



Report No:	64318-050317
Date:	May 18, 2018
Page:	1 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

Applicant:	Royal Brush Manufacturing, Inc.
Attention:	Michael C. Dovellos
Address:	515 West 45 th Street, Munster, IN 46321



SAMPLE INFORMATION			
Sample Description:	Fluorescent Craft Paint		
Style / Item No.:	/	Quantity:	3
Buyer:	NA	Color:	NA
Vendor:	NA	SKN/SKU NO.:	NA
Manufacturer:	NA	Age Grading:	NA
Country of Destination:	Europe	Country of Origin:	CHINA

TEST INFORMATION			
Sample Submitted by:	Applicable		
Sample Status:	NA	Previous Report No.:	NA
Date of Submission:	May 11, 2018		
Test Performance Dates:	May 11, 2018 – May 18, 2018		

EXECUTIVE SUMMARY	
The submitted sample(s) MEET the following requirements requested by the client: - Migration of Certain Elements – EN 71-3:2013+A2:2017	

For and on behalf of
Modern Testing Services Co., Ltd.

Gao Jian, David
Assistant Manager, Toy Division

Modern Testing Services Co., Ltd.

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Report No:	64318-050317
Date:	May 18, 2018
Page:	2 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

COMPONENT BREAKDOWN LIST:

Test Item	Component Description
A	Fluorescent Craft Paint
A1	Flour Lemon Yellow paint
A2	Flour Golden paint
A3	Flour Orange yellow paint
A4	Flour Orange red paint
A5	Flour Scarlet paint
A6	Flour Light pink paint
A7	Flour Pink paint
A8	Flour Cohineal paint
A9	Flour Cerulean paint
A10	Flour Green paint
A11	Flour Sapphire green paint
A12	Flour Violet red paint
A13	Flour Violet purple paint
A14	Flour Rose paint
A15	Multicolor coating(on stick)
A16	Paper with glue(stick)
A17	White plastic(bottle)
A18	White plastic(bottle cap)
A19	White paper(gasket)

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Report No:	64318-050317
Date:	May 18, 2018
Page:	3 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

TEST SUMMARY:

Migration of Certain Elements – EN 71-3:2013+A2:2017

Category II: Liquid or sticky materials

Extractable Elements	Result (mg/kg)					Migration Limit (mg/kg)
Test Item	A1	A2	A3	A4	A5	-
Mass of Trace Amount (mg)	97.6	83.8	91.2	95.0	95.3	-
Aluminum (Al)	<10	<10	<10	<10	<10	1406
Antimony (Sb)	<1	<1	<1	<1	<1	11.3
Arsenic (As)	<0.5	<0.5	<0.5	<0.5	<0.5	0.9
Barium (Ba)	<10	<10	<10	<10	<10	375
Boron (B)	<100	<100	<100	<100	<100	300
Cadmium (Cd)	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Chromium (III) (Cr III)	<1	<1	<1	<1	<1	9.4
Chromium (VI) (Cr VI)	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Cobalt (Co)	<1	<1	<1	<1	<1	2.6
Copper (Cu)	<10	<10	<10	<10	<10	156
Lead (Pb)	<1	<1	<1	<1	<1	3.4
Manganese (Mn)	<10	<10	<10	<10	<10	300
Mercury (Hg)	<1	<1	<1	<1	<1	1.9
Nickel (Ni)	<1	<1	<1	<1	<1	18.8
Selenium (Se)	<1	<1	<1	<1	<1	9.4
Strontium (Sr)	<10	<10	<10	<10	<10	1125
Tin (Sn)	<0.8	<0.8	<0.8	<0.8	<0.8	3750
Organic Tin	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Zinc (Zn)	<10	<10	<10	<10	<10	938
Conclusion	PASS	PASS	PASS	PASS	PASS	-

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Report No:	64318-050317
Date:	May 18, 2018
Page:	4 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

TEST SUMMARY:

Extractable Elements	Result (mg/kg)					Migration Limit (mg/kg)
Test Item	A6	A7	A8	A9	A10	-
Mass of Trace Amount (mg)	94.4	97.8	95.7	95.8	93.3	-
Aluminum (Al)	<10	<10	<10	<10	<10	1406
Antimony (Sb)	<1	<1	<1	<1	<1	11.3
Arsenic (As)	<0.5	<0.5	<0.5	<0.5	<0.5	0.9
Barium (Ba)	<10	<10	<10	<10	<10	375
Boron (B)	<100	<100	<100	<100	<100	300
Cadmium (Cd)	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Chromium (III) (Cr III)	<1	<1	<1	<1	<1	9.4
Chromium (VI) (Cr VI)	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Cobalt (Co)	<1	<1	<1	<1	<1	2.6
Copper (Cu)	<10	<10	<10	<10	<10	156
Lead (Pb)	<1	<1	<1	<1	<1	3.4
Manganese (Mn)	<10	<10	<10	<10	<10	300
Mercury (Hg)	<1	<1	<1	<1	<1	1.9
Nickel (Ni)	<1	<1	<1	<1	<1	18.8
Selenium (Se)	<1	<1	<1	<1	<1	9.4
Strontium (Sr)	<10	<10	<10	<10	<10	1125
Tin (Sn)	<0.8	<0.8	<0.8	<0.8	<0.8	3750
Organic Tin	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Zinc (Zn)	<10	<10	<10	<10	<10	938
Conclusion	PASS	PASS	PASS	PASS	PASS	-

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Report No:	64318-050317
Date:	May 18, 2018
Page:	5 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

TEST SUMMARY:

Extractable Elements	Result (mg/kg)					Migration Limit (mg/kg)
Test Item	A11	A12	A13	A14	A16	-
Mass of Trace Amount (mg)	91.0	95.4	99.4	92.0	31.6	-
Aluminum (Al)	<10	<10	<10	<10	<10	1406
Antimony (Sb)	<1	<1	<1	<1	<1	11.3
Arsenic (As)	<0.5	<0.5	<0.5	<0.5	<0.5	0.9
Barium (Ba)	<10	<10	<10	<10	<10	375
Boron (B)	<100	<100	<100	<100	<100	300
Cadmium (Cd)	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Chromium (III) (Cr III)	<1	<1	<1	<1	<1	9.4
Chromium (VI) (Cr VI)	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Cobalt (Co)	<1	<1	<1	<1	<1	2.6
Copper (Cu)	<10	<10	<10	<10	<10	156
Lead (Pb)	<1	<1	<1	<1	<1	3.4
Manganese (Mn)	<10	<10	<10	<10	<10	300
Mercury (Hg)	<1	<1	<1	<1	<1	1.9
Nickel (Ni)	<1	<1	<1	<1	<1	18.8
Selenium (Se)	<1	<1	<1	<1	<1	9.4
Strontium (Sr)	<10	<10	<10	<10	<10	1125
Tin (Sn)	<0.8	<0.8	<0.8	<0.8	<0.8	3750
Organic Tin	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Zinc (Zn)	<10	<10	<10	<10	<10	938
Conclusion	PASS	PASS	PASS	PASS	PASS	-

Method: EN 71-3:2013+A2:2017. The heavy metals content was determined by Inductively Coupled Plasma Mass Spectrophotometer (ICP-MS). The content of Chromium (VI) was determined by Ion Chromatography Ultraviolet - Visible Spectrometer (IC-UV Vis). The content of Chromium (III) was determined by calculation. Organic tin content was determined according to Annex G of EN 71-3:2013+A2:2017 with analysis by Gas Chromatography Mass Spectrometer.

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Report No:	64318-050317
Date:	May 18, 2018
Page:	6 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

TEST SUMMARY:

Category III: Scraped-off materials

Extractable Elements	Result (mg/kg)				Migration Limit (mg/kg)
Test Item	A15	A17	A18	A19	-
Mass of Trace Amount (mg)	11.7	33.1	37.0	32.6	-
Aluminum (Al)	<10	<10	<10	<10	70000
Antimony (Sb)	<10	<10	<10	<10	560
Arsenic (As)	<10	<10	<10	<10	47
Barium (Ba)	<10	<10	<10	<10	18750
Boron (B)	<100	<100	<100	<100	15000
Cadmium (Cd)	<5	<5	<5	<5	17
Chromium (III) (Cr III)	<10	<10	<10	<10	460
Chromium (VI) (Cr VI)	<0.15	<0.15	<0.15	<0.15	0.2
Cobalt (Co)	<10	<10	<10	<10	130
Copper (Cu)	<10	<10	<10	<10	7700
Lead (Pb)	<10	<10	<10	<10	160
Manganese (Mn)	<10	<10	<10	<10	15000
Mercury (Hg)	<10	<10	<10	<10	94
Nickel (Ni)	<10	<10	<10	<10	930
Selenium (Se)	<10	<10	<10	<10	460
Strontium (Sr)	<10	<10	<10	<10	56000
Tin (Sn)	<0.8	<0.8	<0.8	<0.8	180000
Organic Tin	<3	<3	<3	<3	12
Zinc (Zn)	<10	<10	<10	<10	46000
Conclusion	PASS	PASS	PASS	PASS	-

Method: EN 71-3:2013+A2:2017. The heavy metals content was determined by Inductively Coupled Plasma Mass Spectrophotometer (ICP-MS).

For samples of migrated chromium content lower than migration limit of Chromium (VI), no speciation test for Chromium (III) and chromium (VI) were conducted. The results were derived from that of total chromium.

For samples of migrated tin content calculated as tributyl tin lower than migration limit of organic tin, no organic tin test was conducted. The results were derived from that of Tin.

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Report No:	64318-050317
Date:	May 18, 2018
Page:	7 of 7
Lab Location:	SHANG HAI

Royal Brush Test Report

TEST SUMMARY:

Remark: 1. The material categories of tested item(s) are classified as below per clause 4.1 of this standard.

Category I: Dry, brittle, power like or pliable materials
Compressed paint tablets, materials intended to leave a trace or similar materials in solid form appearing as such in the toy (e.g. the cores of colouring pencils, chalk, crayons)
Pliable modelling materials, including modelling clays and plaster
Category II: Liquid or sticky materials
Liquid paints, including finger paints, varnishes, lacquers, liquid ink in pens and similar materials in liquid form appearing as such in the toy (e.g. slimes, bubble solution)
Glue sticks
Category III: Scraped-off materials
Coatings of paints, varnishes, lacquers, printing inks, polymers, foams and similar coatings
Polymeric and similar materials, including laminates, whether textile reinforced or not, but excluding other textiles
Paper and paper board
Textiles, whether natural or synthetic
Glass, ceramic, metallic materials
Other materials whether mass coloured or not (e.g. wood, fibre board, hard board, bone and leather)

2. Result(s) of organic tin reported was / were the sum of Methyltin (MeT), Butyltin (BuT), Dibutyltin (DBT), Tributyltin (TBT), Tetraethyltin (TeBT), Monoethyltin (MOT), Di-n-octyltin (DOT), Di-n-propyltin (DProT), Diphenyltin (DPHT) and Triphenyltin (TPHT) expressed as TBT.
3. The accessibility of the submitted sample is verified according to EN71-1 before and after abuse.
4. The received sample(s) contained component(s) of less than 10mg on one single sample, therefore such component(s) was not tested for extractable heavy metals content as specified in clause 7.1 of this standard.

Note: mg/kg = milligram per kilogram
mg = milligram
“<” = less than
NA = Not applicable

****End of Test Report****

NOTE:

If there is question or concern regarding the above results, please contact us via email iyang@mts-global.com

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