

HUANGSHAN JIAJIA FLUORESCENT MATERIAL CO.,LTD.
 NO.8 WEIYI ROAD SHEXIAN CIRCULAR ECONOMY PARKS HUANGSHAN CITY CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :
 HZ(LZ/LQ)FLUORESCENT PIGMENT

SGS Job No. : SHHG1403006542SD - SH
 Style No. : HZ(LZ/LQ)FLUORESCENT PIGMENT
 Date of Sample Received : 12 Mar 2014
 Testing Period : 12 Mar 2014 - 19 Mar 2014
 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).

Result Summary :

Test Requested	Conclusion
EN71-3:2013 under European Directive 2009/48/EC-Migration of certain elements(for dry, brittle, powder-like or pliable toy material)	See Results
Formaldehyde	See Results
Azo Dyes	See Results
Polycyclic aromatic hydrocarbons (PAHs)	See Results

Signed for and on behalf of
 SGS-CSTC Ltd.



Serena Wang
 Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA14-036763.001	Orange powder

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

EN71-3:2013 under European Directive 2009/48/EC-Migration of certain elements(for dry, brittle, powder-like or pliable toy material)

Test Method : With reference to EN 71 Part 3:2013, analysis was performed by ICP-MS
Soluble Chromium (VI) was analyzed by IC-UV or LC-ICP-MS

Test Item(s)	Limit	Unit	MDL	001
Soluble Chromium (VI)	0.02	mg/kg	0.018	ND
Soluble Lead (Pb)	13.5	mg/kg	0.5	ND
Soluble Antimony (Sb)	45	mg/kg	1	ND
Soluble Arsenic (As)	3.8	mg/kg	0.5	2.5
Soluble Barium (Ba)	1500	mg/kg	50	ND
Soluble Cadmium (Cd)	1.3	mg/kg	0.1	ND
Soluble Chromium (III) (Cr III)	37.5	mg/kg	5	ND
Soluble Mercury (Hg)	7.5	mg/kg	0.5	ND
Soluble Selenium (Se)	37.5	mg/kg	5	ND
Soluble Boron (B)	1200	mg/kg	50	ND
Soluble Cobalt (Co)	10.5	mg/kg	0.5	ND
Soluble Manganese (Mn)	1200	mg/kg	50	ND
Soluble Strontium (Sr)	4500	mg/kg	50	ND
Soluble Tin (Sn)	15000	mg/kg	0.36	ND
Soluble Zinc (Zn)	3750	mg/kg	50	75
Soluble Copper (Cu)	622.5	mg/kg	50	ND
Soluble Aluminum (Al)	5625	mg/kg	50	ND
Soluble Nickel (Ni)	75	mg/kg	10	ND
Soluble Organic Tin (expressed as Tin)*	0.9	mg/kg	0.36	ND

Notes :

- (1) *Confirmation test of soluble organic tin is not required in case of soluble tin, after conversion, does



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not exceed the soluble organic tin requirement as specified in EN71-3: 2013

Formaldehyde

Test Method : In-house method (SHTC-CHEM-SOP-315-T), analysis was performed by UV-Vis.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Formaldehyde	g/kg	0.02	ND

Azo Dyes

Test Method : According to Ref. EN 14362-1:2012- Analysis was conducted with GC-MS/HPLC-DAD.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
4-Aminobiphenyl	92-67-1	mg/kg	5	ND
Benzidine	92-87-5	mg/kg	5	ND
4-chloro-o-toluidine	95-69-2	mg/kg	5	ND
2-naphthylamine	91-59-8	mg/kg	5	ND
o-aminoazotoluene	97-56-3	mg/kg	5	ND
5-nitro-o-toluidine /	99-55-8	mg/kg	5	ND
2-Amino-4-nitrotoluene				
4-chloroaniline	106-47-8	mg/kg	5	ND
4-methoxy-m-phenylenediamin	615-05-4	mg/kg	5	ND
e / 2,4-Diaminoanisole				
4,4'-diaminodiphenylmethane	101-77-9	mg/kg	5	ND
3,3'-dichlorobenzidine	91-94-1	mg/kg	5	ND
3,3'-dimethoxybenzidine	119-90-4	mg/kg	5	ND
3,3'-dimethylbenzidine	119-93-7	mg/kg	5	ND
3,3'-Dimethyl-4,4'-diaminodiph	838-88-0	mg/kg	5	ND
enylmethane /				
4,4'-methylenedi-o-toluidine				
p-cresidine	120-71-8	mg/kg	5	ND
4,4'-methylene-bis-	101-14-4	mg/kg	5	ND
(2-chloroaniline)				
4,4'-oxydianiline	101-80-4	mg/kg	5	ND
4,4'-thiodianiline	139-65-1	mg/kg	5	ND
o-toluidine	95-53-4	mg/kg	5	ND
4-methyl-m-phenylenediamine	95-80-7	mg/kg	5	ND
/ 2,4-Toluylenediamine				
2,4,5-trimethylaniline	137-17-7	mg/kg	5	ND



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Test Item(s)	CAS NO.	Unit	MDL	001
4-aminoazobenzene	60-09-3	mg/kg	5	ND
O-Anisidine	90-04-0	mg/kg	5	ND
Conclusion				**

Notes :

- (1) Test result for 4-aminoazobenzene (CAS no.: 60-09-3) is considered as "not detected" (i.e. <5mg/kg) since both aniline and/or 1,4-phenylenediamine is not found (i.e. <5mg/kg) by mentioned test method
- (2) **= For textiles no relevant amine exceeding 30 ppm (mg/kg) is required, the test method is only applicable for textile and the result is only for client's information.
- (3) Whenever 4-aminodiphenyl (CAS number 92-67-1), 2-naphylamine (CAS number 91-59-8) and 4-methoxy-m-phenylene-diamine (CAS number 615-05-4) is found, the use of banned azo colorants cannot be reliably ascertained without additional information, e.g. the chemical structure of the colorants used.
- (4) In case polyurethane materials are used, e.g. PU foams and coatings and in prints, it cannot be ruled out that certain amines, e.g. 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) and 2,4-toluylen-diamine (TDA, CAS number 95-80-7) are released from the PU component and not from a banned azo colorant.
- (5) In case of pigment prints care has to be taken that 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) is not released from a source of banned azo colorants but from e.g. a chemical fixing agent.

Polycyclic aromatic hydrocarbons (PAHs)

Test Method : With reference to ZEK 01.4-08 of German ZLS and its amendments, analysis was performed by GC-MS.

Test Item(s)	Unit	MDL	001
Sum of 18 PAHs	mg/kg	-	ND
Naphthalene(NAP)	mg/kg	0.2	ND
Acenaphthylene(ANY)	mg/kg	0.2	ND
Acenaphthene(ANA)	mg/kg	0.2	ND
Fluorene(FLU)	mg/kg	0.2	ND
Phenanthrene(PHE)	mg/kg	0.2	ND
Anthracene(ANT)	mg/kg	0.2	ND
Fluoranthene(FLT)	mg/kg	0.2	ND
Pyrene(PYR)	mg/kg	0.2	ND
Benzo(a)anthracene(BaA)	mg/kg	0.2	ND
Chrysene(CHR)	mg/kg	0.2	ND
Benzo(b)fluoranthene(BbF) and Benzo(j)fluoranthene(BjF)	mg/kg	0.4	ND
Benzo(k)fluoranthene(BkF)	mg/kg	0.2	ND



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Test Item(s)	Unit	MDL	001
Benzo(a)pyrene(BaP)	mg/kg	0.2	ND
Benzo(e)pyrene(BeP)	mg/kg	0.2	ND
Indeno(1,2,3-c,d)pyrene(IPY)	mg/kg	0.2	ND
Dibenzo(a,h)anthracene(DBA)	mg/kg	0.2	ND
Benzo(g,h,i)perylene(BPE)	mg/kg	0.2	ND

ZEK 01.4-08: Restraining maximum values for products

Parameter	Category 1	Category 2	Category 3
	Material indented to be put in the mouth or material for toys with normal skin contact for children aged <36 months	Materials those are not included in Category 1, with predictable contact with the skin longer than 30 s. (long-term skin contact).	Materials those are not included in Category 1 or 2, with predictable skin contact up to 30 s (short-term skin contact).
Benzo(a)pyrene (mg/kg)	<0.2**	1	20
Sum of 18 PAH (mg/kg)*	<0.2**	10	200

Notes:

- * = Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs
- ** = In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material which is indented to be put in the mouth by additional specific migration tests of PAH components based on DIN EN 1186ff/EN13130 and §64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.



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