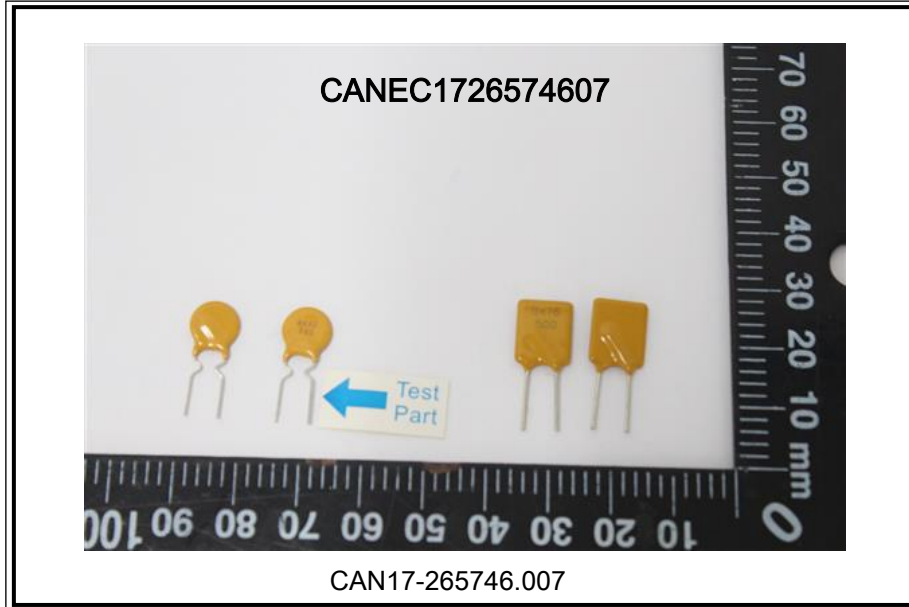
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Sample photo:

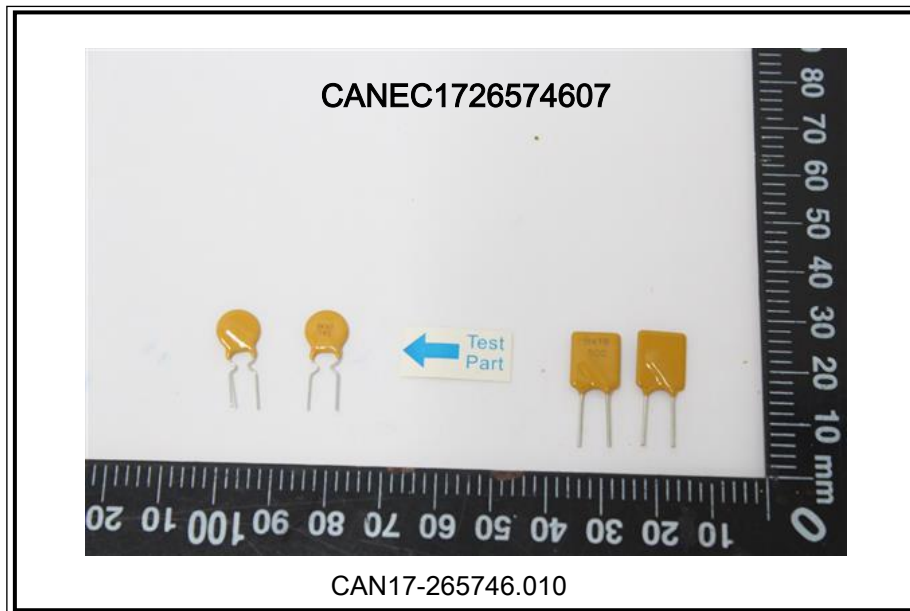
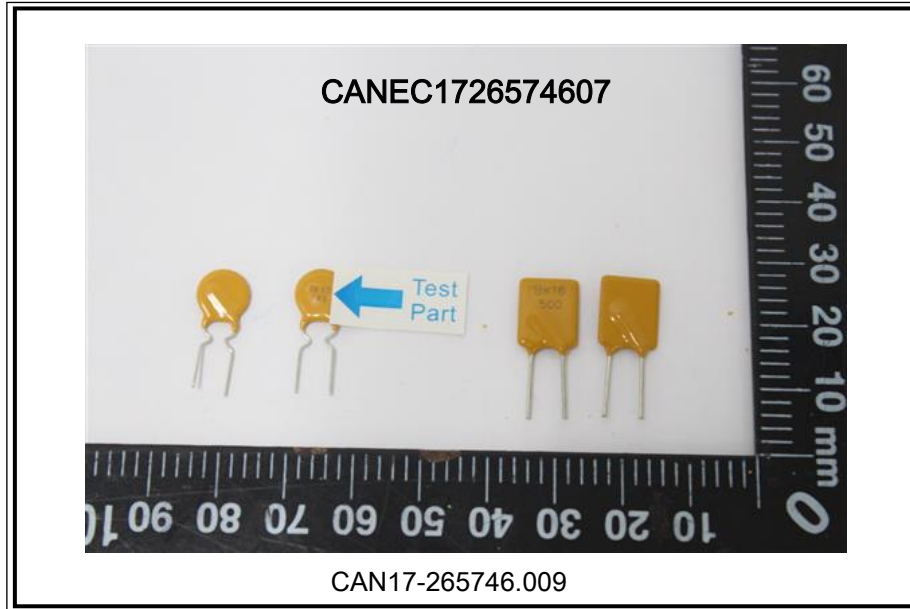


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