

Report No.: 0154290313a 002 Page 1 of 21

Client: HAPPY ARTS&CRAFTS(NINGBO)CO., LTD.
HAPE INTERNATIONAL(NINGBO) LTD.
9-27Nanhai Road, Dagang industrial City,Beilun,Ningbo,China

Test item(s): Toy

Identification/ Refer to detail list

Model No(s):

Sample Receiving date: 2017-11-13

Testing Period: 2017-11-13 - 2017-11-22

Test Specification:

- 1. EN 71 - 1 : 2014 Mechanical and physical properties
- 2. 2009/48/EC CE marking
- 3. 2009/48/EC Labeling Requirement
(Importer/ Manufacturer Mark, Product Identification, Washing/ Cleaning instruction)
- 4. EN 71 - 2 : 2011+A1 :2014 Flammability
- 5. EN71-3:2013+A2:2017 Migration of 19 Elements - with reference to 2009/48/EC and its amendments 2012/7/EU

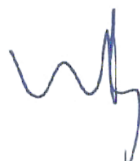
Test result:

- PASS
- PASS
- Please refer to test page
- PASS
- PASS

Other information:

Packaging provided: M001-M003 Yes; M004 Artwork
The provided age grade of the item: Over 12 months.
The appropriate age grade of the item: Over 10 months.
The item was tested over 10 months.
The report 0154290313a 002 supersede report 0154290313a 001

For and on behalf of
TÜV Rheinland (Shanghai) Co., Ltd.



2018-01-11 Wice Wang / Department Manager

Date *Name/Position*

*Test result is drawn according to the kind and extent of tests performed.
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.*

Test Report No.: 0154290313a 002

Page 2 of 21

Item NO.	Item Description EN	Age
E0102,E0102A	High Seas Rocker	12M+
E0378,E0378A	Ladybug	12M+
E0377,E0377A	Step & Stroll - Racing Stripes	12M+
E0375,E0375A	Wonder Wagon	12M+

Test Report No.: 0154290313a 002

Page 3 of 21

Material List:

Item: Refer to detail list

Material No.	Material	Color	Location	Remark
M001	Whole Product	Multi-color	E0102,E0102A	
M002	Whole Product	Multi-color	E0378,E0378A	
M003	Whole Product	Multi-color	E0377,E0377A	
M004	Whole Product	Multi-color	E0375,E0375A	
M005	Coating	White	On wood	
M006	Coating	Brown	On wood, E0102	
M007	Coating	Cream	On wood, E0102	
M008	Coating	Navy	On wood, E0102	
M009	Plastic	Cream	PA round nail, E0102	
M010	Coating	Grey	On wood, E0375	
M011	Foam	Red	EVA tyre, E0375	
M012	Plastic	Red	TPE Handle, E0375	
M013	Plastic	Red	PP inside rim, E0375	
M014	Plastic	Cream	PP round nail, E0375	
M015	Plastic	Off-white	PA acorn nut, E0375	
M016	Plastic	White	PA acorn nut, E0377	
M017	Textile	Orange	Felt on wheel, E0377	
M018	Coating	White	On metal, E0378	
M019	Coating	Black	On metal, E0378	
M020	Textile	Red	Main fabric of seat, E0378	

Test Report No.: 0154290313a 002

Page 4 of 21

M021	Textile	Red	Seat piping, E0378	
M022	Plastic	Semi-transparent	Gasket on handle, E0378	
M023	Plastic	Black	PU Tyre of directional wheel, E0378	
M024	Plastic	White	Rim of directional wheel, E0378	
M025	Plastic	Grey	ABS Rim of directional wheel, E0378	
M026	Plastic	Black	PP tyre of universal wheel, E0378	
M027	Plastic	Black	Holder of universal wheel, E0378	
M028	Plastic	Black	Base of universal wheel, E0378	
M029	Wood	Nature	Solid wood	Refer to 0154286277/M025
M030	Wood	Nature	Plywood	Refer to 0154286280/M007
M031	Wood	Nature	MDF	Refer to 0154286277/M024
M032	Coating	Silver	On wood	Refer to 0154288479/M011
M033	Coating	Transparent	On wood	Refer to 0154286277/M003
M034	Coating	Red	On wood	Refer to 0154286277/M004
M035	Plastic	White	PP Rim, E0375	Refer to 0154286671/M013
M036	Coating	Dk.blue	On wood	Refer to 0154286277/M011
M037	Coating	Lt. blue	On wood	Refer to 0154286277/M012
M038	Coating	Black	On wood	
M039	Plastic + Textile	Black	Velcro	Refer to 0154288479/M002
M040	Plastic	Black	TPE tyre/handle	Refer to 0154288479/M005

Test Report No.: 0154290313a 002

Page 5 of 21

1. EN71 - 1:2014 Mechanical and physical properties
Test result:

	Test No :	T001
	Material No:	M001-M004
4. General requirements		
4.1 Material cleanliness		PASS
4.2 Assembly		PASS*1
4.7 Edges		PASS
4.8 Points and metallic wires		PASS
4.9 Protruding parts		PASS*2
4.10 Parts moving against each other		PASS*3
4.15 Toys intended to bear the mass of a child		PASS*4
5. Toys intended for children under 36 months		
5.1 General requirements		PASS
7. Warnings, markings and instructions for use		
7.1 General		PASS
7.2 Toys not intended for children under 36 months		PASS
7.10 Roller skates, inline skates, skateboards and certain other ride-on toys		PASS*5

The clause and/or sub-clause would be indicated only in the test report whichever applicable. The comprehensive result report is available upon request.

Remark:

- *1 This clause is only applicable to M001, M003 and M004
- *2 This clause is only applicable to M002 and M004
- *3 This clause is only applicable to M004
- *4 This clause is only applicable to M001, M002
- *5 This clause is only applicable to M002

Test Report No.: 0154290313a 002

Page 6 of 21

2. 2009/48/EC CE Marking
Test result:

	Test No:	T001
	Material No:	M001-M004
CE-marking		PASS

3. 2009/48/EC Labeling Requirement (Importer/ Manufacturer Mark, Product Identification, Washing/ Cleaning instruction)
Test result:

	Test No:	T001
	Material No:	M001-M004
Importer/ Manufacturer Mark (European Company name and address)+		Present on the packaging and product
Product Identification - type, batch, serial or model number+		Present on the packaging and product

Remark:

+ These labeling shall be indicated on the toy, or where that is not possible, on its packaging or in a documents accompanying the toys.

The correct adherence to all requirements according to directive 2009/48/EC in regards to the marking (name or trademark and contact address of the manufacturer respectively the marking for identification [type, batch, model or serial no.])of the toy can only be confirmed by the manufacturer, his delegate or the person who brings it onto the market. The marked article were assessed, however, they can not be evaluated in the frame of this test.

Test Report No.: 0154290313a 002

Page 7 of 21

4. EN 71 - 2: 2011+A1 :2014 Flammability**Test result:**

	Test No:	T001
	Material No:	M001-M004
4.1 General		PASS

The clause and/or sub-clause would be indicated only in the test report whichever applicable. The comprehensive result report is available upon request.

Test Report No.: 0154290313a 002

Page 8 of 21

5. EN71-3:2013+A2:2017 Migration of 19 Elements - with reference to 2009/48/EC and its amendments

Test Method: with reference to EN71-3:2013+A2:2017, for inorganic elements, analyzed by ICP-OES or ICP-MS.

3) For scraped-off toy materials:

				Test No.	T001	T002	T003
				Material No.	M005	M006	M007
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	
Aluminium (Al)	mg/kg	10	70,000	682	179	351	
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	
Barium (Ba)	mg/kg	2.5	18,750	n.d.	2.7	2.6	
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	
Chromium (Cr)	mg/kg	0.15	-	n.d.	-	-	
Chromium III (CrIII)§	mg/kg	0.15	460	-	2.6(*2)	4.7(*2)	
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	n.d.(*2)	n.d.(*2)	
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	
Lead (Pb) †	mg/kg	2.5	160	n.d.	n.d.	n.d.	
Manganese (Mn)	mg/kg	2.5	15,000	10.5	4.4	5.4	
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	98.8	22.8	
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	
Organic Tin^	mg/kg	1.0	12	-	-	-	
Zinc (Zn)	mg/kg	10	46,000	12.4	449	486	

Test Report No.: 0154290313a 002

Page 9 of 21

				Test No.	T004	T005	T006
				Material No.	M008	M009	M010
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	150	n.d.	86.1	
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.	
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	
Chromium (Cr)	mg/kg	0.15	-	-	n.d.	n.d.	
Chromium III (CrIII)§	mg/kg	0.15	460	3.1(*2)	-	-	
Chromium VI (CrVI)§	mg/kg	0.15	0.2	n.d.(*2)	-	-	
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	
Lead (Pb) ¢	mg/kg	2.5	160	n.d.	n.d.	n.d.	
Manganese (Mn)	mg/kg	2.5	15,000	5.6	n.d.	7.2	
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	
Strontium (Sr)	mg/kg	2.5	56,000	15.1	n.d.	2.5	
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	
Organic Tin^	mg/kg	1.0	12	-	-	-	
Zinc (Zn)	mg/kg	10	46,000	440	39.0	4140	

Test Report No.: 0154290313a 002

Page 10 of 21

				Test No.	T007	T008	T009
				Material No.	M011	M012	M013
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	n.d.	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.	n.d.
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	n.d.
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	n.d.
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	n.d.
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	-
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	-
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	n.d.
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	n.d.
Lead (Pb) †	mg/kg	2.5	160	n.d.	n.d.	n.d.	n.d.
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	n.d.	n.d.	n.d.
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	n.d.
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	n.d.
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	n.d.
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	n.d.	n.d.	n.d.
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	n.d.
Organic Tin^	mg/kg	1.0	12	-	-	-	-
Zinc (Zn)	mg/kg	10	46,000	18.5	n.d.	n.d.	n.d.

Test Report No.: 0154290313a 002

Page 11 of 21

				Test No.	T010	T011	T012
				Material No.	M014	M015	M016
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	n.d.	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.	n.d.
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	n.d.
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	n.d.
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	n.d.
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	-
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	-
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	n.d.
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	n.d.
Lead (Pb) ¢	mg/kg	2.5	160	n.d.	n.d.	n.d.	n.d.
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	n.d.	n.d.	n.d.
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	n.d.
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	n.d.
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	n.d.
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	n.d.	n.d.	n.d.
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	n.d.
Organic Tin^	mg/kg	1.0	12	-	-	-	-
Zinc (Zn)	mg/kg	10	46,000	n.d.	35.4	73.3	73.3

Test Report No.: 0154290313a 002

Page 12 of 21

				Test No.	T013	T014	T015
				Material No.	M017	M018	M019(*1)
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	
Aluminium (Al)	mg/kg	10	70,000	n.d.	48.4	53.2	
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	
Barium (Ba)	mg/kg	2.5	18,750	n.d.	261	14.1	
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	-	
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	6.5(*2)	
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	n.d.(*2)	
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	
Lead (Pb) ¢	mg/kg	2.5	160	n.d.	n.d.	n.d.	
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	2.9	81.4	
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	15.2	
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	12.3	n.d.	
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	
Organic Tin^	mg/kg	1.0	12	-	-	-	
Zinc (Zn)	mg/kg	10	46,000	30.2	45.4	374	

Test Report No.: 0154290313a 002

Page 13 of 21

				Test No.	T016	T017	T018
				Material No.	M020	M021	M022
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	n.d.	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	16.1	n.d.	n.d.	n.d.
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	n.d.
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	n.d.
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	n.d.
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	-
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	-
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	n.d.
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	n.d.
Lead (Pb) ¢	mg/kg	2.5	160	n.d.	n.d.	n.d.	n.d.
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	n.d.	n.d.	n.d.
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	n.d.
Nickel (Ni)	mg/kg	2.5	930	4.6	n.d.	n.d.	n.d.
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	n.d.
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	n.d.	n.d.	n.d.
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	n.d.
Organic Tin^	mg/kg	1.0	12	-	-	-	-
Zinc (Zn)	mg/kg	10	46,000	303	32.3	n.d.	n.d.

Test Report No.: 0154290313a 002

Page 14 of 21

				Test No.	T019	T020	T021
				Material No.	M023	M024	M025
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	n.d.	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.	n.d.
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	n.d.
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	n.d.
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	n.d.
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	-
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	-
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	n.d.
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	n.d.
Lead (Pb) ¢	mg/kg	2.5	160	n.d.	n.d.	n.d.	n.d.
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	n.d.	n.d.	n.d.
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	n.d.
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	n.d.
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	n.d.
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	n.d.	n.d.	n.d.
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	n.d.
Organic Tin^	mg/kg	1.0	12	-	-	-	-
Zinc (Zn)	mg/kg	10	46,000	n.d.	n.d.	n.d.	n.d.

Test Report No.: 0154290313a 002

Page 15 of 21

				Test No.	T022	T023	T024
				Material No.	M026	M027	M028
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	n.d.	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.	n.d.
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	n.d.
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	n.d.
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	n.d.
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	-
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	-
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	n.d.
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	n.d.
Lead (Pb) †	mg/kg	2.5	160	n.d.	n.d.	n.d.	n.d.
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	n.d.	n.d.	n.d.
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	n.d.
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	n.d.
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	n.d.
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	n.d.	n.d.	n.d.
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	n.d.
Organic Tin^	mg/kg	1.0	12	-	-	-	-
Zinc (Zn)	mg/kg	10	46,000	n.d.	n.d.	n.d.	n.d.

Test Report No.: 0154290313a 002

Page 16 of 21

				Test No.	T025	T026	T027
				Material No.	M029	M030	M031
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	54.5	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	12.1	17.8	6.7	
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	46.3	
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	
Lead (Pb) †	mg/kg	2.5	160	n.d.	n.d.	n.d.	
Manganese (Mn)	mg/kg	2.5	15,000	7.2	114	8.9	
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	
Strontium (Sr)	mg/kg	2.5	56,000	2.6	6.5	19.1	
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	
Organic Tin^	mg/kg	1.0	12	-	-	-	
Zinc (Zn)	mg/kg	10	46,000	n.d.	n.d.	20.6	

Test Report No.: 0154290313a 002

Page 17 of 21

				Test No.	T028	T029	T030
				Material No.	M032	M033	M034
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	14.4	n.d.	168	
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.	
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.	
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.	
Lead (Pb) †	mg/kg	2.5	160	n.d.	n.d.	n.d.	
Manganese (Mn)	mg/kg	2.5	15,000	5.7	2.7	2.8	
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	
Strontium (Sr)	mg/kg	2.5	56,000	27.7	n.d.	12.7	
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	
Organic Tin^	mg/kg	1.0	12	-	-	-	
Zinc (Zn)	mg/kg	10	46,000	15.8	n.d.	223	

Test Report No.: 0154290313a 002

Page 18 of 21

				Test No.	T031	T032	T033
				Material No.	M035	M036	M037
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result	
Aluminium (Al)	mg/kg	10	70,000	13.2	278	81.1	
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.	
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.	
Barium (Ba)	mg/kg	2.5	18,750	n.d.	2.6	5.0	
Boron (B)	mg/kg	10	15,000	n.d.	13.5	n.d.	
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.	
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.	
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-	
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-	
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.	
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	3.3	
Lead (Pb) †	mg/kg	2.5	160	n.d.	n.d.	n.d.	
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	5.1	58.2	
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.	
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.	
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.	
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	20.4	4.3	
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.	
Organic Tin^	mg/kg	1.0	12	-	-	-	
Zinc (Zn)	mg/kg	10	46,000	n.d.	269	33.7	

Test Report No.: 0154290313a 002

Page 19 of 21

				Test No.	T034	T035
				Material No.	M039	M040
Parameter	Unit	RL	Regulatory Requirement	Result	Result	Result
Aluminium (Al)	mg/kg	10	70,000	n.d.	n.d.	n.d.
Antimony (Sb)	mg/kg	5	560	n.d.	n.d.	n.d.
Arsenic (As)	mg/kg	5	47	n.d.	n.d.	n.d.
Barium (Ba)	mg/kg	2.5	18,750	n.d.	n.d.	n.d.
Boron (B)	mg/kg	10	15,000	n.d.	n.d.	n.d.
Cadmium (Cd)	mg/kg	1	17	n.d.	n.d.	n.d.
Chromium (Cr)	mg/kg	0.15	-	n.d.	n.d.	n.d.
Chromium III (CrIII)§	mg/kg	0.15	460	-	-	-
Chromium VI (CrVI)§	mg/kg	0.15	0.2	-	-	-
Cobalt (Co)	mg/kg	2.5	130	n.d.	n.d.	n.d.
Copper (Cu)	mg/kg	2.5	7,700	n.d.	n.d.	n.d.
Lead (Pb) ¢	mg/kg	2.5	160	n.d.	n.d.	n.d.
Manganese (Mn)	mg/kg	2.5	15,000	n.d.	n.d.	n.d.
Mercury (Hg)	mg/kg	2.5	94	n.d.	n.d.	n.d.
Nickel (Ni)	mg/kg	2.5	930	n.d.	n.d.	n.d.
Selenium (Se)	mg/kg	10	460	n.d.	n.d.	n.d.
Strontium (Sr)	mg/kg	2.5	56,000	n.d.	n.d.	n.d.
Tin (Sn)	mg/kg	1.0	180,000	n.d.	n.d.	n.d.
Organic Tin^	mg/kg	1.0	12	-	-	-
Zinc (Zn)	mg/kg	10	46,000	n.d.	n.d.	n.d.

- Abbreviation:**
- n.d. = Not Detected (< RL)
 - RL = Reporting Limit
 - mg/kg denotes milligram per kilogram
 - § denotes Cr(III) and Cr(VI) are not necessary to be determined when the Combined Chromium concentration value is less than the requirement
 - ^ denotes Organic tin are not necessary to be determined when the Tin concentration is less than calculated limit (3.9 mg/kg) or the components were confirmed to be pure metal

Test Report No.: 0154290313a 002

Page 20 of 21

Remark:

- ⌘ According to Council Directive (EU) 2017/738, the amendment of Directive 2009/48/EC, migration limits for lead in i) dry, brittle, powder-like or pliable toy materials; ii) liquid or sticky toy materials; and iii) scraped-off toy materials will be revised to 2.0 mg/kg, 0.5 mg/kg and 23 mg/kg, respectively. Effective from 28 October 2018.
- *1 According to EN71- 3:2013+A2:2017, the weight of test portion was less than 100mg, but greater than 10mg. The result was calculated as if 100mg of the samples were available.
- *2 Confirmation of Cr(VI) content has been performed with reference to EN71- 3:2013+A2:2017, Annex F (analyzed by LC-ICP-MS or IC-ICP-MS/MS). Cr(III) content was confirmed by calculation.
- *3 According to EN71- 3:2013+A2:2017, the weight of test portion M038 available was less than 10mg, the test for soluble heavy metal content was not performed.

Test Report No.: 0154290313a 002

Page 21 of 21

Sample Photos



E0102,E0102A



E0375,E0375A



E0377,E0377A



E0378,E0378A

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