



## BTL DIFFUSION

**Technical Report:** (8822)080-0174

Date Received: Mar 21, 2022

Mar 28, 2022

Page 1 of 10

BTL DIFFUSION  
16, RUE ANATOLE MOUSSU – ZA MÉRÉ NORD EST  
78490 MÉRÉ, FRANCE

Sample Description: PLAYMAT JUNGLE  
PLAYMAT FARM  
ACTIVITY SPIRAL – JUNGLE  
ACTIVITY SPIRAL – FARM

Vendor: N/A  
Manufacturer: N/A

Sample Size: 4  
Style No(s): 302818,302825,  
302856,302863  
SKN/SKU No.: NOT PROVIDE  
PO No.: NOT PROVIDE  
Ref #: NOT PROVIDE

Labeled Age Grade: NOT RECORD  
Appropriate Age Grade: NOT REQUESTED  
Client Specified Age Grade: NOT SPECIFIED  
Tested Age Grade: N/A  
UPC Code: N/A  
Test Starting Date: MAR 21, 2022

Country of Origin: CHINA  
Assortment No.: NOT PROVIDE  
Test Finished Date: MAR 28, 2022

### EXECUTIVE SUMMARY:

Test Requested	Conclusion
Migration of Certain Elements in Category III - Scraped off toy material requirements of the European Standard, "Safety of toys", EN 71-3:2019+A1:2021.	PASS
Soluble heavy metals content in substrate requirements of ASTM F963-17, "Standard Consumer Safety Specification for Toy Safety," Section 4.3.5.2(2)(b).	PASS
Soluble Heavy Metals Content in Plastic Materials - Canada Consumer Product Safety Act (CCPSA), S.C. 2010, c. 21, Toys Regulations SOR/2011-17 with its Latest Amendment, Section 27 (a).	PASS

To be continued



BUREAU VERITAS SHENZHEN CO.,LTD  
DONGGUAN BRANCH

Harvey Xue  
Manager, Analytical Lab

RT/Lucy Chen

### REMARK

If there are questions or concerns on this report, please contact the following persons:

Report Enquiry: (86) 0769 89952999 Ext. 8175 CPSAnalytical.DG@bureauveritas.com

Business Contact: (86) 0769 85893595

*This report shall not be reproduced except in full, without the written approval of our laboratory.*



**EXECUTIVE SUMMARY:**

Test Requested	Conclusion
Listed aromatic amines (azocolourants) content requirement of the European Regulation (EC) No. 1907/2006 of the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII concerning the Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles, Item no. 43, Points 1 and 2; together with 2,4-dimethylaniline and 2,6-dimethylaniline content requirement of the client's specification.	PASS

Note: At the request of client, test(s) was conducted on the certain component(s) of the submitted samples(s) / submitted component(s).

Note: The composite test sample(s) of the submitted samples was prepared in the manner requested by the client, when subject to the test performed.

**Tested Component(s) Description List:**

Test Item(s)	Item / Component Description(s)	Location(s)	Style(s)
I001	Light yellow soft plastic with white fabric backing	Face of lion	-
I002	Transparent plastic	Mirror of lion	-
I003	Orange soft plastic with khaki fabric backing	Head of fox	-
I004	Green soft plastic with white fabric backing	Crocodile of Desert Mat	-
I005	Brown soft plastic with light brown fabric backing	Horse of farm mat	-
I006	Orange plastic	Ring of farm mat	-
I007	Light green fabric	Body of lion	-
I008	Yellow plush	Tail of lion	-
I009	Light yellow fabric	Mirror of lion	-
I010	Multicolor printed white fabric	Body of fox	-
I011	White fabric	Body of fox	-
I012	Yellow printed white fabric	Desert Mat	-
I013	Green printed white fabric	Bordure of Desert Mat	-
I014	Gray printed white fabric	Bordure of Farm Mat	-
I015	Yellow fabric	Stripe of Desert Mat	-
I016	Light green fabric	Stripe of Farm Mat	-
I017	Dark yellow fabric	Stripe of Farm Mat	-
I018	Multicolor printed white fabric	Farm Mat	-
I019	Multicolor printed white fabric	Desert Mat	-



**RESULTS:**

**Migration of Certain Elements, EN 71-3:2019+A1:2021**

Test Method: European Standard EN 71-3:2019+A1:2021 Section 8.

Class: Category III - Scraped off toy material

Analyte	Requirement (mg/kg)	Result (mg/kg)				
		Test Item(s)				
	Category III	I001	I002	I003	I004	I005
Aluminium (Al)	28130	16	ND	5	11	27
Arsenic (As)	47	ND	ND	ND	ND	ND
Boron (B)	15000	ND	ND	ND	2	ND
Barium (Ba)	18750	ND	ND	ND	10	3
Cadmium (Cd)	17	ND	ND	ND	ND	ND
Cobalt (Co)	130	ND	ND	ND	ND	ND
Chromium III (Cr III)	460	0.36	ND	0.18	ND	0.20
Chromium VI (Cr VI)	0.053	ND#	ND	ND#	ND#	ND#
Copper (Cu)	7700	ND	ND	ND	ND	ND
Mercury (Hg)	94	ND	ND	ND	ND	ND
Manganese (Mn)	15000	15	ND	14	9	20
Nickel (Ni)	930	ND	ND	ND	ND	ND
Lead (Pb)	23	ND	ND	ND	ND	ND
Antimony (Sb)	560	ND	ND	ND	ND	ND
Selenium (Se)	460	ND	ND	ND	ND	ND
Tin (Sn)	180000	ND	ND	ND	ND	ND
Organic tin	12	ND	ND	ND	ND	ND
Strontium (Sr)	56000	16	ND	23	22	29
Zinc (Zn)	46000	2	ND	ND	ND	3
Mass of trace amount (gram)		-	0.0900	-	-	-
Conclusion		PASS	PASS	PASS	PASS	PASS



**RESULTS:**

Analyte	Requirement (mg/kg)	Result (mg/kg)				
		Test Item(s)				
	Category III	I006	I008	I010	I011	I017
Aluminium (Al)	28130	ND	5	3	6	10
Arsenic (As)	47	ND	ND	ND	ND	ND
Boron (B)	15000	ND	2	ND	ND	3
Barium (Ba)	18750	ND	ND	ND	ND	ND
Cadmium (Cd)	17	ND	ND	ND	ND	ND
Cobalt (Co)	130	ND	ND	ND	ND	ND
Chromium III (Cr III)	460	ND	ND	ND	ND	ND
Chromium VI (Cr VI)	0.053	ND	ND#	ND#	ND#	ND#
Copper (Cu)	7700	ND	ND	ND	ND	ND
Mercury (Hg)	94	ND	ND	ND	ND	ND
Manganese (Mn)	15000	ND	ND	ND	ND	ND
Nickel (Ni)	930	ND	ND	ND	ND	ND
Lead (Pb)	23	ND	ND	ND	ND	ND
Antimony (Sb)	560	ND	ND	5	ND	ND
Selenium (Se)	460	ND	ND	ND	ND	ND
Tin (Sn)	180000	ND	ND	ND	ND	ND
Organic tin	12	ND	ND	ND	ND	ND
Strontium (Sr)	56000	ND	ND	ND	ND	ND
Zinc (Zn)	46000	ND	3	2	3	2
Mass of trace amount (gram)		-	-	-	-	-
Conclusion		PASS	PASS	PASS	PASS	PASS

**RESULTS:**

Analyte	Requirement (mg/kg)	Result (mg/kg)				
		Test Item(s)				
	Category III	I018	I019	-	-	-
Aluminium (Al)	28130	ND	ND	-	-	-
Arsenic (As)	47	ND	ND	-	-	-
Boron (B)	15000	ND	ND	-	-	-
Barium (Ba)	18750	ND	ND	-	-	-
Cadmium (Cd)	17	ND	ND	-	-	-
Cobalt (Co)	130	ND	ND	-	-	-
Chromium III (Cr III)	460	ND	ND	-	-	-
Chromium VI (Cr VI)	0.053	ND	ND	-	-	-
Copper (Cu)	7700	ND	ND	-	-	-
Mercury (Hg)	94	ND	ND	-	-	-
Manganese (Mn)	15000	ND	ND	-	-	-
Nickel (Ni)	930	ND	ND	-	-	-
Lead (Pb)	23	ND	ND	-	-	-
Antimony (Sb)	560	20	20	-	-	-
Selenium (Se)	460	ND	ND	-	-	-
Tin (Sn)	180000	ND	ND	-	-	-
Organic tin	12	ND	ND	-	-	-
Strontium (Sr)	56000	ND	ND	-	-	-
Zinc (Zn)	46000	ND	ND	-	-	-
Mass of trace amount (gram)		-	-	-	-	-
Conclusion		PASS	PASS	-	-	-

mg/kg = milligrams per kilogram (ppm=parts per million)

Organic tin = migration of total organic tin is expressed as tributyltin cation content in mg/kg

# = Verified results (see note)

ND = Not detected

Detection Limit ( mg/kg ) :

Category III - Al : 2 ; Sb : 2 ; As : 2 ; Ba : 2 ; B : 2 ; Cd : 2 ; Cr III : 0.15 ; Cr VI : 0.025 ; Co : 2 ; Cu : 2 ; Pb : 2 ; Mn : 2 ; Hg : 2 ; Ni : 2 ; Se : 2 ; Sr : 2 ; Sn : 2 ; Organic tin : 2 ; Zn : 2

**Remark:**

- Results of Cr III and Cr VI were reported as sum of soluble Chromium content unless specified.
- Result(s) of organic tin was (were) calculated while assuming the tin content wholly contributed from tributyltin cation unless specified.
- The pH measured shall be reported after migration if it was outside the range of 1.1 to 1.3.

**Note:**

If soluble chromium content or soluble tin content exceeded the screening limits of soluble chromium (VI) or organic tin content, the results were verified by below method

- Chromium VI: EN 71-3:2019+A1:2021, Annex F by Ion-chromatography with ICP-MS detector analysis.
- Organic tin: EN 71-3:2019+A1:2021, Annex G by Gas Chromatography-Mass Spectroscopy analysis.



**RESULTS:**

**Soluble Heavy Metals Content in Substrate –ASTM F963-17, Section 4.3.5.2(2)(b)**

Test Method : ASTM International Standard ASTM F963-17, Section 8.3.5 (Excluding 8.3.5.5(3))

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se
Max. Limit Type I (mg/kg)	25	1000	75	60	60	90	60	500
Max. Limit Type II (mg/kg)	25	250	50	25	25	90	60	500
Analytical Correction (%)	60	30	30	30	50	30	60	60

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se	Mass of Trace Amount	Conclusion
Test Item(s)	Result (mg/kg)								(g)	
Type I: Substrate other than modeling clay										
I001	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I002	ND	ND	ND	ND	ND	ND	ND	ND	0.0900	PASS
I003	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I004	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I005	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I006	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I008	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I010	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I011	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I017	ND	ND	ND	ND	ND	ND	ND	ND	-	PASS
I018	ND	ND	ND	ND	ND	ND	20	ND	-	PASS
I019	ND	ND	ND	ND	ND	ND	20	ND	-	PASS

Note / key:

As = Arsenic                      Ba = Barium                      Cd = Cadmium                      Cr = Chromium  
 Hg = Mercury                      Pb = Lead                      Sb = Antimony                      Se = Selenium  
 ND = Not detected                      g = gram(s)                      % = percent  
 mg/kg = milligram(s) per kilogram (ppm=parts per million)  
 Detection Limit (mg/kg) :  
 For Type I – As : 2.5; Ba : 100; Cd : 7.5; Each (Cr, Hg, & Sb) : 6.0; Pb : 9.0; Se : 50  
 For Type II – Each (As, Cr & Hg) : 2.5; Ba : 25; Cd : 5.0; Sb : 6.0; Pb : 9.0; Se : 50



**RESULTS:**

**Soluble Heavy Metals Content in Plastic Materials - Canada Consumer Product Safety Act (CCPSA), S.C. 2010, c. 21, Toys Regulations SOR/2011-17 with its Latest Amendment, Section 27 (a)**

Test Method : Reference to ASTM International Standard ASTM F963-08, Section 8.3.

Soluble Element(s)	As	Ba	Cd	Cr	Hg	Sb	Se
Maximum Allowable Limit (mg/kg)	25	1000	75	60	60	60	500
Analytical Correction (%)	60	30	30	30	50	60	60

Analyte	As	Ba	Cd	Cr	Hg	Sb	Se	Conclusion
Test Item(s)	Result (mg/kg)							
I001	ND	ND	ND	ND	ND	ND	ND	PASS
I002	ND	ND	ND	ND	ND	ND	ND	PASS
I003	ND	ND	ND	ND	ND	ND	ND	PASS
I004	ND	ND	ND	ND	ND	ND	ND	PASS
I005	ND	ND	ND	ND	ND	ND	ND	PASS
I006	ND	ND	ND	ND	ND	ND	ND	PASS

Note / key:

As = Arsenic                      Ba = Barium                      Cd = Cadmium                      Hg = Mercury  
 Cr = Chromium                      Sb = Antimony                      Se = Selenium  
 ND = Not detected                      S = Soluble analysis  
 mg/kg = milligram(s) per kilogram  
 Detection Limit (mg/kg) : As 2.5; Ba 100; Cd 7.5; Cr 6.0; Hg 6.0; Sb 6.0; Se 50



## RESULTS:

**24 AROMATIC AMINES (AZOCOLLOURANTS) CONTENT (European Regulation (EC) No. 1907/2006 REACH, Annex XVII, Item no. 43, Points 1 and 2; together with client's specification for 2,4-dimethylaniline and 2,6-dimethylaniline content)**

Test Method: Quantification by Gas Chromatography/Mass Spectrometry (GC/MS)  
Additional chromatographic technique employed to confirm positive result by HPLC/TLC

Test Parameter:		Aromatic Amines (Azocolourants)		
Requirement:		30 mg/kg		
Test Item(s)	Test Method	Detected Amine Number	Concentration (mg/kg (ppm))	Conclusion
I007+I008+I009	II	-	ND	PASS
I010	II	-	ND	PASS
I012+I013+I014	II	-	ND	PASS
I015+I016+I017	II	-	ND	PASS
I018	II	-	ND	PASS

ND = Not Detected (Detection Limit = 10 mg/kg (ppm))

ppm = parts per million

mg/kg = milligrams per kilogram

NR = Not Requested

\* = The specimen is a minor component. As only a reduced mass (< 0.5 g) could be used for the test the result may have a greater uncertainty due to lower material homogeneity

Amine No. = Refer to List of Banned Amines for the description of the detected Amine.

Test Method I = European Standard EN 14362-1: 2017, Clauses 9, 10.2 and afterwards.

Test Method II = European Standard EN 14362-1: 2017, Clauses 9, 10.1, 10.3 and afterwards.

Test Method III = International Standard ISO 17234-1: 2015.

### Remark:

The list of aromatic amines in azo colorants is summarized in table of Appendix.

The CAS-number 97-56-3 (no. 5) and 99-55-8 (no. 6) are further reduced to CAS-number 95-53-4 (no. 18) and 95-80-7 (no. 19), respectively.

The colorant(s) of Test Item(s), that are able to form 4-aminoazobenzene, is (are) able to generate aniline and 1,4-phenylenediamine under the condition of Test Method.

The absence of 4-aminoazobenzene is inferred by the absence of aniline and 1,4-phenylenediamine under the condition of Test Method.





**RESULTS:**

LIST OF BANNED AMINES		
Specified Amines		
Number	Chemical Name	CAS Number
1.	4-aminobiphenyl	92-67-1
2.	Benzidine	92-87-5
3.	4-chloro-o-toluidine	95-69-2
4.	2-naphthylamine	91-59-8
5.	o-aminoazotoluene	97-56-3
6.	5-nitro-o-toluidine	99-55-8
7.	4-chloroaniline	106-47-8
8.	4-methoxy-m-phenylenediamine	615-05-4
9.	4,4'-diaminodiphenylmethane	101-77-9
10.	3,3'-dichlorobenzidine	91-94-1
11.	3,3'-dimethoxybenzidine	119-90-4
12.	3,3'-dimethylbenzidine	119-93-7
13.	4,4'-methylenedi-o-toluidine	838-88-0
14.	p-cresidine	120-71-8
15.	4,4'-methylene-bis-(2-chloro-aniline)	101-14-4
16.	4,4'-oxydianiline	101-80-4
17.	4,4'-thiodianiline	139-65-1
18.	o-toluidine	95-53-4
19.	4-methyl-m-phenylenediamine	95-80-7
20.	2,4,5-trimethylaniline	137-17-7
21.	o-anisidine	90-04-0
22.	4-amino azobenzene	60-09-3
23.	2,4-Xylidine	95-68-1
24.	2,6-Xylidine	87-62-7

**RESULTS:**



END OF REPORT