



Technical Report No. 64.164.15.00188.01B

Rev. 00

Dated 2015-03-25

Client: ZhongShan LiangYi Lighting CO.,LTD
BeiHai Industrial Zone,GuZhen Town,ZhongShan,GuangDong,P.R.China

Test Subject: Parts of Ceiling Lamp and Parts of Spot Lamp

Client reference Information: According to declaration from client, The tested materials covered by the report were declared by the manufacturer to be used on Model:
Ceiling Lamp: CL139A-D25(D),CL139A-D25(E),CL139A-D25(F),
CL139A-D25(G),CL139A-D25(H),CL139A-D25(I),
CL139A-D25(J),CL139A-D25(K).
Spot Lamp: GU10162C-1R,GU10162C-2B,GU10162C-3B,
GU10162C-4B,GU10162C-4R

Test Requested and Conclusion: (1) Polycyclic Aromatic Hydrocarbons (PAH) Content Test Pass
(2) Phthalates (DEHP, DBP, BBP) Content Test Pass

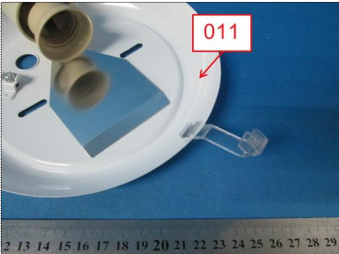
Test Result: Please refer to next page(s)

Remarks: -- The result relates only to the items tested.
-- The test item and sample were specified by the client.
-- The conclusion was drawn according to the client's specification.

This technical report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.

1 Description of the test subject

Sample No.	Color and description	Photograph
001	White coating on the frame	
002	Transparent plastic sheet	
003	White plastic plug	
004	White fiberglass tube	
005	Black plastic tube	
006	White plastic case	
007	Yellow/green plastic wire jacket	
008	Black heat-shrinkable tube	
009	Beige plastic part	
010	Beige plastic part	

Sample No.	Color and description	Photograph
011	White paint on the frame	

2 Order

2.1 Date of Purchase Order

2015-03-10

2.2 Receipt of Test Sample, Location

2015-03-10, Guangzhou

2.3 Date of Testing

2015-03-10 to 2015-03-19.

2.4 Location of Testing

The test was performed in TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch chemical lab and the test results were reviewed at TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch.



3 Test Results

3.1 Polycyclic Aromatic Hydrocarbons (PAH) Content Test

Extraction method with reference to AfPS GS 2014:01 PAK and followed by GC-MS analysis [Reporting Limit = 0.20 mg/kg]

Compounds	Result [mg/kg]		Limit of Category 2 [mg/kg]
	Sample 001	Sample 003+004+006	All other products acc to ProdSG
Naphthalene	<0.20	<0.20	<2.00
Acenaphthylene	<0.20	<0.20	sum<10.00
Acenaphthene	<0.20	<0.20	
Fluorene	<0.20	<0.20	
Phenanthrene	<0.20	<0.20	
Anthracene	<0.20	<0.20	
Fluoranthene	<0.20	<0.20	
Pyrene	<0.20	<0.20	
Benzo[a]anthracene	<0.20	<0.20	
Chrysene	<0.20	<0.20	<0.50
Benzo[b]fluoranthene	<0.20	<0.20	<0.50
Benzo[j]fluoranthene	<0.20	<0.20	<0.50
Benzo[k]fluoranthene	<0.20	<0.20	<0.50
Benzo[a]pyrene	<0.20	<0.20	<0.50
Benzo[e]pyrene	<0.20	<0.20	<0.50
Benzo[ghi]perylene	<0.20	<0.20	<0.50
dibenzo[ah]anthracene	<0.20	<0.20	<0.50
Indeno[1,2,3-cd]pyrene	<0.20	<0.20	<0.50
Sum of detected PAHs	<1.00	<1.00	<10.00
Category as in AfPS GS 2014:01 PAK (All other products acc to ProdSG)	Category 2	Category 2	/
Conclusion	Pass	Pass	

- Note:
1. "<" denotes less than
 2. "mg/kg" denotes milligram per kilogram
 3. Limits for PAH in product according to AfPS GS 2014:01 PAK



Compounds	Result [mg/kg]		Limit of Category 2 [mg/kg] All other products acc to ProdSG
	Sample 005+007+008	Sample 002+009+010	
Naphthalene	1.13	<0.20	<2.00
Acenaphthylene	<0.20	<0.20	sum<10.00
Acenaphthene	<0.20	<0.20	
Fluorene	<0.20	<0.20	
Phenanthrene	<0.20	<0.20	
Anthracene	<0.20	<0.20	
Fluoranthene	<0.20	<0.20	
Pyrene	0.20	<0.20	
Benzo[a]anthracene	<0.20	<0.20	
Chrysene	<0.20	<0.20	<0.50
Benzo[b]fluoranthene	<0.20	<0.20	<0.50
Benzo[j]fluoranthene	<0.20	<0.20	<0.50
Benzo[k]fluoranthene	<0.20	<0.20	<0.50
Benzo[a]pyrene	<0.20	<0.20	<0.50
Benzo[e]pyrene	<0.20	<0.20	<0.50
Benzo[ghi]perylene	<0.20	<0.20	<0.50
dibenzo[ah]anthracene	<0.20	<0.20	<0.50
Indeno[1,2,3-cd]pyrene	<0.20	<0.20	<0.50
Sum of detected PAHs	1.76	<1.00	<10.00
Category as in AfPS GS 2014:01 PAK (All other products acc to ProdSG)	Category 2	Category 2	/
Conclusion	Pass	Pass	

- Note:
1. "<" denotes less than
 2. "mg/kg" denotes milligram per kilogram
 3. Limits for PAH in product according to AfPS GS 2014:01 PAK



Compounds	Result [mg/kg] Sample 011	Limit of Category 2 [mg/kg] All other products acc to ProdSG
Naphthalene	<0.20	<2.00
Acenaphthylene	<0.20	sum<10.00
Acenaphthene	<0.20	
Fluorene	<0.20	
Phenanthrene	<0.20	
Anthracene	<0.20	
Fluoranthene	<0.20	
Pyrene	<0.20	
Benzo[a]anthracene	<0.20	
Chrysene	<0.20	<0.50
Benzo[b]fluoranthene	<0.20	<0.50
Benzo[j]fluoranthene	<0.20	<0.50
Benzo[k]fluoranthene	<0.20	<0.50
Benzo[a]pyrene	<0.20	<0.50
Benzo[e]pyrene	<0.20	<0.50
Benzo[ghi]perylene	<0.20	<0.50
dibenzo[ah]anthracene	<0.20	<0.50
Indeno[1,2,3-cd]pyrene	<0.20	<0.50
Sum of detected PAHs	<1.00	<10.00
Category as in AfPS GS 2014:01 PAK (All other products acc to ProdSG)	Category 2	/
Conclusion	Pass	

- Note:
1. "<" denotes less than
 2. "mg/kg" denotes milligram per kilogram
 3. Limits for PAH in product according to AfPS GS 2014:01 PAK



Limits and Categories of PAHs in AfPS GS 2014:01 PAK:

Parameter	Category 1 Materials indented to be put in the mouth, or materials of toys with intended long term skin contact (>30s)	Category 2		Category 3	
		Materials not covered by category 1, with foreseeable skin contact for longer than 30 s (long-term skin contact) or repeated short term skin contact*	Toys acc to directive 2009/48/EC	All other products acc to ProdSG	Toys acc to directive 2009/48/EC
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[ghi]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	sum <1	sum <5	sum <10	sum <20	sum <50
Naphthaline mg/kg	<1	<2		<10	
Sum 18 PAK mg/kg	<1	<5	<10	<20	<50

* Definition „short-term repetitive contact with the human skin“ from REACH Annex XVII Nr. 50 amendment (COMMISSION REGULATION (EU) No 1272/2013)



3.2 Phthalates Content Test

Test method: With reference to US EPA 3550C:2007, extracted by chloroform and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS).

[Reporting limit = 0.005%]

No.	Test Item	Result [%]		Client's Specification [%]
		Sample 001+011	Sample 003+004	
1	Di-(2-ethyl-hexyl) Phthalate (DEHP)	<0.005	<0.005	Sum <0.1
2	Di-butyl Phthalate (DBP)	<0.005	<0.005	
3	Butyl-benzyl Phthalate (BBP)	<0.005	<0.005	

No.	Test Item	Result [%]	Client's Specification [%]
		Sample 005+007+008	
1	Di-(2-ethyl-hexyl) Phthalate (DEHP)	<0.005	Sum <0.1
2	Di-butyl Phthalate (DBP)	<0.005	
3	Butyl-benzyl Phthalate (BBP)	<0.005	

- Note:
1. “%” denotes percent by weight
 2. “<” denotes less than

4. Documentation

Annex 01: Photo of product (only for reference)

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group



Engineer:

Eva Yuan

Eva Yuan

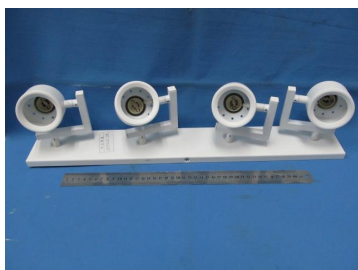
Technical Report checked:

Ben Shao

Ben Shao

- END OF TEST REPORT -

Annex 01: Photo of product



GU10162C-4B



GU10162C-3B



GU10162C-2B



GU10162C-1R



GU10162C-4R



CL139A-D25(D)



CL139A-D25(I)



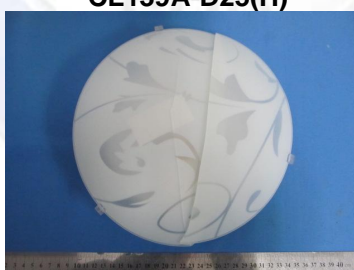
CL139A-D25(H)



CL139A-D25(G)



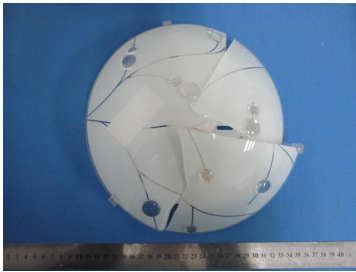
CL139A-D25(J)



CL139A-D25(E)



CL139A-D25(F)



CL139A-D25(K)

