



Test Report

No.: GZ2001009886/CHEM Date: FEB 02, 2020

Page 1 of 8

SHEN ZHEN SAPO PHOTOELECTRIC CO.,
SAPO INDUSTRIAL PARK YOUSONG ROAD EAST LONGHUA STREET, BAO'AN DISTRICT SHENZHEN CHINA

The following sample(s) was/were submitted and identified on behalf of the applicant as Polarizer

SGS Job No. : SZ12365029
SGS Internal Reference No. : 2.2
Tested sample information : 灰色产品为 SPN-1805T/紫色样品为 SRZ-1825T
Client Reference Information : See remark
Date of Sample Received : JAN 27, 2020
Testing Period : JAN 27, 2020 TO FEB 02, 2020

Test Requested : A~C: Selected test (s) as requested by client.
D: To determine individual emissions on the submitted sample.

Test Method : A~C: Please refer to next page(s).
D: With reference to SGS In-house method. Weight 0.2g sample to headspace bottle, then heat 1hr at 100°C in headspace instrument. Analysis by Headspace-GCMS.

Test Result(s) : Please refer to next page(s).

Conclusion : A: Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS-CSTC Ltd.

Manson Yang
Sr. Engineer

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SGS Standards Technical Services Co., Ltd.
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Member of the SGS Group (SGS SA)

Test Results:

A: RoHS Directive 2002/95/EC

Test Item(s)	Unit	Test Method (Reference)	No.1	MDL	Limit
Cadmium (Cd)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	100
Lead (Pb)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	1000
Mercury (Hg)	mg/kg	IEC 62321: 2008, ICP-OES	N.D.	2	1000
Hexavalent Chromium (CrVI) by alkaline extraction	mg/kg	IEC 62321: 2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	-	N.D.	-	1000
Monobromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Dibromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tribromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tetrabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Pentabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Hexabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Heptabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Octabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Nonabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Decabromobiphenyl	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Sum of PBDEs	mg/kg	-	N.D.	-	1000
Monobromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Dibromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tribromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Tetrabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Pentabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Hexabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Heptabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Octabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Nonabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	
Decabromodiphenyl ether	mg/kg	IEC 62321: 2008, GC-MS	N.D.	5	

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. "-" = Not regulated

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B: Phthalate(s)

Test Item(s)	Unit	Test Method (Reference)	No.1	MDL
Dibutyl Phthalate (DBP)	%(w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Benzylbutyl Phthalate (BBP)	%(w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Di-(2-ethylhexyl) Phthalate (DEHP)	%(w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisononyl Phthalate (DINP)	%(w/w)	EN14372: 2004, GC-MS	N.D.	0.01
Di-n-octyl Phthalate (DNOP)	%(w/w)	EN14372: 2004, GC-MS	N.D.	0.003
Diisodecyl Phthalate (DIDP)	%(w/w)	EN14372: 2004, GC-MS	N.D.	0.01

Note :

1. mg/kg = ppm, 0.1% = 1000ppm
2. N.D. = Not detected (< MDL)
3. MDL= Method Detection Limit

For reference:

Entry 51/52 of Regulation (EC) No 552/2009 amending Annex XVII of REACH Regulation (EC) No 1907/2006 (previously restricted under Directive 2005/84/EC):

For DBP, BBP, DEHP

(1) 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.

(2) 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.

For DINP, DNOP, DIDP

(1) 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.

(2) 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.

C: Azo Dye

Test item(s)	Unit	Test Method (Reference)	No.2	MDL
4-Aminobiphenyl/xenylamine/biphenyl-4-ylamine CAS NO: 92-67-1)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
Benzidine (CAS NO: 92-87-5)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
4-Chloro- <i>o</i> -toluidine (CAS NO: 95-69-2)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2-Naphthylamine (CAS NO: 91-59-8)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
<i>o</i> -Aminoazotoluene/4- <i>o</i> -Tolylazo- <i>o</i> -toluidine/4-Amino-2', 3-dimethylazobenzene (CAS NO: 97-56-3)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2-Amino-4-nitrotoluene/5-nitro- <i>o</i> -toluidine (CAS NO: 99-55-8)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
<i>p</i> -Chloroaniline /4-Chloroaniline (CAS NO: 106-47-8)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2,4-Diaminoanisole/4-Methoxy- <i>m</i> -phenylenediamine (CAS NO: 615-05-4)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
4,4'-Diaminodiphenylmethane/4,4'-Methylenedianiline (CAS NO: 101-77-9)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
3,3'-Dichlorobenzidine/3,3'-Dichlorobiphenyl-4,4'- ylenediamine (CAS NO: 91-94-1)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
3,3'-Dimethoxybenzidine/ <i>o</i> -Dianisidine (CAS NO: 119-90-4)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5

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3,3'-Dimethylbenzidine/4,4'-Bi- <i>o</i> -toluidine (CAS NO: 119-93-7)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
3,3'-Dimethyl-4,4'-diaminodiphenylmethane/4,4'-methylene- <i>o</i> -toluidine (CAS NO: 838-88-0)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
<i>p</i> -Cresidine/6-Methoxy- <i>m</i> -toluidine (CAS NO: 120-71-8)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
4,4'-Methylene-bis-(2-chloro-aniline)/2,2'-Dichloro-4,4'-methylene-dianiline (CAS NO: 101-14-4)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
4,4'-Oxydianiline (CAS NO: 101-80-4)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
4,4'-Thiodianiline (CAS NO: 139-65-1)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
<i>o</i> -Toluidine/2-Aminotoluene (CAS NO: 95-53-4)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2,4-Toluylenediamine/4-Methyl- <i>m</i> -phenylenediamine (CAS NO: 95-80-7)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2,4,5-Trimethylaniline (CAS NO: 137-17-7)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
4-Aminoazobenzene ^Δ (CAS NO: 60-09-3)	mg/kg	EN 14362-1:2003 & LFGB § 64 BVL B 82.02.9 2008, GC-MS & HPLC	N.D.	5
<i>o</i> -Anisidine/2-Methoxyaniline (CAS NO: 90-04-0)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2,4-Xylidine (CAS NO: 95-68-1)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5
2,6-Xylidine (CAS NO: 87-62-7)	mg/kg	EN 14362-1:2003, GC-MS & HPLC	N.D.	5

Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. ^Δ: the EN 14362 – 1/2 method will enable further cleavage of 4-aminoazobenzene to non- forbidden amines: aniline and 1,4-phenylenediamine, therefore, the test method of LFGB § 64 BVL B 82.02.9 – 2008 was employed to verify the presence of 4-aminoazobenzene
5. EN 14362-1 is corresponding to LFGB § 64 BVL B 82.02.2 – 1998 of German Commodities Ordinance.

D:

Test Item(s):	Unit	No.2	MDL
Benzene	µg/g	N.D.	1.0

- Note : 1. N.D. = Not Detected (< MDL)
2. MDL = Method Detection Limit

Test Part Description:

- No.1 Grey adhesive sheet
No.2 Purple adhesive sheet

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Remark:

型 号	
SPN-1805/1825/1905(T/M/H)	
SMN-1804/1824/1805/1825(T/M/H) 其中也包括 B,1B	
SMD-430/560/570/580/650(T/M/H)	
SPN-1205/1225(T/M/H)	
SED-430/570/580TA (AG,LR,HC,AR)	
SCR,SCB,SRZ-T	
SRP/SPO/SPB-(T/M/H)	
S-LSW1805(T/M/H)	
T-TA T-AGTA T-LRTA T-80AGTA TT-TA	
SPW-MA/HA/TA/UVT	
CAB-KL/BD SPN-2605CTC	
SPN1-1806TW	
SPN31-1805/1825T(T/M/H)	
SED-W430/570/580TA	
SCS-125/138(TA/TP/TAHC/TPHC)	
SMV-TDA/B/C/D (AG)	
T1-1225T/T1-1025	TFT
T1-1825T/T1-1825TWV	TFT

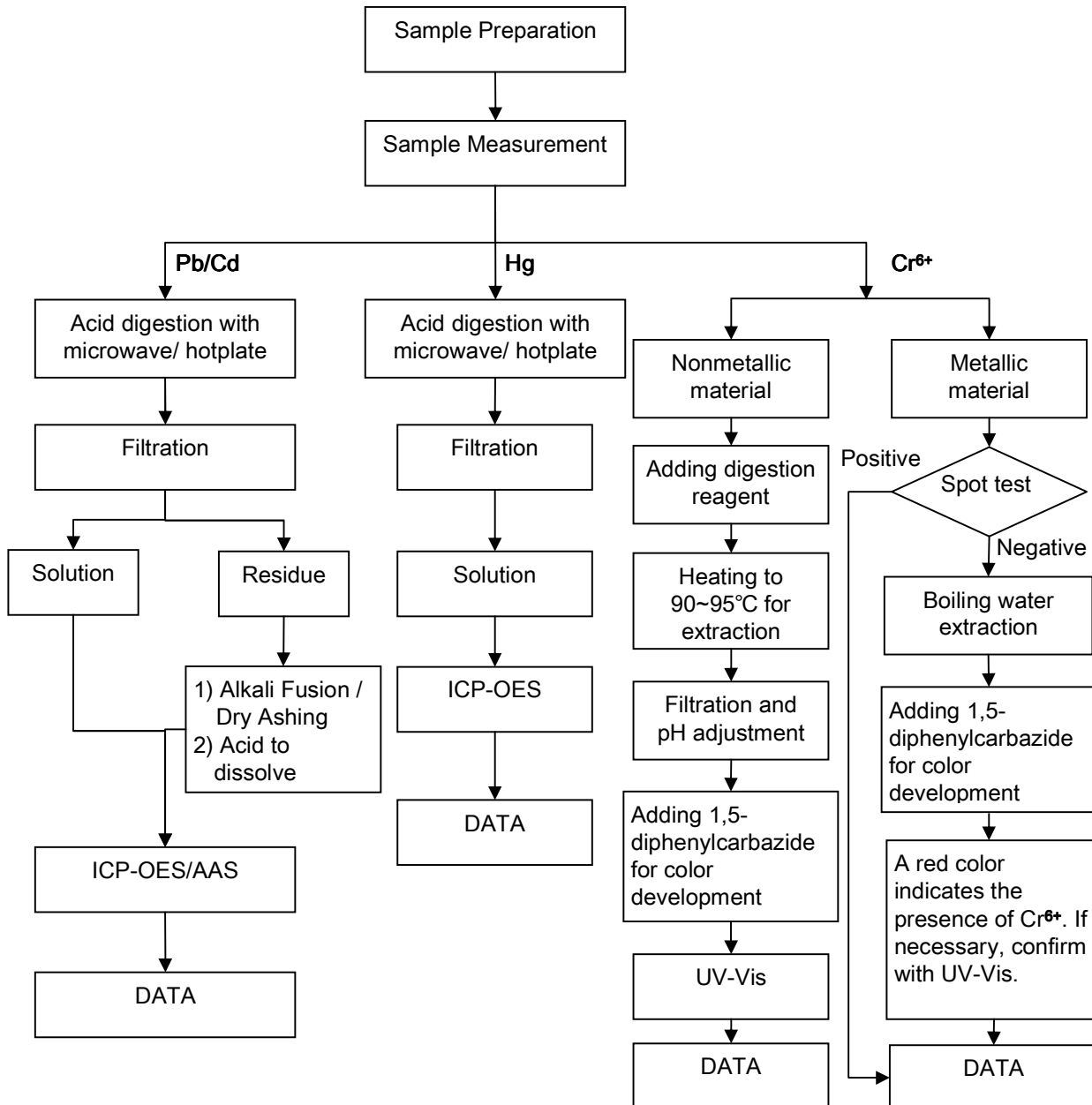
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ATTACHMENTS

Testing Flow Chart

- 1) Name of the person who made measurement: Bella Wang
- 2) Name of the person in charge of measurement: Adams Yu

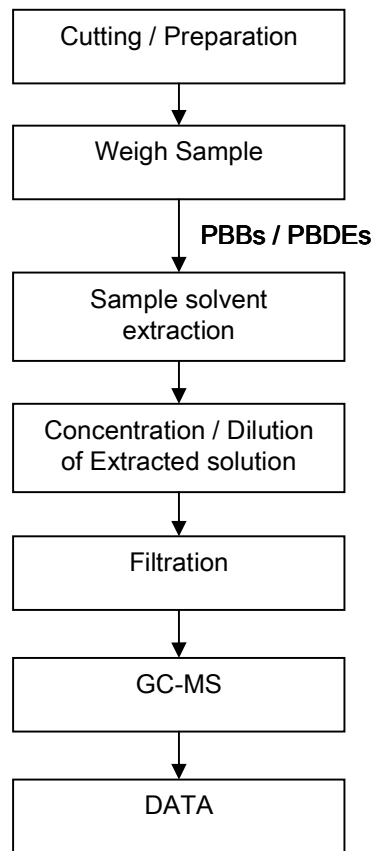


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Testing Flow Chart

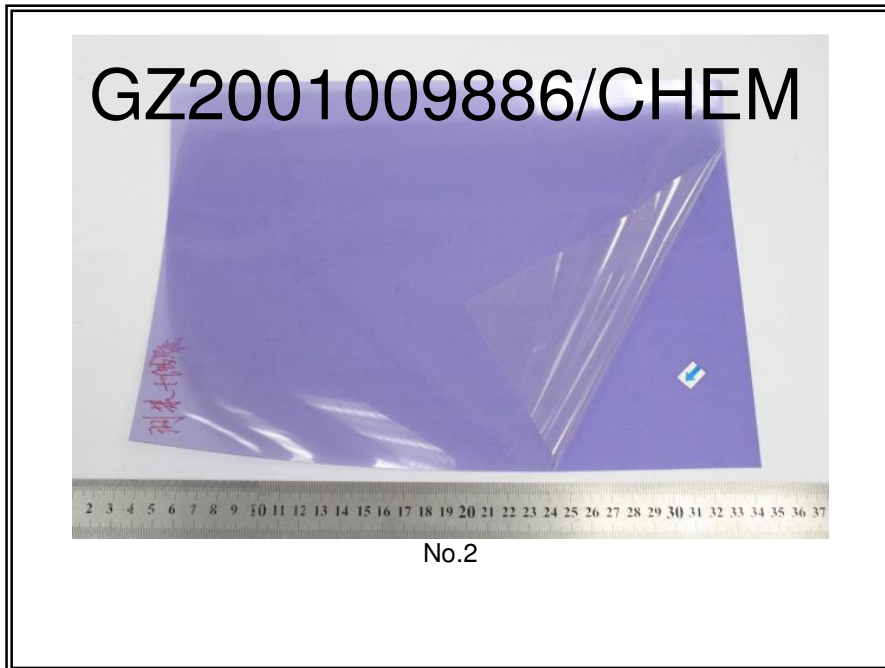
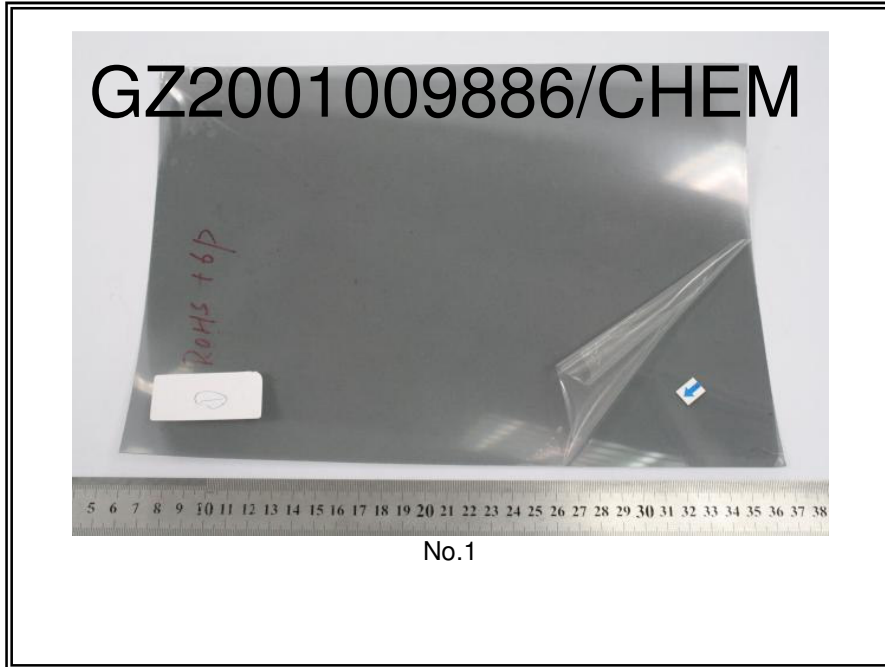
- 1) Name of the person who made measurement: Tina Zhao
- 2) Name of the person in charge of measurement: Ryan Yang



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