ANCHORCERT
ANALYTICAL

1 Moreton Street
Birmingham B1 3AX England
T: +44 (0)121 262 1005
E: testing@theassayoffice.co.uk
www.anchorcertanalytical.com

Colin Sanders
Bathgate Silica Sand Ltd
Arclid Quarry
Congleton Road
Sandbach
Cheshire
CW11 4SN

Test Report

Ref: 240904	**Date work reported: 13 July 2018**	**Batch No: 204**
Page: 1 of 3	**Date work received: 09 July 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]

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 * % Relative uncertainty of restricted element* 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.*

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

Customer Reference	Component Description	Component Ref.	Weight (mg)	Category	Compliance 'C'/ Non-Compliance 'NC'
Moist 60	Sand	1		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	6.2	ND	0.0	ND	ND	ND	ND	47.7	ND	0.1	0.4	2.1	ND	0.2	0.2	ND	C

Note1: C = Compliant, NC = Non-Compliant, ND = Not Detected
Note 2: For the samples whose weight was less then 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.

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	Moist 60	**Compliant**

Note 5: The sample was dried in an oven at 65°C overnight prior to migration testing.

T. Ryan MChem
Analytical Chemist (Lab Team Leader)

M. Papantonopoulou MSc, MRSC
Research and Development Chemist

TR 13.08

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