



**BUREAU
VERITAS**

CONSUMER PRODUCTS SERVICES DIVISION

NARA FACTORY CO., LTD.

Technical Report: (1217)023-0001_R1
Date Received: January 23, 2017

Initial Report Date: February 07, 2017
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NARA FACTORY CO., LTD.
426 ANAMAI NGAMCHAROEN ROAD., THAKHAM,
BANGKHOONTIEN BANGKOK 10150,
THAILAND

Sample Description:	POLYMER CLAY		
Manufacturer:	/	PO No.:	/
Buyer:	/	Style:	/
Country of Origin:	THAILAND	Country of Destination:	/
Color:	/	SKU No.:	/
Test Requested:	MIGRATION OF CERTAIN ELEMENTS - EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE 2009/48/EC, ANNEX II, PART III, POINT 13 WITH ITS LATEST AMENDMENT TOTAL CADMIUM CONTENT IN PLASTIC MATERIAL PHTHALATES TEST SHORT CHAIN CHLORINATED PARAFFINS (SCCPS) CONTENT	Lot No.:	/
Previous Report No.:	/	Item No.:	/

EXECUTIVE SUMMARY:

The sample(s) **MEETS** the following requirement(s):

- Migration of Certain Elements - European Parliament and Council Directive 2009/48/EC, Annex II, Part III, Point 13 with its Latest Amendment
- Total Cadmium Content in Plastic Material
- Phthalates Content
- Short Chain Chlorinated Paraffins (SCCPs) (C10 – C13) Content

REMARK(S):

- The result was transferred from BV Technical Test Report# (1217)023-0002, dated on February 07, 2017

Bureau Veritas CPS Sdn Bhd

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TEST RESULTS:

Migration of Certain Elements - European Parliament and Council Directive 2009/48/EC, Annex II, Part III, Point 13 with its Latest Amendment

Test Method : European Standard EN 71 Part 3: 2013 with Amendment A1: 2014, Section 8.

Test Item(s)	Item / Component Description(s)
1	Blue + Orange + Yellow Polymer Clay
2	White + Red + Pink Polymer Clay
3	Purple + Black + Green Polymer Clay

See Soluble Element (Parameter) and its corresponding Maximum Allowable Limit (Req.) in Result Table	Type I	Dry, brittle, powder-like or pliable toy material
	Type II	Liquid or sticky toy material
	Type III	Scraped-off toy material

-	Unit	Req.	Result		
Test Item(s)	-	-	1	2	3
Type	-	I	I	I	I
Parameter	-	-	-	-	-
Mass of Trace Amount	g	-	-	-	-
Aluminium (Al)	mg/kg	5625	ND	ND	ND
Antimony (Sb)	mg/kg	45	ND	ND	ND
Arsenic (As)	mg/kg	3.8	ND	ND	ND
Barium (Ba)	mg/kg	1500	ND	ND	ND
Boron (B)	mg/kg	1200	ND	ND	ND
Cadmium (Cd)	mg/kg	1.3	ND	ND	ND
Chromium III (Cr III)	mg/kg	37.5	ND	ND	ND
Chromium VI (Cr VI)	mg/kg	0.02	ND	ND	ND
Cobalt (Co)	mg/kg	10.5	ND	ND	ND
Copper (Cu)	mg/kg	622.5	ND	ND	ND
Lead (Pb)	mg/kg	13.5	ND	ND	ND
Manganese (Mn)	mg/kg	1200	ND	ND	ND
Mercury (Hg)	mg/kg	7.5	ND	ND	ND
Nickel (Ni)	mg/kg	75	ND	ND	ND
Selenium (Se)	mg/kg	37.5	ND	ND	ND
Strontium (Sr)	mg/kg	4500	ND	ND	ND
Tin (Sn)	mg/kg	15000	ND	ND	ND
Organic tin	mg/kg	0.9	ND	ND	ND
Zinc (Zn)	mg/kg	3750	ND	ND	ND
Conclusion	-	-	PASS	PASS	PASS



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Note / Key :

ND = Not detected

NR = Not requested

mg/kg = milligram(s) per kilogram = ppm = part(s) per million

[] = Detection Limit by In House Ion Chromatography Analysis

{ } = Detection Limit by test method with reference to EN 71 Part 3: 2013 with Amendment A1: 2014, Annex G

">" = Greater than

g = gram(s)

Req. = Requirement

INCON. = Inconclusive

Detection Limit (mg/kg) :

For Type I - Al : 562.5; Sb : 4.5; As : 0.38; Ba : 150; B : 120; Cd : 0.13; Cr III : 3.75; Cr VI : 0.005 [0.002];

Co : 1.05; Cu : 62.25; Pb : 0.2; Mn : 120; Hg : 0.75; Ni : 7.5; Se : 3.75; Sr : 450; Sn : 1 500;

Organic tin : 0.09 {0.04}; Zn : 375

For Type II - Al : 140.6; Sb : 1.13; As : 0.09; Ba : 37.5; B : 30; Cd : 0.03; Cr III : 0.94; Cr VI : 0.005 [0.002];

Co : 0.26; Cu : 15.6; Pb : 0.05; Mn : 30; Hg : 0.19; Ni : 1.88; Se : 0.94; Sr : 112.5; Sn : 375;

Organic tin : 0.02 {0.04}; Zn : 93.8

For Type III - Al : 7 000; Sb : 56; As : 4.7; Ba : 1 875; B : 1 500; Cd : 1.7; Cr III : 46; Cr VI : 0.02 [0.002];

Co : 13; Cu : 770; Pb : 2.3; Mn : 1 500; Hg : 9.4; Ni : 93; Se : 46; Sr : 5 600; Sn : 18 000; Organic tin : 1.2 {2};

Zn : 4 600

Remark :

- Results of Cr III and Cr VI were reported as sum of soluble chromium content unless further verified.
- Result(s) of organic tin was (were) calculated by assuming the soluble tin content was wholly contributed from tributyltin (TBT) cation unless further specified.



TEST RESULTS: (Continued)

Total Cadmium Content in Plastic Material - European Parliament and Council Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) with its Latest Amendment, Annex XVII, Entry 23

Test Method : With reference to U. S. EPA 3051A: 2007.

Test Item(s)	Item / Component Description(s)	Location(s)	Style(s)
I001	Orange + Purple + Blue Polymer Clay	-	-
I002	White + Yellow + Red Polymer Clay	-	-
I003	Black + Pink + Green Polymer Clay	-	-

Maximum Allowable Limit :	100 mg/kg
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-	Unit	Result		
Test Item(s)	-	I001	I002	I003
Parameter	-	-	-	-
Total Cadmium (Cd)	mg/kg	ND	ND	ND
Conclusion	-	PASS	PASS	PASS

Note / Key :

ND = Not detected ">" = Greater than
 mg/kg = milligram(s) per kilogram = ppm = part(s) per million 10 000 mg/kg = 1 %
 % = percent U. S. EPA = United States Environmental Protection Agency
 No. = Number(s)
 Detection Limit (mg/kg) : 10

Remark :

- Plastic material(s) produced from recovered polyvinyl chloride (PVC) is (are) not allowed to comply with this requirement and has (have) to comply with another total cadmium requirement with maximum allowable limit of 1 000 mg/kg.



TEST RESULTS: (Continued)

Phthalates Content

Test Method : Solvent extraction and analysis by Gas Chromatograph Mass Spectrometer (GC-MS) or Liquid Chromatograph Mass Spectrometer (LC-MS).

Test Item(s)	Item / Component Description(s)	Location(s)	Style(s)
I001	Red Polymer clay	-	-

Maximum Allowable Limit :	Each 0.1 %
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Test Item(s)	Result			Conclusion
	Detected Analyte(s)	Conc.	Unit	
I001	DEHP	0.015	%	PASS

Note / Key :

- ND = Not detected ">" = Greater than Conc. = Concentration
 % = percent 1 % = 10 000 mg/kg
 mg/kg = milligram(s) per kilogram = ppm = part(s) per million
 Detection Limit (%) : Each : 0.005

Remark :

- The list of phthalates is summarized in table of Appendix.

APPENDIX



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List of Phthalates:		
No.	Name of Analytes	CAS-No.
1	Dibutylphthalate (DBP)	84-74-2
2	Benzylbutylphthalate (BBP)	85-68-7
3	Bis-(2-ethylhexyl)phthalate (DEHP)	117-81-7
4	Di-isononylphthalate (DINP)	28553-12-0
5	Di-octylphthalate (DNOP)	117-84-0
6	Di-isodecylphthalate (DIDP)	26761-40-0
7	Diisobutyl phthalate (DIBP)	84-69-5
8	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	68515-42-4
9	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP)	71888-89-6
10	Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8
11	Dipentyl phthalate (DnPP)	131-18-0
12	N-pentyl-isopentyl phthalate (NPIPP)	776297-69-9
13	Diisopentylphthalate (DIPP)	605-50-5
14	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (DPP)	84777-06-0
15	Dihexyl phthalate (DnHP)	84-75-3

CAS-No. = Chemical Abstracts Service registry number



TEST RESULTS: (Continued)

Short Chain Chlorinated Paraffins (SCCPs) (C10 – C13) Content

Test Method : Organic solvent extraction and analysis by Gas Chromatograph Mass Spectrometer in Negative Chemical Ionization mode (GC-MS-NCI).

Tested Item(s) : 1 Black Polymer Clay

Limit :	Less than 1 500 mg/kg
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Tested Item(s)	Result	Unit	Conclusion
1	ND	mg/kg	PASS

Note:

ND = Not detected ">" = More than
mg/kg = milligram per kilogram

Detection Limit (mg/kg): 30

Note / Key :

ND = Not detected ">" = Greater than
mg/kg = milligram(s) per kilogram = ppm = part(s) per million 10 000 mg/kg = 1 %
% = percent

Detection Limit (mg/kg) : 30

Remark :

- Short chain chlorinated paraffins (SCCPs) is also known as alkanes C10-C13, chloro.
 - Plastics and leather of product(s) are applicable to be tested only.
 - Without applying to this limit, exemption can granted to:
 - (a) Conveyor belts in the mining industry and dam sealants containing SCCPs already in use before or on December 4, 2015; and
 - (b) Articles containing SCCPs other than those referred to in (a) already in use before or on July 10, 2012.
 - Test result(s) was (were) quantified by using 59 % chlorine content in SCCPs standard mixture.
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