

# TEST REPORT

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Date: Jul 09, 2014

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**Applicant:**

**Address:**

**Report on the submitted sample said to be**

**Sample name:** Balpen

**Model:** 3011

**Country of Origin:** CHINA

**Country of Destination:** EUROPE

**Sample received date:** Mar 05, 2014

**Testing period:** From Mar 05, 2014 to Apr 02, 2014

**Test Requested:**

(1) For compliance with the 2009/48/EC & Commission directive 2012/7/EC European Standard on Safety of Toys :Refer to EN 71-3:2013, test migration of certain elements

(2) As specified by client, to determine the Cadmium(Cd) content in the submitted sample in accordance with Regulation (EC) No 1907/2006 Annex XVII entry 23, and its amended regulation (EU) No 494/2011 and (EU) No 835/2012.

(3) As specified by client, to determine the DEHP、DBP、BBP 、DINP、DNOP and DIDP content in the submitted sample in accordance with Annex XVII Item No. 51 & 52 of REACH Regulation (EC) 1907/2006.

**Conclusion**

Pass

Pass

Pass

**Results:** Please refer to next page

\*\*\*\*\*FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)\*\*\*\*\*

Signed for and on behalf of  
Shenzhen AOV Testing Technology Co., Ltd



Tested by:

*Rosary*

Luo Jun, Rosary  
Project Leader

Reviewed by:

*Joyce*

Han Cheng Mei, Joyce  
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Approved by:

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Dong Yuan Jia, Irwin  
Laboratory Supervisor

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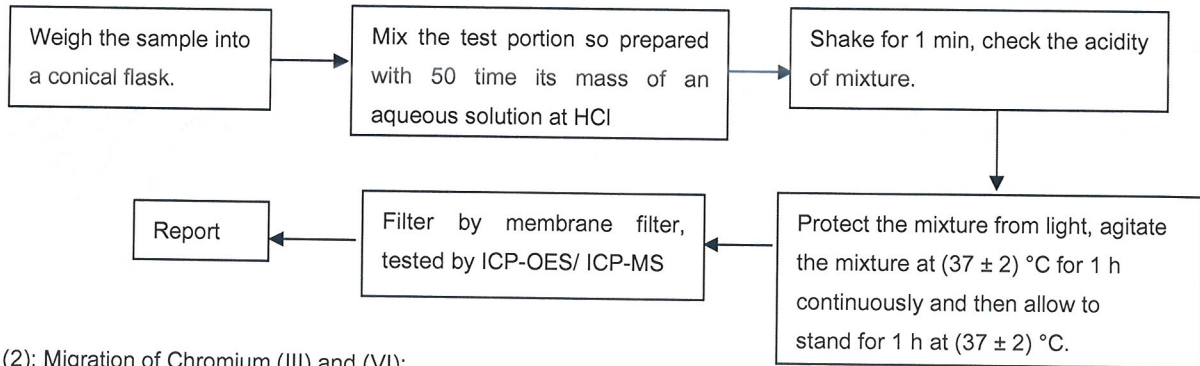
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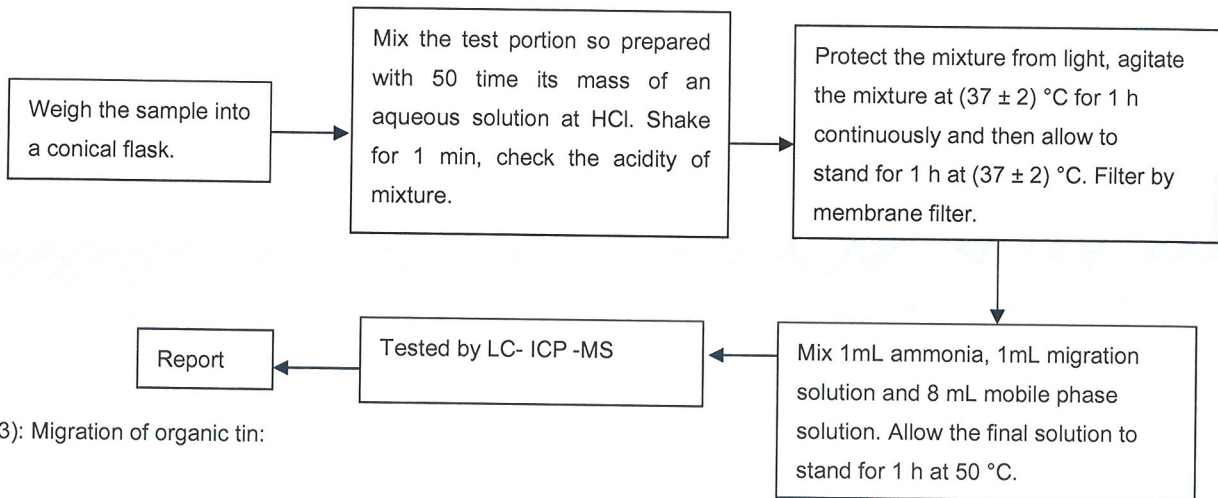
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## Test Flow:

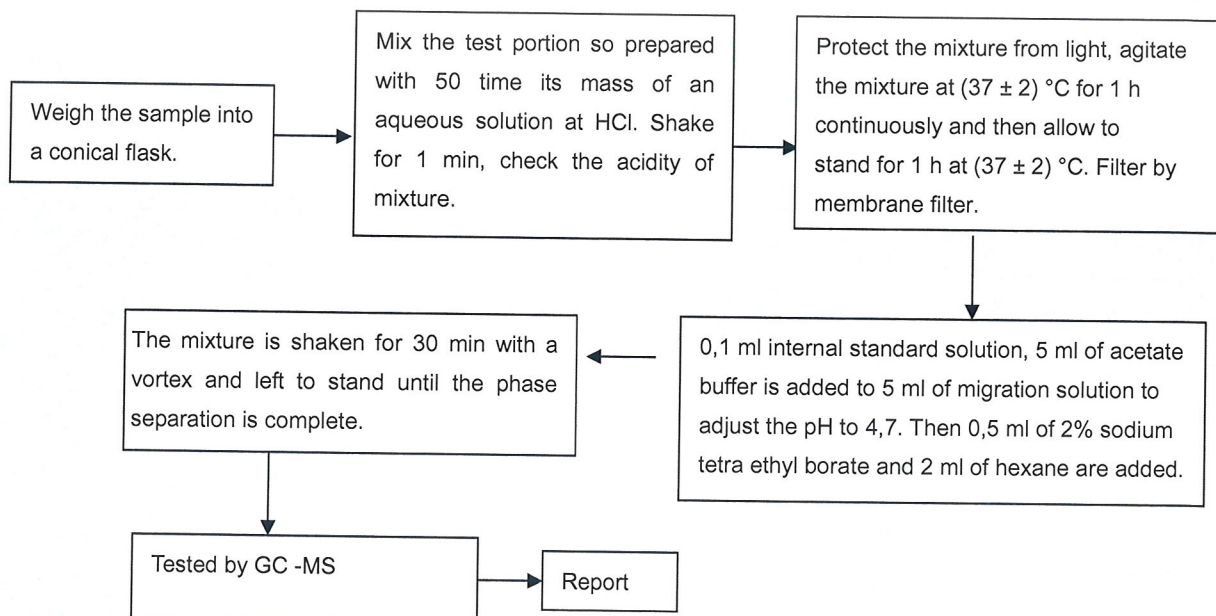
(1): Migration of general elements:



(2): Migration of Chromium (III) and (VI):



(3): Migration of organic tin:



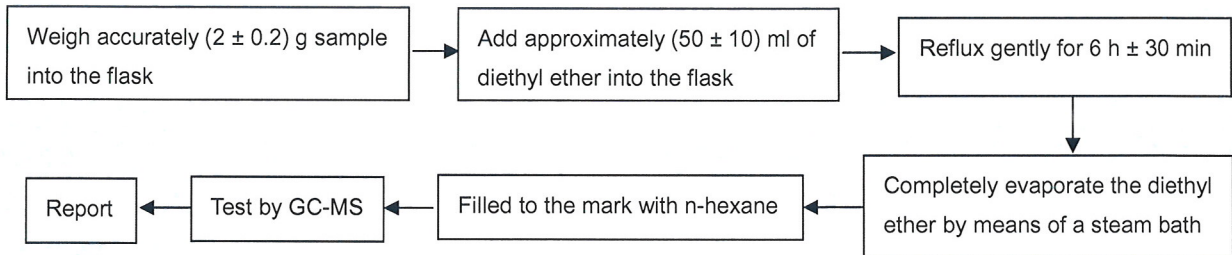
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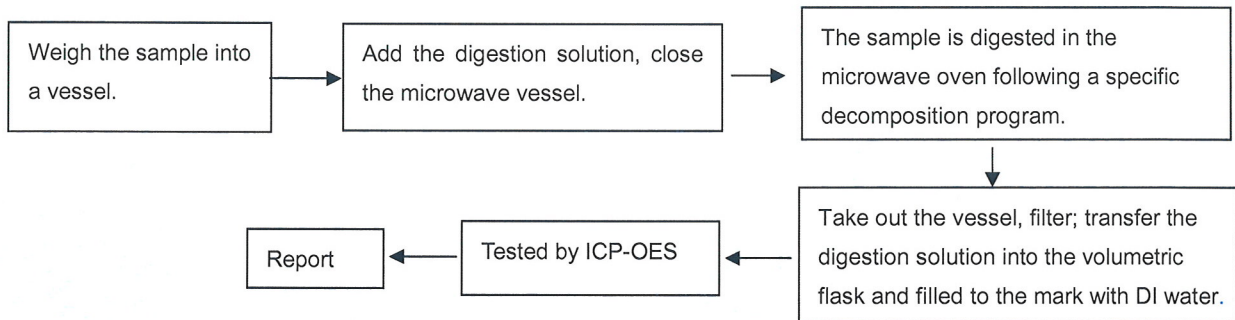
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(4): To Determine DEHP、DBP、BBP、DINP、DNOP and DIDP content:



(5): To Determine Cadmium Content:



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**Results:**
**1. EN 71-3:2013: The test instrument, limit of detection and limit requirements of migration of certain elements.**

Code	Soluble Element	Measuring instrument	LOD (mg/kg)	Limit (mg/kg)		
				Category I	Category II	Category III
				dry, brittle, powder-like or pliable toy material	liquid or sticky toy material	scraped-off toy material
1	Al	ICP-MS	0.073	5625	1406	70000
2	Sb	ICP-MS	0.014	45	11.3	60
3	As	ICP-MS	0.027	3.8	0.9	25
4	Ba	ICP-MS	0.027	1500	375	1000
5	B	ICP-MS	0.039	1200	300	15000
6	Cd	ICP-MS	0.059	1.3	0.3	17
7	Cr III	LC-ICP-MS	0.064	37.5	9.4	460
8	Cr VI	LC-ICP-MS	0.023	0.02	0.005	0.2
9	Co	ICP-MS	0.019	10.5	2.6	130
10	Cu	ICP-MS	0.010	622.5	156	7700
11	Pb	ICP-MS	0.061	13.5	3.4	90
12	Mn	ICP-MS	0.050	1200	300	15000
13	Hg	ICP-MS	0.010	7.5	1.9	60
14	Ni	ICP-MS	0.042	75	18.8	930
15	Se	ICP-MS	0.147	37.5	9.4	460
16	Sr	ICP-MS	0.067	4500	1125	56000
17	Sn	ICP-MS	0.110	15000	3750	180000
18	Organic tin	GC-MS	0.120	0.9	0.2	12
19	Zn	ICP-MS	0.097	3750	938	46000

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**EN 71-3:2013: The result of migration of certain elements.**

Code	Soluble Element	Unit	Test Results	Test Results	Test Results	Test Results	Test Results
			2	3	4	5	6
			Category III	Category III	Category III	Category III	Category III
1	Al	mg/kg	2.1	N.D.	5.4	N.D.	3.4
2	Sb	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
3	As	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
4	Ba	mg/kg	1.8	N.D.	1.9	N.D.	0.7
5	B	mg/kg	0.5	N.D.	0.4	N.D.	N.D.
6	Cd	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
7	Cr III	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
8	Cr VI	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
9	Co	mg/kg	1.2	0.6	2.7	N.D.	N.D.
10	Cu	mg/kg	972.5	0.6	1594.2	N.D.	1.3
11	Pb	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
12	Mn	mg/kg	N.D.	1.4	1.1	N.D.	N.D.
13	Hg	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
14	Ni	mg/kg	122.6	3.2	213.9	N.D.	N.D.
15	Se	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
16	Sr	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
17	Sn	mg/kg	15.5	9.5	18.4	N.D.	0.8
18	Organic tin	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
19	Zn	mg/kg	1.5	0.5	21.1	N.D.	1.3
Conclusion (P/N)			P	P	P	P	P

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Code	Soluble Element	Unit	Test Results	Test Results
			13	22
			Category III	Category III
1	Al	mg/kg	0.8	1.8
2	Sb	mg/kg	N.D.	N.D.
3	As	mg/kg	N.D.	N.D.
4	Ba	mg/kg	N.D.	0.4
5	B	mg/kg	N.D.	0.6
6	Cd	mg/kg	N.D.	N.D.
7	Cr III	mg/kg	N.D.	N.D.
8	Cr VI	mg/kg	N.D.	N.D.
9	Co	mg/kg	N.D.	N.D.
10	Cu	mg/kg	1.3	3.5
11	Pb	mg/kg	N.D.	N.D.
12	Mn	mg/kg	N.D.	N.D.
13	Hg	mg/kg	N.D.	N.D.
14	Ni	mg/kg	N.D.	N.D.
15	Se	mg/kg	N.D.	N.D.
16	Sr	mg/kg	N.D.	N.D.
17	Sn	mg/kg	2.0	3.6
18	Organic tin	mg/kg	N.D.	N.D.
19	Zn	mg/kg	0.7	5.1
Conclusion (P/N)			P	P

**Note:**

- unit: mg/kg=ppm
- P=Pass, N=Not Pass
- N.D.=Not Detected(<LOD)
- LOD= Limit of Detection

**2. Cadmium(Cd) content**

Pretreatment Method: EN1122: 2001 Measuring Instrument: ICP-OES MDL:2 mg/kg

Item	Unit	Limit	Result					
			1	2	3	4	5	6
Cadmium	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Item	Unit	Limit	Result					
			7	8	9	10	11	12
Cadmium	mg/kg	100	N.D.	N.D.	7	N.D.	N.D.	N.D.

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Item	Unit	Limit	Result					
			13	14	15	16	17	18
Cadmium	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Item	Unit	Limit	Result			
			19	20	21	22
Cadmium	mg/kg	100	N.D.	N.D.	9	N.D.

### 3. DEHP、DBP、BBP、DINP、DNOP and DIDP content

Pretreatment Method: US EPA 3540C:1996, US EPA 8270D:2007

Measuring Instrument: GC-MS

Item	CAS No.	Unit	MDL	Limit	Result	Result	Result
					2	6	7
Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	mg/kg	30	/	70	97	N.D.
Dibutyl phthalate (DBP)	84-74-2	mg/kg	30	/	N.D.	N.D.	N.D.
Benzyl butyl phthalate (BBP)	85-68-7	mg/kg	30	/	N.D.	N.D.	N.D.
Total (DEHP+ DBP+ BBP)	/	mg/kg	/	1000	70	97	N.D.
Di-iso-nonyl phthalate (DINP)	28553-12-0 68515-48-0	mg/kg	50	/	N.D.	N.D.	N.D.
Di-n-octyl phthalate (DNOP)	117-84-0	mg/kg	30	/	N.D.	N.D.	N.D.
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	mg/kg	50	/	N.D.	N.D.	N.D.
Total (DINP+DNOP+DIDP)	/	mg/kg	/	1000	N.D.	N.D.	N.D.

Item	CAS No.	Limit	Result	Result	Result	Result	Result
			8	9	10	11	12
Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	/	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl phthalate (DBP)	84-74-2	/	N.D.	N.D.	N.D.	N.D.	N.D.
Benzyl butyl phthalate (BBP)	85-68-7	/	N.D.	N.D.	N.D.	N.D.	N.D.
Total (DEHP+ DBP+ BBP)	/	1000	N.D.	N.D.	N.D.	N.D.	N.D.
Di-iso-nonyl phthalate (DINP)	28553-12-0 68515-48-0	/	N.D.	N.D.	N.D.	N.D.	N.D.
Di-n-octyl phthalate (DNOP)	117-84-0	/	N.D.	N.D.	N.D.	N.D.	N.D.
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	/	N.D.	N.D.	N.D.	N.D.	N.D.
Total (DINP+DNOP+DIDP)	/	1000	N.D.	N.D.	N.D.	N.D.	N.D.

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Item	CAS No.	Limit	Result	Result	Result	Result
			13	14	15	16
Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7	/	N.D.	N.D.	N.D.	N.D.
Dibutyl phthalate (DBP)	84-74-2	/	N.D.	N.D.	N.D.	N.D.
Benzyl butyl phthalate (BBP)	85-68-7	/	N.D.	N.D.	N.D.	N.D.
Total (DEHP+ DBP+ BBP)	/	1000	N.D.	N.D.	N.D.	N.D.
Di-iso-nonyl phthalate (DINP)	28553-12-0 68515-48-0	/	N.D.	N.D.	N.D.	N.D.
Di-n-octyl phthalate (DNOP)	117-84-0	/	N.D.	N.D.	N.D.	N.D.
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	/	N.D.	N.D.	N.D.	N.D.
Total (DINP+DNOP+DIDP)	/	1000	N.D.	N.D.	N.D.	N.D.

## Specimen Description:

No.	Sample description	No.	Sample description
1	PEN-HEAD AND BUTTON SILVER	12	KNOB GREEN PLASTIC
2	PEN-HEAD AND BUTTON SUBSTRATE	13	KNOB DARK BLUE PLASTIC
3	METAL PEN CLIP	14	KNOB BLACK PLASTIC
4	METAL RING	15	KNOB LIGHT BLUE PLASTIC
5	PEN TUBE SILVER COATING	16	KNOB PINK PLASTIC
6	PEN TUBE GREY PLASTIC SUBSTARTE	17	INNER GREY PLASTIC TUBE
7	KNOB DARK RED PLASTIC	18	INNER GREY PLASTIC
8	KNOB PURPLE PLASTIC	19	WHITE PLASTIC PEN CORE PIPE
9	KNOB ORANGE PLASTIC	20	GOLDEN SPRING
10	KNOB YELLOW PLASTIC	21	METAL PEN SHARP
11	KNOB LIGHT GREEN PLASTIC	22	BLUE INK

## Note:

- Specimens, which requested to determine Cadmium Content, have been dissolved completely.
- mg/kg=ppm.
- N.D.=not detected(<MDL)
- MDL=Method Detection Limit
- The test report A001T140305209002A1 supersedes the test report A001T140305209002 which is withdrawn.
- Photo is included



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## Photograph of Sample



Balpen

\*\*\*End of Report\*\*\*