



## Test Report (SVHC)

No. GZ1003027556/CHEM

Date: MAR 31, 2010

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LUCKY LIGHT ELECTRONICS CO., LTD  
E&F, 15/F, COOPERATIVE FINANCE BUILDING SHENNAN RD., LUOHU DIST., SHENZHEN, CHINA

The following sample(s) was/were submitted and identified by/on behalf of the client as: Display LED  
(REF+PCB+PIN+EPOXY)

SGS Job No. : SZ12414656  
SGS Internal Reference No. : 5.2  
Date of Sample Received : MAR 23, 2010  
Testing Period : MAR 23, 2010 TO MAR 31, 2010

Test Requested: As requested by client,  
Twenty-nine (29) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on October 28, 2008 and January 13, 2010 regarding Regulation (EC) No 1907/2006 concerning the REACH, with consideration of the latest amendment of 67/548/EEC (31st Adaptation to Technical progress) on December 16, 2008.

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

Summary:

According to the specified scope and analytical techniques, concentrations of SVHC are < 0.1% (w/w) in the submitted sample.

PASS

Signed for and on behalf of  
SGS-CSTC Ltd.

David Zhou  
Sr. Engineer

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### Test Sample:

Sample Description: "Display LED (REF+PCB+PIN+EPOXY)"

### Test Method:

SGS In-House method- RSTS-EE-SVHC-002, Analyzed by ICP-OES, GC-MS, GC-ECD, IC and UV-VIS.

### Remark:

1. The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA:
  - A. [http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)
  - B. [http://echa.europa.eu/consultations/authorisation/svhc/svhc\\_cons\\_en.asp](http://echa.europa.eu/consultations/authorisation/svhc/svhc_cons_en.asp)These lists are under evaluation by ECHA and may subject to change in the future.
2. In accordance with Regulation (EC) No 1907/2006, any producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance is present in those articles above a concentration of **0.1%** weight by weight (w/w).
3. Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above **0.1%** weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance.
4. If a SVHC is found over the reporting limit, client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

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**Test Results : (15 substances in the Candidate List of SVHC for authorization published by European Chemicals Agency (ECHA) on October 28, 2008)**

Substance Name	CAS number	EC number	Concentration (%)	RL(%)
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	287-476-5	ND	0.01
Anthracene	120-12-7	204-371-1	ND	0.005
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4	ND	0.005
Dibutyl phthalate (DBP)	84-74-2	201-557-4	ND	0.005
4,4-Diaminodiphenylmethane (MDA)	101-77-9	202-974-4	ND	0.005
Benzyl butyl phthalate (BBP)	85-68-7	201-622-7	ND	0.005
Bis (2-ethylhexylphthalate) (DEHP)	117-81-7	204-211-0	ND	0.005
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ -HBCDD, $\beta$ -HBCDD, $\gamma$ -HBCDD)	25637-99-4 and 3194-55-6 (134237-50-6, 134237-51-7, 134237-52-8)	247-148-4 and 221-695-9	ND	0.005
Bis(tributyltin)oxide*	56-35-9	200-268-0	ND	0.005
Cobalt dichloride*	7646-79-9	231-589-4	ND	0.005
Diarsenic pentaoxide*	1303-28-2	215-116-9	ND	0.005
Diarsenic trioxide*	1327-53-3	215-481-4	ND	0.005
Triethyl arsenate*	15606-95-8	427-700-2	ND	0.005
Lead hydrogen arsenate*	7784-40-9	232-064-2	ND	0.005
Sodium dichromate*	10588-01-9 (7789-12-0)	234-190-3	ND	0.005

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**Test Results : (14 substances in the Candidate List of SVHC for authorization published by European Chemicals Agency (ECHA) on January 13, 2010)**

Substance Name	CAS number	EC number	Concentration (%)	RL (%)
2,4-Dinitrotoluene	121-14-2	204-450-0	ND	0.005
Diisobutyl phthalate	84-69-5	201-553-2	ND	0.005
Tris(2-chloroethyl)phosphate	115-96-8	204-118-5	ND	0.005
Anthracene oil <sup>⊕</sup>	90640-80-5	292-602-7	ND	0.050
Anthracene oil, anthracene paste; distn. Lights <sup>⊕</sup>	91995-17-4	295-278-5		
Anthracene oil, anthracene paste, anthracene fraction <sup>⊕</sup>	91995-15-2	295-275-9		
Anthracene oil, anthracene-low <sup>⊕</sup>	90640-82-7	292-604-8		
Anthracene oil, anthracene paste <sup>⊕</sup>	90640-81-6	292-603-2		
Coal tar pitch, high temperature <sup>⊕</sup>	65996-93-2	266-028-2	ND	0.050
Aluminosilicate Refractory Ceramic Fibres *	650-017-00-8 (Index no.)	-	ND	0.005
Zirconia Aluminosilicate Refractory Ceramic Fibres*	650-017-00-8 (Index no.)	-	ND	0.005
Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	215-693-7	ND	0.005
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8	235-759-9	ND	0.005
Lead chromate*	7758-97-6	231-846-0	ND	0.005

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### Notes:

1. RL = Reporting Limit. All RL are based on homogenous material
2. ND = Not detected (lower than Reporting Limit)
3. \* Calculated concentration of cobalt dichloride is based on the identified cobalt by ICP-OES and the identified chloride by IC method.

Calculated concentration of diarsenic pentaoxide, diarsenic trioxide, lead hydrogen arsenate and triethyl arsenate are based on the identified arsenic and lead

Calculated concentrations of sodium dichromate (CAS number: 10588-01-9 and 7789-12-0) are based on the identified sodium by ICP-OES and the identified chromium(VI) by UV-Vis.

Calculated concentration of bis(tributyltin)oxide TBTO is based on the identified tin by ICP-OES and TLC.

Calculated concentration of Lead sulfochromate yellow, lead chromate molybdate sulphate red, lead chromate are based on the identified lead, chromium, molybdenum by ICP-OES

Calculated concentration of aluminosilicate Refractory Ceramic Fibres and zirconia aluminosilicate Refractory Ceramic Fibres are based on the identified silicon, aluminum and zirconium by ICP-OES.

The client is advised to review the chemical formulation to ascertain above metal substances present in the article.

RL = 0.005% is evaluated for element (i.e. tin, cobalt, chloride, arsenic, lead, sodium, chromium, chromium (VI), silicon, aluminum and zirconium respectively), except molybdenum RL= 0.0005%

4. <sup>Ⓢ</sup> The SVHC consists of a diverse combination of chemical compounds fulfilling the definition of UVCB (substances of Unknown or Variable composition, Complex reaction products or Biological materials) under REACH regulation. Test result is calculated as per selected identifiers of the SVHC. The values are determined based on a reference anthracene oil and coal tar. Calculation is based on the worst-case scenario. Due to the UVCB nature the reported values may be regarded as semi-quantitative.

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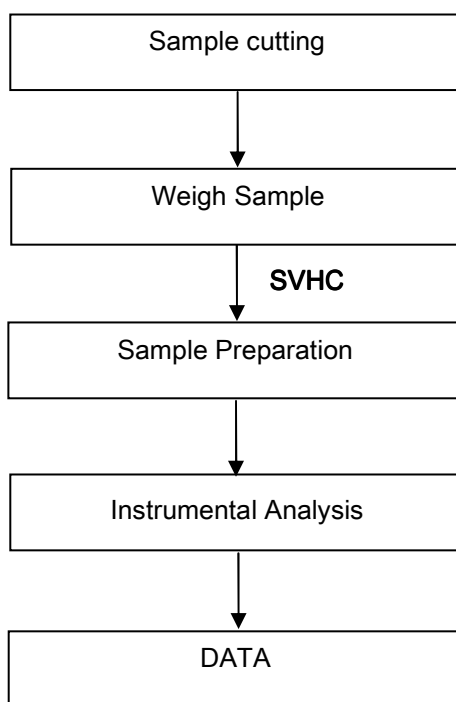
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## ATTACHMENTS

### Testing Flow Chart

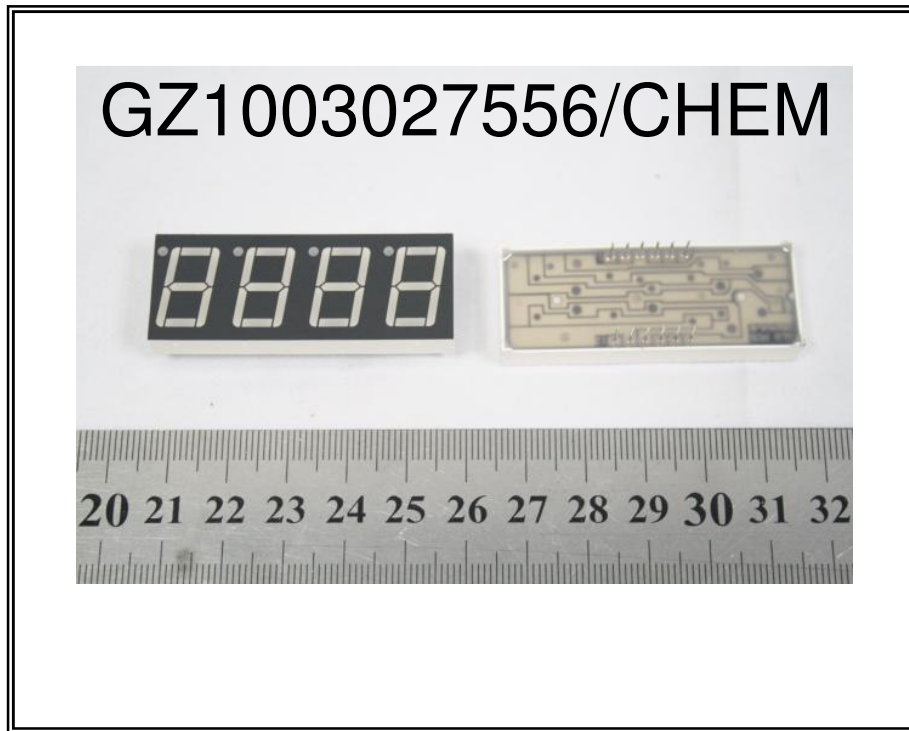
- 1) Name of the person who made measurement: Bella Wang / Tina Zhao
- 2) Name of the person in charge of measurement: Adams Yu / Ryan Yang



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