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Test Report

Ref: 233983	Date work reported: 15 March 2018	Batch No: 189
Page: 1 of 4	Date work received: 8 March 2018	

Method:	Measurement of migration of elements by ICP-OES analysis (IHM 57A). The method is based on the procedures described in BS EN 71-3: 2013–[with reference to new toy safety directive 2009/48/EC as amended]
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Toy Material Type	Category		
	I	II	III
Coating of paints, varnishes, Lacquers, printing inks, polymers, foam and similar coatings and similar coatings			X
Polymeric and similar materials, including laminates whether textile reinforced or not, but excluding other textile			X
Paper and paper board			X
Textile, whether natural or synthetic			X
Glass/Ceramic/Metallic Material			X
Other materials whether mass coloured or not (e.g. wood, fibre board, hard board, bone and leather)			X
Compressed paint tablets, Material intended to leave trace or similar material in solid form appearing as such in the toy (e.g. the cores of colouring pencils, chalk crayons)	X		
Pliable modelling materials, including modelling clays and plasters	X		
Liquid Paints, including finger paints, varnishes, lacquers, liquid ink in pens and similar materials in liquid form appearing as such in the toys (e.g. glue stick, slimes, bubble solution)		X	

Interpretation of results

A measurement of an element in a sample after migration procedure shall be reported as a **Non-Compliant** when Decision Limit (DL) expressed as a concentration (mg/kg) exceeds the Limit (L) for that restricted element as defined in the reference test method (EN71-3:2013). The value of DL is calculated as below.

DL = Results (mg/kg) after migration procedure + g,

Where $g = k \cdot \% \text{ Relative uncertainty of restricted element} \cdot \text{Results (mg/kg) after migration procedure}$, with $k = 1.645$

Non – Compliant: If Decision Limit is greater than the Migration Limit proposed in EN71-3:2013 standard

Compliant: If DL Less than the Migration Limit proposed in EN71-3:2013 standard

***Explanatory note:** EN71-3:2013 specifies migratory limits for 19 elements, but Organo-tin (BAO Method 120) and Chromium VI (BAO Method 63) have only been determined if specifically requested.

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Materials Sampled (and sample weight if less than 100mg)

Customer Reference	Component Description	Component Ref.	Weight (mg)	Category	Compliance 'C'/ Non-Compliance 'NC'
Paints	Soft Sheen	1		CAT III	C
	Eggshell	2		CAT III	C
	Soft Sheen	3		CAT III	C
	Satin Varnish	4		CAT III	C
	Yellow Oxide	5		CAT III	C
	Red Oxide	6		CAT III	C
	Black	7		CAT III	C
	Stainblock	8		CAT III	C
	Limewash	9		CAT III	C
	MDF	10		CAT III	C
	EMR	11		CAT III	NC
	Algicide	12		CAT III	C

RESULT (mg/kg)

Component Ref.	As	Ba	Cd	Cr (Total)	Hg	Pb	Sb	Se	Al	B	Co	Cu	Mn	Ni	Sr	Sn	Zn	C' / 'NC'
1	ND	1.5	ND	ND	ND	ND	ND	0.2	177.1	0.1	ND	0.2	3.6	ND	9.7	ND	169.0	C
2	ND	58.2	ND	ND	ND	ND	ND	0.2	200.1	ND	ND	0.3	3.5	0.5	16.1	ND	138.6	C
3	ND	2.8	ND	ND	ND	ND	ND	ND	23.0	ND	ND	0.2	0.8	ND	1.5	ND	43.6	C
4	ND	39.2	ND	ND	ND	ND	ND	0.2	44.5	ND	ND	ND	0.4	9.8	0.7	ND	61.6	C
5	ND	1.4	ND	ND	ND	ND	ND	ND	99.1	ND	0.1	2.3	9.8	3.8	0.9	ND	198.3	C
6	ND	1.4	0.19	ND	ND	8.7	ND	ND	27.1	ND	ND	8.4	7.5	2.3	2.8	ND	604.5	C
7	ND	3.2	ND	ND	ND	2.0	ND	0.2	14.7	1.5	0.1	ND	11.9	0.5	0.7	0.4	1.6	C
8	ND	5.8	ND	ND	ND	ND	ND	ND	151.4	ND	ND	ND	0.5	4.6	3.8	0.2	12639.7	C
9	0.96	7.1	0.03	ND	ND	ND	ND	0.9	608.1	1.2	ND	ND	4.7	70.1	33.7	0.1	14.1	C
10	ND	3.9	ND	ND	ND	ND	ND	ND	197.3	ND	ND	0.2	3.3	4.3	22.7	ND	262.6	C
11	ND	3.9	ND	ND	ND	1.4	ND	ND	147.5	4.8	ND	ND	4.8	23191.5	9.8	0.5	531.1	NC
12	0.59	0.3	ND	ND	ND	ND	ND	2.6	3.4	3.9	ND	ND	ND	0.5	ND	15.3	ND	C

Note 1: C = Compliant, NC = Non-Compliant, ND = Not Detected

Note 2: For the samples whose weight was less than 100mg their toxic metal content were calculated as though the sample weight were 100mg.

Note 3: #: Arsenic (As) & Mercury (Hg) are outside the scope of UKAS accreditation if Sample size taken is less than 300mg for category II.

Note 4: All samples were adjusted to 1mol/l if kept for more than the working day.

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EN71-3:2013 - Compliance Statement interpretation (relates specifically to the above 17 elements tested – As to Zn inclusive, EXCLUDING *Organo-tin and *Chromium VI [unless specifically requested])		
Sr. No.	Sample Description	Compliant/ Non-Compliant
1	Soft Sheen	Compliant
2	Eggshell	Compliant
3	Soft Sheen	Compliant
4	Satin Varnish	Compliant
5	Yellow Oxide	Compliant
6	Red Oxide	Compliant
7	Black	Compliant
8	Stainblock	Compliant
9	Limewash	Compliant
10	MDF	Compliant
11	EMR	Non-Compliant
12	Algicide	Compliant



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Limits of element migration from toy materials

Element	EN71-3: 2013 - Migration limit (mg/kg)		
	Category I (Dry, brittle, powder like or pliable materials)	Category II (Liquid or sticky material)	Category III (Scraped of material)
Aluminium	5 625	1 406	70 000
Antimony	45	11.3	560
Arsenic	3.8	0.9	47
Barium	1 500	375	18750
Boron	1 200	300	15 000
Cadmium	1.3	0.3	17
Chromium (III)	37.5	9.4	460
*Chromium (VI)	0.02	0.005	0.2
Cobalt	10.5	2,6	130
Copper	622.5	156	7 700
Lead	13.5	3,4	160
Manganese	1 200	300	15 000
Mercury	7.5	1.9	94
Nickel	75	18,8	930
Selenium	37.5	9.4	460
Strontium	4 500	1 125	56 000
Tin	15 000	3 750	180 000
*Organic tin	0.9	0.2	12
Zinc	3 750	938	46 000

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