



中国认可
国际互认
检测
TESTING
CNAS L2304

CONSUMER PRODUCTS SERVICES DIVISION

CARPENTERS MANUFACTORY LIMITED

Technical Report: (8520)020-0197
Date Received: January 22, 2020

February 24, 2020
Page 1 of 50

CARPENTERS MANUFACTORY LIMITED
HUANG JIN JI INDUSTRIAL ZONE, SHANG JIE
VILLAGE, QI SHI TOWN, DONG GUAN CITY, GUANG
DONG PROVINCE, P.R.CHINA

Sample Description: A. STEM WALL - 512 PIECE PEGS (8 COLOURS) SET I
B. STEM WALL - 512 PIECE PEGS (6 COLOURS) SET II
C. STEM WALL 512 PIECE SCREWS (MIXED COLOURS)
D. STEM WALL 256 PIECE GEOMETRIC SHAPE PEGS (8 COLOURS) - PACK I
E. STEM WALL 256 PIECE GEOMETRIC SHAPE PEGS (8 COLOURS) - PACK II
F. STEM WALL 64 PIECE GEOMETRIC SHAPE PEGS (8 COLOURS) - PACK I
G. STEM WALL 64 PIECE GEOMETRIC SHAPE PEGS (8 COLOURS) - PACK II
H. STEM WALL 39 PIECE GEARS AND CHAIN SET
I. STEM WALL - LACING PEGS AND ACCESSORIES

Vendor: CARPENTERS MANUFACTORY LIMITED 东莞天志木制品有限公司 Sample Size: 11
Manufacturer: N/A
Buyer: N/A SKN/SKU No.: N/A
Labeled Age: 3 years + PO No.: N/A
Grade: NOT REQUESTED Ref #: N/A
Appropriate Age Grade: 3+ Country of Origin: CHINA
Client Specified Age Grade: OVER 3 YEARS OF AGE Assortment No.: N/A
Tested Age Grade: 6955920012746, 6955920014450, 6955920012920, 6955920016034, 6955920014702, 6955920014818, 6955920014825, 6955920016119, 6955920014467 Country of Destination: GLOBAL
UPC Code:

Test Starting Date: JANUARY 22, 2020 Test Finished Date: FEBRUARY 24, 2020
Style No(s): ME12746(ME14450,ME12920,ME14696,ME14702,ME14818,ME14825,ME13460,ME14467),
ME14450(ME12746,ME12920,ME14696,ME14702,ME14818,ME14825,ME13460,ME14467),
ME12920(ME12746,ME14450,ME14696,ME14702,ME14818,ME14825,ME13460,ME14467),
ME14696(ME12746,ME14450,ME12920,ME14702,ME14818,ME14825,ME13460,ME14467),
ME14702(ME12746,ME14450,ME12920,ME14696,ME14818,ME14825,ME13460,ME14467),
ME14818(ME12746,ME14450,ME12920,ME14696,ME14702,ME14825,ME13460,ME14467),
ME14825(ME12746,ME14450,ME12920,ME14696,ME14702,ME14818,ME13460,ME14467),
ME13460(ME12746,ME14450,ME12920,ME14696,ME14702,ME14818,ME14825,ME14467),
ME14467(ME12746,ME14450,ME12920,ME14696,ME14702,ME14818,ME14825,ME13460)



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 2 of 50

EXECUTIVE SUMMARY:

The sample(s) MEET the following requirement(s):

- The flammability requirements of 16 CFR 1500.3(c)(6)(vi), "Flammable solid" (FHSA regulations).
- The migration of certain elements requirements of the AS/NZS Standard, "Safety of toys", AS/NZS 8124: Part 3: 2012 with Amendment No. 1: 2016.
- The flammability requirements of the AS/NZS Standard, "Safety of toys", AS/NZS 8124: Part 2: 2016.
- The labeling requirements of ASTM F963-17, "Standard consumer safety specification for toy safety".
- The mechanical hazards requirements of ASTM F963-17, "Standard consumer safety specification for toy safety".
- The soluble heavy metals content in surface coating requirements of ASTM F963-17, "Standard Consumer Safety Specification for Toy Safety," Section 4.3.5.1(2).
- The soluble heavy metals content in substrate requirements of ASTM F963-17, "Standard Consumer Safety Specification for Toy Safety," Section 4.3.5.2(2)(b).
- The applicable heavy metals content requirements for surface coatings of the Canada Consumer Product Safety Act, Toys Regulations, SOR/2011-17 Sec. 23 with Amendment in SOR/2016-195.
- The mechanical hazards requirements of the tested sections of Canada Consumer Product Safety Act, Toys Regulations, SOR/2011-17 and Schedule 2.
- The total lead content requirements of the Canada Consumer Product Safety Act, Consumer Products Containing Lead Regulations SOR/2018-83.
- The phthalates (BBP, DBP, DEHP, DINP, DIBP, DPENP, DHEXP & DCHP) content requirements of the Consumer Product Safety Improvement Act (CPSIA) of 2008 Sec. 108(a) and 108(c), 16 CFR 1307).
- The total lead content of 100ppm requirements by composite testing in substrate materials (Consumer Products Safety Improvement Act (CPSIA) of 2008).
- The total lead content of 90ppm requirements of 16 CFR 1303, "Ban of lead-containing paint and certain consumer products bearing lead-containing paint" as mandated by Congress in section 101(f) of the Consumer Products Safety Improvement Act (CPSIA) of 2008, Public Law 110-314.
- The cellulose nitrate requirements of Canada Toys Regulations, SOR/2011-17, section 21.
- The listed aromatic amines (azocolourants) content requirement of the European Regulation (EC) No. 1907/2006 of the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII concerning the Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles, Item no. 43, Points 1 and 2.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 3 of 50

EXECUTIVE SUMMARY:

The sample(s) MEET the following requirement(s):

- The BBP, DBP and DEHP content requirements of the European Regulation (EC) No. 1907/2006 of the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII concerning the Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles, Item no. 51.
- The DNOP, DINP and DIDP content requirements of the European Regulation (EC) No. 1907/2006 of the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII concerning the Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles, Item no. 52.
- The mechanical and physical properties requirements of the tested subclauses of the European Standard, "Safety of toys", EN71: Part 1:2014+A1:2018, clauses 1-7.
- The flammability requirements of the European Standard "Safety of Toys", EN 71: Part 2: 2011+ A1: 2014.
- The migration of certain elements requirements of the European Standard, "Safety of Toys", EN 71 Part 3: 2013+A3:2018.

Note: The sample(s) was not evaluated to the Normal Use testing requirements specified in ASTM F963-17, Section 8.5. It is the responsibility of the manufacturer, vendor or distributor to conduct tests that will simulate normal use conditions. These tests shall ensure that hazards are not generated through normal wear and deterioration of the sample(s). These tests shall also simulate the normal play mode of the toy and to simulate the expected mode of use of the particular toy. The tests shall be conducted in an expected use environment. These normal use tests shall simulate the intended use of the toy based on its estimated lifetime.

Note: At the request of the client, the sample(s) was evaluated for use by children 3+.

Note: The received sample(s) contained accessible component(s) of less than 10 milligrams by weight on one single sample, therefore such component(s) was not subject to migration of certain elements of European Standard, "Safety of Toys", EN 71 Part 3: 2013 + A3:2018, as specified in Clause 7.1 - Selection of test portions.

Note: The received sample(s) contained accessible component(s) of less than 10 milligrams by weight on one single sample, therefore such component(s) was not subject to migration of certain elements requirements of the AS/NZS Standard, "Safety of toys", AS/NZS 8124: Part 3: 2012 with Amendment No. 1: 2016, as specified in Clause 7 – Selection of test portions.

Note: According to the associated documents of Consumer Product Safety Improvement Act (CPSIA) of 2008, exemptions were granted to certain materials or products, such as natural materials / paper and similar materials / CMYK process printing inks / metal & alloys / electronics devices components / ordinary books / dyed & undyed textiles. Therefore, the lead content analysis of some components was not conducted.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 4 of 50

EXECUTIVE SUMMARY:

Note: The received sample(s) contained accessible material(s) of less than 10 milligrams by weight on one single sample, therefore such material(s) was not subject to the heavy metals analysis of ASTM F963-17, "Standard consumer safety specification on toy safety", Section 4.3.5.1(2) and 4.3.5.2, as specified in Section 8.3.3.6(2) and Section 8.3.5.3(2).

BUREAU VERITAS SHENZHEN CO.,LTD

Choy Hon Kwong, Adams
Senior Manager
Analytical Department

AC/ Sallyc / kg

BUREAU VERITAS SHENZHEN CO., LTD.

Sally Chan
Supervisor
Toys And Juvenile Products Department

This report shall not be reproduced except in full, without the written approval of our laboratory.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 5 of 50

RESULTS:

APPROPRIATE AGE GRADE DETERMINATION

The Appropriate Age Grade is determined with reference to the Age Determination Guidelines of the Consumer Product Safety Commission (CPSC); and the ASTM F963-17, "Standard Consumer Safety Specification for Toy Safety". Annex A1

Note : The most stringent age grade from the Labeled Age Grade and the Appropriate Age Grade will be used for testing.

Note : If the client does not specify an age grade for testing or request Bureau Veritas Consumer Products Services, Inc. to determine an appropriate age grade, the labeled age grade will be used for testing.

USE AND ABUSE TESTS

The samples were undergo the tests in accordance with section 8.6 through 8.16, whichever is applicable

Test	Test Parameters	Standard Reference
Impact Test	4 x 3 ft	1500.53(b)
Torque Test	4 in-lbs	1500.53(e)
Tension Test	15 lbs	1500.53(f)
Compression Test	30 lbs	1500.53(g)



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 6 of 50

RESULTS:

PHYSICAL AND MECHANICAL HAZARDS (ASTM F963-17)

Section	Requirement	Result
4.1	Material Quality	M
4.3.7	Stuffing Materials	N/A
4.5	Sound-Producing Toys	N/A
4.6	Small Objects	N/A
4.7	Accessible Edges	M
4.8	Projections	N/A
4.9	Accessible Points	M
4.10	Wires and Rods	N/A
4.11	Nails and Fasteners	N/A
4.12	Plastic Film	M
4.13	Folding Mechanisms and Hinges	N/A
4.14	Cords, Straps and Elastics	N/A
4.15	Stability and Over-Load Requirements	N/A
4.16	Confined Spaces	N/A
4.17	Wheels, Tires, and Axles	N/A
4.18	Holes, Clearances and Accessibility of Mechanisms	N/A
4.19	Simulated Protective Devices	N/A
4.20	Pacifiers	N/A
4.21	Projectile Toys	N/A
4.22	Teethers and Teething Toys	N/A
4.23	Rattles	N/A
4.24	Squeeze Toys	N/A
4.25	Battery-Operated Toys (exclude Section 4.25.10 Battery-powered ride-on toys & Section 4.25.11 Toys that Contain Secondary Cells or Secondary Batteries)	N/A
4.26	Toys Intended to be Attached to a Crib or Playpen	N/A
4.27	Stuffed and Beanbag-Type Toys	N/A
4.30	Toy Gun Marking	N/A
4.32	Certain Toys with Nearly Spherical Ends	N/A
4.34	Small Balls	N/A
4.35	Pompoms	N/A
4.36	Hemispheric-Shaped Objects	N/A
4.37	Yo Yo Elastic Tether Toys	N/A
4.38	Magnets	N/A
4.39	Jaw Entrapment in Handles and Steering Wheels	N/A
4.40	Expanding Materials	N/A

M = Meet NM = Not Meet N/A = Not Applicable R = Refer to Comment Section



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 7 of 50

RESULTS:

LABELING AND INSTRUCTIONAL REQUIREMENT (ASTM F963-17)

Section	Requirement	Result
5.4 & 5.3	Aquatic Toys	N/A
5.5 & 5.3	Crib and Playpen Toys	N/A
5.6 & 5.3	Mobiles	N/A
5.7 & 5.3	Stroller and Carriage Toys	N/A
5.8 & 5.3	Toys Intended to be Assembled by an Adult	N/A
5.9 & 5.3	Simulated Protective Devices	N/A
5.10 & 5.3	Toys with Functional Sharp Edges or Sharp Points	N/A
5.11	Small Objects, Small Balls, Marbles and Balloons (16 CFR 1500.19)	N/A
5.12	Toy Caps (16CFR1500.86)	N/A
5.13	Art Materials (16 CFR 1500.14(b)(8))	N/A
5.15	Battery-Operated Toys (exclude 5.15.1 and 5.15.2)	N/A
5.15.1 & 5.3	Battery-Powered Ride-On Toys	N/A
5.15.2 & 5.3	Button or Coin Cell Batteries	N/A
5.16	Promotional Materials	M
5.17 & 5.3	Magnets	N/A
6.1	Definition and Description	M
6.2	Crib and Playpen Toys	N/A
6.3	Mobiles	N/A
6.4 & 5.3	Toys Intended to be Assembled by an Adult	N/A
6.5	Battery-Operated Toys	N/A
6.6	Battery-Powered Ride-On Toys	N/A
6.7	Toys in Contact with Food	N/A
7.1	Producer's Name and Address	M
7.2	Battery-Powered Ride-on Toys	N/A

M = Meet NM = Not Meet N/A = Not Applicable R = Refer to Comment Section

FLAMMABILITY (16 CFR SECTION 1500.3(c)6)(vi))

Requirement	Test Method Reference	Findings
Burn rate no greater than 0.1 of an inch per second	16 CFR 1500.44	Did not ignite.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 8 of 50

RESULTS:

APPROPRIATE AGE GRADE DETERMINATION

The Appropriate Age Grade is recommended with reference to the Toys: Age Classification Guidelines (1998-01-13) of the Product Safety Bureau, Health Canada.

Note : The most stringent age grade from the Labeled Age Grade and the Appropriate Age Grade will be used for testing.

Note : If the client does not specify an age grade for testing or request Bureau Veritas Consumer Products Services, Inc. to determine an appropriate age grade, the labeled age grade will be used for testing.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 9 of 50

RESULTS:

CANADA CONSUMER PRODUCT SAFETY ACT, TOYS REGULATIONS, SOR/2011-17

Section	Parameter / Requirement	Result
Mechanical Hazards		
4	Flexible film bag used for package	M
7	Small Toys and Detachable component	NA
8	Metal edge	NA
9	Wires frames	NA
10	Plastic Edges	M
11	Wood	NA
12	Glass	NA
13	Nails and fasteners	M
14	Safety stops/Locking Device for Folding product	NA
15 (a, b)	Moving Mechanism	NA
15 (c)	Non- Detachable Winding Key Clearance	NA
15 (d)	Detachable Key	NA
16	Projectile Toy	NA
17	Enclosures	NA
18	Stability	NA
19	Auditory hazards	NA
Specific Products - Dolls, Plush Toys and Soft Toys		
28	Exposed Sharp Points and Edges	NA
29. (a)	Stuffing Materials shall be clean and free from vermin	NA
29. (b)	Stuffing Materials shall be free from hard and sharp foreign matter	NA
30	Squeaker, Reed and Valve	NA
31	Eyes and Nose	NA
Specific Products		
35*&36*	Plant seeds	NA
37	Pull and Push toys	NA
38*	Toys Steam engine Boilers	NA
39*	Finger Paints	NA
40(a)	Rattles – Sharp wire	NA
40(b, c)	Rattles – Impaction	NA
41	Elastic	NA
42	Yo-Yo type balls	NA
43	Magnetic force	NA
44	Educational experimental kit - Labeling	NA



RESULTS:

CANADA CONSUMER PRODUCT SAFETY ACT, SCHEDULE 2

Section	Parameter / Requirement	Result
Mechanical Hazards		
1*	Jequirity Beans	M
8*	Kites	NA
9	Kite strings	NA
14*	Lawn, darts with elongated tips	NA

*M = Meet NM = Not Meet NA = Not Applicable R = Refer to Comment Section * = Non-accredited section*

**FLAMMABILITY OF CELLULOSE NITRATE
 TOY REGULATIONS SOR/2011-17 SECTION 21**

Requirement Reference	Observation	Flammability Classification
Section 21	No Flash Effect	M

M = Meet NM-See comment = Not Meet - Refer to Comment Section NA = Not Applicable



RESULTS:

APPROPRIATE AGE GRADE DETERMINATION

The Appropriate Age Grade is determined with reference to the EN71: Part 1 : 2014 +A1:2018, CEN ISO/TR 8124-8:2016 Safety of toys - Part 8: Age Determination Guidelines prepared by Technical Committee CEN/TC 52 and Age Grade Determination Guidelines of the Consumer Product Safety Commission (CPSC).	
Note :	The most stringent age grade from the Labeled Age Grade and the Appropriate Age Grade will be used for testing.
Note :	If the client does not specify an age grade for testing or request Bureau Veritas Consumer Products Services, Inc. to determine an appropriate age grade, the labeled age grade will be used for testing.

EXPLANATION OF THE ABBREVIATIONS FOR PART 1, 2 & 6

Symbol	Explanation				
NM	The sample(s) DOES NOT MEET the requirement of this Subclause				
M	The sample(s) MEETS the requirement of this Subclause				
N/A	Not Applicable				
NR	Not Requested				
NE	Not Evaluated				
NT	Not Tested				
NP	None Present				
P	Present				
R	Refer to Comment Section of this report				
Symbol	Language Present	Symbol	Language Present	Symbol	Language Present
B	Belgian language	G	German language	PR	Portuguese language
D	Danish language	GR	Greek language	S	Spanish language
E	English language	H	Dutch language	SD	Swedish language
F	Finnish language	I	Italian language	SZ	Swiss language
FR	French language	N	Norwegian language		

RESULTS:

**MECHANICAL & PHYSICAL PROPERTIES
(EN 71: PART 1 – 2014+A1 – 2018)**

Subclause	Requirement	Result
4.1	Material cleanliness	M
4.2	Assembly	NA
4.3	Flexible plastic sheeting	NA
4.4	Toy Bags	NA
4.5	Glass	NA
4.6	Expanding materials	NA
4.7 & 7.6	Edges	M
4.8 & 7.6	Points and metallic wires	M
4.8e	Splinters	M
4.9	Protruding parts	NA
4.10.1	Folding and sliding mechanisms	NA
4.10.2	Driving mechanisms	NA
4.10.3	Hinges	NA
4.10.4	Springs	NA
4.11	Mouth actuated toys and other toys intended to be put in the mouth	NA
4.12 & 7.3	Balloons	NA
4.13 & 7.9	Cord of toy kites and other flying toys	NA
4.14.1	Toys which a child can enter	NA
4.14.2 & 7.8	Masks and helmets	NA
4.15.1	Toys propelled by child	
4.15.1.2 & 7.10.1 & 7.10.2 & 7.10.3 & 7.10.4 & 7.16	Toys propelled by child – Instructions for use	NA
4.15.1.3	Toys propelled by child – Strength	NA
4.15.1.4	Toys propelled by child – Stability	NA
4.15.1.5	Toys propelled by child – Braking	NA
4.15.1.6	Toys propelled by child - Transmission	NA
4.15.1.7	Toys propelled by child – insertion mark	NA
4.15.1.8	Electrically-driven ride-on toys	NA
4.15.2	Toy bicycles	
4.15.2.2 & 7.15	Toy bicycles – Warnings and instructions for use	NA
4.15.2.3	Toy bicycles – Braking	NA
4.15.3 & 7.16 & 7.19	Rocking horses and similar toys	NA
4.15.4 & 7.16	Toys not propelled by child	NA
4.15.5 & 7.18	Toy scooters	NA
4.16	Heavy immobile toys	NA
4.17.2	All projectiles	NA
4.17.3 & 7.7	Projectile toys with stored energy	NA
4.17.4 & 7.26	Certain projectiles toys without stored energy	NA
4.18 & 7.4	Aquatic toys and inflatable toys	NA
4.19 & 7.13 & 7.14	Percussion caps	NA

RESULTS:

**MECHANICAL & PHYSICAL PROPERTIES
(EN 71: PART 1 – 2014+A1 – 2018)**

Subclause	Requirement	Result
4.20.2.1- 4.20.2.8, 4.20.2.10, 4.20.2.12	Acoustics	NA
4.20.2.9, 4.20.2.11 & 7.14	Acoustics – percussion toys & cap-firing toys	NA
4.21	Toys containing a non-electrical heat source	NA
4.22 & 7.2	Small balls	NA
4.23	Magnet	
4.23.2 a, b & c	Toy other than magnetic / electrical experimental sets intended for children over 8 years	NA
4.23.3 & 7.20	Magnetic / electrical experimental sets intended for children over 8 years	NA
4.24	Yo-yo ball	NA
4.25	Toys attached to food	NA
4.26	Toy Disguise Costumes	NA
4.27.1	Flying toys – General	NA
4.27.2 & 7.25.1	Rotors and propellers on flying toys	NA
4.27.3 & 7.25.2	Rotors and propellers on remote controlled flying toys	NA
FOR TOYS INTENDED FOR CHILDREN UNDER 36 MONTHS		
5.1	General	NA
5.1a	Small parts – as received	NA
5.1b	Small parts, sharp points, sharp edges – after tests	NA
5.1c	Cross section <2mm metal points & wires	NA
5.1e	Toys contain glue	NA
5.1f	Casing of toys	NA
5.2	Fillings, coverings and seams	NA
5.3	Adhesion of plastic sheeting	NA
5.4.2	Cords and chains in toys intended for children under 18 months	NA
5.4.3 & 7.22	Cords and chains in toys intended for children of 18 months or over but under 36 months	NA
5.4.4	Fixed loops, tangled loops and nooses	NA
5.4.5	Cords and chains on pull along toys	NA
5.4.6 & 7.21	Electrical cables	NA
5.4.7	Cross-sectional dimension of certain cords	NA
5.4.8	Self-retracting cords	NA
5.4.9 & 7.11 & 7.23	Toys attached to or intended to be strung across a cradle, cot or perambulator	NA
5.5 & 7.12	Liquid filled toys	NA
5.6	Electrically driven toys	NA
5.7	Glass and porcelain	NA
5.8	Shape and size	NA
5.9 & 7.17	Monofilament fibres	NA
5.10	Small balls	NA
5.11	Play figures	NA
5.12	Hemispheric shaped toys	NA



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 14 of 50

RESULTS:

**MECHANICAL & PHYSICAL PROPERTIES
(EN 71: PART 1 – 2014+A1 – 2018)**

Subclause	Requirement	Result
5.13	Suction cups	NA
5.14	Straps intended to be worn fully or partially around the neck	NA
5.15 & 7.24	Sledges with cords for pulling	NA
6	Packaging	M
WARNINGS, INSTRUCTIONS FOR USE		
7.1	General	M
7.2	Toys not intended for children under 36 months	M
7.5	Functional toys	NA

RESULTS:

FLAMMABILITY (EN 71 PART 2: 2011 + A1: 2014)

Subclause	Requirement	Result
4.1	Cellulose nitrate	NP
4.1	Surface flash on a piled surface	NA
4.1	Flammable gases	NA
4.1	Extremely flammable liquids, highly flammable liquids, flammable liquids and flammable gels	NA
4.2	Toys to be worn on the head	NA
4.3	Toy disguise costumes and toys intended to be worn by child in play	NA
4.3	warning on product and packaging (10 - 30 mm/s)	NA
4.4	Toys intended to be entered by a child	NA
4.4	warning on product and packaging (10 – 30 mm/s)	NA
4.5	Soft-filled toys	NA

REQUIREMENTS & TEST METHODS CROSS REFERENCE TABLE FOR PART 2

Sub-clause	Test Method	Sub-clause	Test Method	Sub-clause	Test Method	Sub-clause	Test Method
4.2.2	5.2	4.2.4	5.3	4.3	5.4	4.5	5.5
4.2.3	5.3	4.2.5	5.4	4.4	5.4	-	-



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 16 of 50

RESULTS:

FLAMMABILITY (AS/NZS 8124.2: 2016)

Subclause	Requirement	Result
4.1	Celluloid (cellulose nitrate)	NP
4.1	Surface flash on a piled surface	NA
4.1	Flammable Gases	NA
4.1	Extremely flammable liquids, highly flammable liquids, flammable liquids and flammable gels	NA
4.2	Toys to be worn on the head	NA
4.3	Toy disguise costumes and toys intended to be worn by a child in play	NA
4.3	warning on product and packaging (10 - 30 mm/s)	NA
4.4	Toys intended to be entered by a child	NA
4.4	warning on product and packaging (10 - 30 mm/s)	NA
4.5	Soft - filled toys	NA

M = Meet NM = Not Meet N/A = Not Applicable R = Refer to Comment Section P = Present NP = Not Present



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 17 of 50

RESULTS:

PHTHALATES CONTENT IN CHILDREN'S TOYS AND CHILD CARE ARTICLES (Consumer Product Safety Improvement Act (CPSIA) of 2008, Section 108(a) and 108(c), 16 CFR 1307)

Test Method: With reference to U. S. CPSC-CH-C1001-09.3 (April 1, 2010) / CPSC-CH-C1001-09.4 (January 17, 2018).

Sample Identity	Color / Component	Location	Style
A.	Black coating	Pegs Geometric shape pegs	B E
	White coating	Geometric shape pegs	E
B.	Red plastic	Pegs Screws Geometric shape pegs	A C D,F
	Green plastic	Pegs Screws Geometric shape pegs	A C D,F
	Blue plastic	Pegs Screws Geometric shape pegs	A C D,F
C.	Black plastic	Pegs Screws Geometric shape pegs	A C D-G
	Purple plastic	Pegs Screws Geometric shape pegs	A C D,F
	Orange plastic	Pegs Screws Geometric shape pegs	A C D,F
D.	Yellow plastic	Pegs Screws Geometric shape pegs	A C D,F
	White plastic	Pegs Screws Geometric shape pegs	A-B C D-G
	Light blue plastic	Pegs Geometric shape pegs	B E,G
E.	Light green plastic	Pegs Geometric shape pegs	B E,G
	Pink plastic	Pegs Geometric shape pegs	B E,G
	Brown plastic	Pegs Geometric shape pegs	B E,G
F.	Grey plastic	Pegs Geometric shape pegs Chains	B E,G H
	Light brown plastic	Geometric shape pegs Pegs	E,G I
	Flesh plastic	Gear wheels	H
G.	Deep flesh plastic	Gear wheels	H
	Light yellow plastic	Gear wheels	H
	Soft red plastic	Gear wheels	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 18 of 50

RESULTS:

PHTHALATES CONTENT IN CHILDREN'S TOYS AND CHILD CARE ARTICLES (Consumer Product Safety Improvement Act (CPSIA) of 2008, Section 108(a) and 108(c), 16 CFR 1307)

Test Method: With reference to U. S. CPSC-CH-C1001-09.3 (April 1, 2010) / CPSC-CH-C1001-09.4 (January 17, 2018).

Sample Identity	Color / Component	Location	Style
H.	Soft orange plastic	Gear wheels	H
	Soft purple plastic	Gear wheels	H
	Soft blue plastic	Gear wheels	H
I.	Soft green plastic	Gear wheels	H
	Clear plastic	End of rope	I

Test Parameter:	Listed Phthalates (See Remark)		
Requirement:	Each 0.1%		
Sample ID	Detected Analyte	Concentration (%)	Conclusion
A.	ND	ND	PASS
B.	ND	ND	PASS
C.	ND	ND	PASS
D.	ND	ND	PASS
E.	ND	ND	PASS
F.	ND	ND	PASS
G.	ND	ND	PASS
H.	ND	ND	PASS
I.	ND	ND	PASS

Results reported in percentage

ND = None detected

Detection Limit: Each Phthalate (0.005%)

LIST OF RESTRICTED PHTHALATES		
Number	Chemical Name	CAS Number
1.	Butyl benzyl phthalate (BBP)	85-68-7
2.	Dibutyl phthalate (DBP)	84-74-2
3.	Di(2-ethylhexyl) phthalate (DEHP)	117-81-7
4.	Di-iso-nonyl phthalate (DINP)	28553-12-0 & 68515-48-0
5.	Di-iso-butyl phthalate (DIBP)	84-69-5
6.	Di-n-pentyl phthalate (DPENP or DnPP)	131-18-0
7.	Di-n-hexyl phthalate (DHEXP or DnHP)	84-75-3
8.	Dicyclohexyl phthalate (DCHP)	84-61-7



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 19 of 50

RESULTS:

BBP/DBP/DEHP CONTENTS IN TOYS AND CHILDCARE ARTICLES (European Regulation (EC) No. 1907/2006 REACH Annex XVII, Item no. 51)

Test Method: With referenced to EN 14372:2004 Section 6.3.2, sample was extracted with organic solvent and then analyzed by Gas Chromatograph Mass Spectrometer

Sample Identity	Test Component	Location	Style
A.	Black coating	Pegs Geometric shape pegs	B E
	White coating	Geometric shape pegs	E
B.	Red plastic	Pegs	A
		Screws	C
	Green plastic	Geometric shape pegs	D,F
		Pegs	A
	Blue plastic	Screws	C
		Geometric shape pegs	D,F
C.	Black plastic	Pegs	A
		Screws	C
	Purple plastic	Geometric shape pegs	D-G
		Pegs	A
	Orange plastic	Screws	C
		Geometric shape pegs	D,F
D.	Yellow plastic	Pegs	A
		Screws	C
	White plastic	Geometric shape pegs	D,F
		Pegs	A-B
	Light blue plastic	Screws	C
		Geometric shape pegs	D-G
E.	Light green plastic	Pegs	B
		Geometric shape pegs	E,G
	Pink plastic	Pegs	B
		Geometric shape pegs	E,G
	Brown plastic	Pegs	B
		Geometric shape pegs	E,G
F.	Grey plastic	Pegs	B
		Geometric shape pegs	E,G
	Light brown plastic	Chains	H
		Geometric shape pegs	E,G
	Flesh plastic	Pegs	I
		Gear wheels	H
G.	Deep flesh plastic	Gear wheels	H
	Light yellow plastic	Gear wheels	H
	Soft red plastic	Gear wheels	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 20 of 50

RESULTS:

BBP/DBP/DEHP CONTENTS IN TOYS AND CHILDCARE ARTICLES (European Regulation (EC) No. 1907/2006 REACH Annex XVII, Item no. 51)

Test Method: With referenced to EN 14372:2004 Section 6.3.2, sample was extracted with organic solvent and then analyzed by Gas Chromatograph Mass Spectrometer

Sample Identity	Test Component	Location	Style
H.	Soft orange plastic	Gear wheels	H
	Soft purple plastic	Gear wheels	H
	Soft blue plastic	Gear wheels	H
I.	Soft green plastic	Gear wheels	H
	Clear plastic	End of rope	I
J.	Deep blue coating	Gear wheels	H
K.	Bright red coating	Bright red paint	H

Test Parameter:	BBP	DBP	DEHP	Sum of three phthalates	
Limit (%):	0.1	0.1	0.1	0.1	
Sample	Result (%)				Conclusion
A.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
B.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
C.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
D.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
E.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
F.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
G.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
H.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
I.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
J.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
K.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS

Detection Limit :

BBP = Butyl benzyl phthalate (0.005%)

DBP = Dibutyl phthalate (0.005%)

DEHP = Di(2-ethylhexyl) phthalate (0.005%)

Results reported in percentage

LT = Less than

ND = None detected

RESULTS:

DNOP/DINP/DIDP CONTENTS IN TOYS AND CHILDCARE ARTICLES WHICH CAN BE PLACED IN MOUTH BY THE CHILDREN (European Regulation (EC) No. 1907/2006 REACH Annex XVII, Item no. 52)

Test Method: With referenced to EN 14372:2004 Section 6.3.2, sample was extracted with organic solvent and then analyzed by Gas Chromatograph Mass Spectrometer

Sample Identity	Test Component	Location	Style
A.	Black coating	Pegs Geometric shape pegs	B E
	White coating	Geometric shape pegs	E
B.	Red plastic	Pegs Screws Geometric shape pegs	A C D,F
	Green plastic	Pegs Screws Geometric shape pegs	A C D,F
	Blue plastic	Pegs Screws Geometric shape pegs	A C D,F
		Pegs Screws Geometric shape pegs	A C D,F
		Pegs Screws Geometric shape pegs	A C D,F
		Pegs Screws Geometric shape pegs	A C D,F
C.	Black plastic	Pegs Screws Geometric shape pegs	A C D-G
	Purple plastic	Pegs Screws Geometric shape pegs	A C D,F
	Orange plastic	Pegs Screws Geometric shape pegs	A C D,F
		Pegs Screws Geometric shape pegs	A C D,F
		Pegs Screws Geometric shape pegs	A C D,F
		Pegs Screws Geometric shape pegs	A C D,F
D.	Yellow plastic	Pegs Screws Geometric shape pegs	A C D,F
	White plastic	Pegs Screws Geometric shape pegs	A-B C D-G
	Light blue plastic	Pegs Geometric shape pegs	B E,G
		Pegs Geometric shape pegs	B E,G
		Pegs Geometric shape pegs	B E,G
		Pegs Geometric shape pegs	B E,G
E.	Light green plastic	Pegs Geometric shape pegs	B E,G
	Pink plastic	Pegs Geometric shape pegs	B E,G
	Brown plastic	Pegs Geometric shape pegs	B E,G
		Pegs Geometric shape pegs	B E,G
		Pegs Geometric shape pegs	B E,G
		Pegs Geometric shape pegs	B E,G
F.	Grey plastic	Pegs Geometric shape pegs Chains	B E,G H
	Light brown plastic	Geometric shape pegs Pegs	E,G I
	Flesh plastic	Gear wheels	H
		Gear wheels	H
		Gear wheels	H
		Gear wheels	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 22 of 50

RESULTS:

DNOP/DINP/DIDP CONTENTS IN TOYS AND CHILDCARE ARTICLES WHICH CAN BE PLACED IN MOUTH BY THE CHILDREN (European Regulation (EC) No. 1907/2006 REACH Annex XVII, Item no. 52)

Test Method: With referenced to EN 14372:2004 Section 6.3.2, sample was extracted with organic solvent and then analyzed by Gas Chromatograph Mass Spectrometer

Sample Identity	Test Component	Location	Style
H.	Soft orange plastic	Gear wheels	H
	Soft purple plastic	Gear wheels	H
	Soft blue plastic	Gear wheels	H
I.	Soft green plastic	Gear wheels	H
	Clear plastic	End of rope	I
J.	Deep blue coating	Gear wheels	H
K.	Bright red coating	Bright red paint	H

Test Parameter:	DNOP	DINP	DIDP	Sum of three phthalates	
Limit (%):	0.1	0.1	0.1	0.1	
Sample	Result (%)				Conclusion
A.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
B.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
C.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
D.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
E.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
F.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
G.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
H.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
I.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
J.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS
K.	LT 0.005	LT 0.005	LT 0.005	LT 0.015	PASS

Detection Limit :

DNOP = Di-n-octyl phthalate (0.005%)
 DINP = Di-iso-nonyl phthalate (0.005%)
 DIDP = Di-iso-decyl phthalate (0.005%)

Results reported in percentage

LT = Less than
 ND = None detected



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 23 of 50

RESULTS:

AROMATIC AMINES (AZOCOLOURANTS) CONTENT (European Regulation (EC) No. 1907/2006 REACH, Annex XVII, Item no. 43, Points 1 and 2)

Test Method: Quantification by Gas Chromatography/Mass Spectrometry (GC/MS)
Additional chromatographic technique employed to confirm positive result by HPLC/TLC

Sample ID	Color / Component	Location	Style
A.	Composite of		
	Matt red cord	Rope	I
	Matt yellow cord	Rope	I
B.	Composite of		
	Matt blue cord	Rope	I
	Matt orange cord	Rope	I
	Matt purple cord	Rope	I

Test Parameter:		Aromatic Amines (Azocolourants)		
Requirement:		30 mg/kg		
Sample ID	Test Method	Detected Amine Number	Concentration (mg/kg (ppm))	Conclusion
A.	I	-	LT 10	PASS
B.	I	-	LT 10	PASS

ND = Not Detected (Detection Limit = 10 mg/kg (ppm))

mg/kg = milligrams per kilogram

ppm = parts per million

NR = Not Requested

* = The specimen is a minor component. As only a reduced mass (< 0.5 g) could be used for the test the result may have a greater uncertainty due to lower material homogeneity

Amine No. = Refer to List of Banned Amines for the description of the detected Amine.

Test Method I = European Standard EN 14362-1: 2017, Clauses 9, 10.2 and afterwards.

Test Method II = European Standard EN 14362-1: 2017, Clauses 9, 10.1, 10.3 and afterwards.

Test Method III = International Standard ISO 17234-1: 2015.

Remark:

The list of aromatic amines in azo colorants is summarized in table of Appendix.

The CAS-number 97-56-3 (no. 5) and 99-55-8 (no. 6) are further reduced to CAS-number 95-53-4 (no. 18) and 95-80-7 (no. 19), respectively.

The colorant(s) of Test Item(s), that are able to form 4-aminoazobenzene, is (are) able to generate aniline and 1,4-phenylenediamine under the condition of Test Method.

The absence of 4-aminoazobenzene is inferred by the absence of aniline and 1,4-phenylenediamine under the condition of Test Method.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 24 of 50

RESULTS:

LIST OF BANNED AMINES		
Specified Amines		
Number	Chemical Name	CAS Number
1.	4-aminobiphenyl	92-67-1
2.	Benzidine	92-87-5
3.	4-chloro-o-toluidine	95-69-2
4.	2-naphthylamine	91-59-8
5.	o-aminoazotoluene	97-56-3
6.	5-nitro-o-toluidine	99-55-8
7.	4-chloroaniline	106-47-8
8.	4-methoxy-m-phenylenediamine	615-05-4
9.	4,4'-diaminodiphenylmethane	101-77-9
10.	3,3'-dichlorobenzidine	91-94-1
11.	3,3'-dimethoxybenzidine	119-90-4
12.	3,3'-dimethylbenzidine	119-93-7
13.	4,4'-methylenedi-o-toluidine	838-88-0
14.	p-cresidine	120-71-8
15.	4,4'-methylene-bis-(2-chloro-aniline)	101-14-4
16.	4,4'-oxydianiline	101-80-4
17.	4,4'-thiodianiline	139-65-1
18.	o-toluidine	95-53-4
19.	4-methyl-m-phenylenediamine	95-80-7
20.	2,4,5-trimethylaniline	137-17-7
21.	o-anisidine	90-04-0
22.	4-amino azobenzene	60-09-3



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 25 of 50

RESULTS:

MIGRATION OF CERTAIN ELEMENTS (European Standard EN 71 Part 3: 2013+A3:2018)

Test Method : European Standard EN 71 Part 3: 2013+A3:2018, Annex E.

Class: Category III - Scraped off toy material

Sample Identity	Color	Location	Style
A.	Black coating	Pegs Geometric shape pegs	B E
B.	White coating	Geometric shape pegs	E
C.	Red plastic	Pegs Screws Geometric shape pegs	A C D,F
D.	Green plastic	Pegs Screws Geometric shape pegs	A C D,F
E.	Blue plastic	Pegs Screws Geometric shape pegs	A C D,F
F.	Black plastic	Pegs Screws Geometric shape pegs	A C D-G
G.	Purple plastic	Pegs Screws Geometric shape pegs	A C D,F
H.	Orange plastic	Pegs Screws Geometric shape pegs	A C D,F
I.	Yellow plastic	Pegs Screws Geometric shape pegs	A C D,F
J.	White plastic	Pegs Screws Geometric shape pegs	A-B C D-G
K.	Light blue plastic	Pegs Geometric shape pegs	B E,G
L.	Light green plastic	Pegs Geometric shape pegs	B E,G
M.	Pink plastic	Pegs Geometric shape pegs	B E,G
N.	Brown plastic	Pegs Geometric shape pegs	B E,G
O.	Grey plastic	Pegs Geometric shape pegs Chains	B E,G H
P.	Light brown plastic	Geometric shape pegs Pegs	E,G I



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 26 of 50

RESULTS:

MIGRATION OF CERTAIN ELEMENTS (European Standard EN 71 Part 3: 2013+A3:2018)

Test Method : European Standard EN 71 Part 3: 2013+A3:2018, Annex E.

Class: Category III - Scraped off toy material

Sample Identity	Color	Location	Style
Q.	Flesh plastic	Gear wheels	H
R.	Deep flesh plastic	Gear wheels	H
S.	Light yellow plastic	Gear wheels	H
T.	Soft red plastic	Gear wheels	H
U.	Soft orange plastic	Gear wheels	H
V.	Soft purple plastic	Gear wheels	H
W.	Soft blue plastic	Gear wheels	H
X.	Soft green plastic	Gear wheels	H
Y.	Clear plastic	End of rope	I
Z.	Matt red cord	Rope	I
AA.	Matt yellow cord	Rope	I
AB.	Matt green cord	Rope	I
AC.	Matt blue cord	Rope	I
AD.	Matt orange cord	Rope	I
AE.	Matt purple cord	Rope	I
AF.	Bright red coating	Bright red paint	H
AG.	Light brown wood	Wooden board	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 32 of 50

RESULTS:

MIGRATION OF CERTAIN ELEMENTS (European Standard EN 71 Part 3: 2013+A3:2018)

Test Method : European Standard EN 71 Part 3: 2013+A3:2018, Annex E.

Class: Category III - Scraped off toy material

Analyte	Requirement (mg/kg)	Result (mg/kg)					
		Sample ID					
		Category III	AE.	AF.	AG.	-	-
Aluminium (Al)	70000	LT 2	LT 2	LT 2	-	-	-
Arsenic (As)	47	LT 2	LT 2	LT 2	-	-	-
Boron (B)	15000	LT 2	LT 2	LT 2	-	-	-
Barium (Ba)	18750	LT 2	LT 2	LT 2	-	-	-
Cadmium (Cd)	17	LT 2	LT 2	LT 2	-	-	-
Cobalt (Co)	130	LT 2	LT 2	LT 2	-	-	-
Chromium III (Cr III)	460	LT 0.050	LT 0.050	LT 0.050	-	-	-
Chromium VI (Cr VI)	0.2						
Copper (Cu)	7700	LT 2	LT 2	LT 2	-	-	-
Mercury (Hg)	94	LT 2	LT 2	LT 2	-	-	-
Manganese (Mn)	15000	LT 2	LT 2	LT 2	-	-	-
Nickel (Ni)	930	LT 2	LT 2	LT 2	-	-	-
Lead (Pb)	23	LT 2	LT 2	LT 2	-	-	-
Antimony (Sb)	560	LT 2	LT 2	LT 2	-	-	-
Selenium (Se)	460	LT 2	LT 2	LT 2	-	-	-
Tin (Sn)	180000	LT 2	LT 2	LT 2	-	-	-
Organic tin	12	LT 2	LT 2	LT 2	-	-	-
Strontium (Sr)	56000	LT 2	LT 2	LT 2	-	-	-
Zinc (Zn)	46000	LT 2	53	LT 2	-	-	-
Mass of trace amount (gram)			0.0856		-	-	-
Conclusion		PASS	PASS	PASS	-	-	-

mg/kg = milligrams per kilogram (ppm=parts per million) LT = Less Than

* = Average of duplicate analysis

FR = Failed Result

Organic tin = migration of total organic tin is expressed as tributyl tin cation content in mg/kg

= Verified results (see note)

Remark:

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

Note:

If soluble chromium content or soluble tin content exceeded the screening limits of soluble chromium (VI) or organic tin content, the results were verified by below method

- Chromium VI: In house Ion-chromatography analysis.
- Organic tin: EN71 part 3:2013+A3:2018, Annex G by Gas Chromatography – Mass Spectroscopy analysis.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 33 of 50

RESULTS:

APPROPRIATE AGE GRADE DETERMINATION

The Appropriate Age Grade is determined with reference to the Age-grading guidelines of the Annex A of the AS/NZS Standard, "Safety of toys", AS/NZS 8124: Part 1: 2016

Note : The most stringent age grade from the Labeled Age Grade and the Appropriate Age Grade will be used for testing.

Note : If the client does not specify an age grade for testing or request Bureau Veritas Consumer Products Services, Inc. to determine an appropriate age grade, the labeled age grade will be used for testing.

RESULTS:

MIGRATION OF CERTAIN ELEMENTS (AS/NZS 8124 Part 3: 2012 with Amendment No. 1: 2016)

Test Method: Soluble heavy metals content analysis was determined by Inductively Coupled Plasma Spectrometry.

Sample Identity	Color / Component	Location	Style
Type I: Coatings			
A.	Black coating	Pegs Geometric shape pegs	B E
B.	White coating	Geometric shape pegs	E
C.	Bright red coating	Bright red paint	H
Type II: Polymeric Materials			
D.	Red plastic	Pegs Screws Geometric shape pegs	A C D,F
E.	Green plastic	Pegs Screws Geometric shape pegs	A C D,F
F.	Blue plastic	Pegs Screws Geometric shape pegs	A C D,F
G.	Black plastic	Pegs Screws Geometric shape pegs	A C D-G
H.	Purple plastic	Pegs Screws Geometric shape pegs	A C D,F
I.	Orange plastic	Pegs Screws Geometric shape pegs	A C D,F
J.	Yellow plastic	Pegs Screws Geometric shape pegs	A C D,F
K.	White plastic	Pegs Screws Geometric shape pegs	A-B C D-G
L.	Light blue plastic	Pegs Geometric shape pegs	B E,G
M.	Light green plastic	Pegs Geometric shape pegs	B E,G
N.	Pink plastic	Pegs Geometric shape pegs	B E,G
O.	Brown plastic	Pegs Geometric shape pegs	B E,G
P.	Grey plastic	Pegs Geometric shape pegs Chains	B E,G H
Q.	Light brown plastic	Geometric shape pegs Pegs	E,G I
R.	Flesh plastic	Gear wheels	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 35 of 50

RESULTS:

MIGRATION OF CERTAIN ELEMENTS (AS/NZS 8124 Part 3: 2012 with Amendment No. 1: 2016)

Test Method: Soluble heavy metals content analysis was determined by Inductively Coupled Plasma Spectrometry.

Sample Identity	Color / Component	Location	Style
Type II: Polymeric Materials			
S.	Deep flesh plastic	Gear wheels	H
T.	Light yellow plastic	Gear wheels	H
U.	Soft red plastic	Gear wheels	H
V.	Soft orange plastic	Gear wheels	H
W.	Soft purple plastic	Gear wheels	H
X.	Soft blue plastic	Gear wheels	H
Y.	Soft green plastic	Gear wheels	H
Z.	Clear plastic	End of rope	I
Type IV: Textiles			
AA.	Matt red cord	Rope	I
AA.	Matt yellow cord	Rope	I
AB.	Matt green cord	Rope	I
AC.	Matt blue cord	Rope	I
AD.	Matt orange cord	Rope	I
AE.	Matt purple cord	Rope	I
Type VI: Other Materials Whether Mass Coloured Or Not			
AF.	Light brown wood	Wooden board	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 37 of 50

RESULTS:

MIGRATION OF CERTAIN ELEMENTS (AS/NZS 8124 Part 3: 2012 with Amendment No. 1: 2016)

Test Method: Soluble heavy metals content analysis was determined by Inductively Coupled Plasma Spectrometry.

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se
Max. Limit All except Type VIII (mg/kg)	25	1000	75	60	60	90	60	500
Max. Limit Type VIII (mg/kg)	25	250	50	25	25	90	60	500
Analytical Correction	60%	30%	30%	30%	50%	30%	60%	60%

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se	Mass of Trace Amount (g)	Conclusion
Sample	Result (mg/kg)									
T.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
U.	LT 2	3	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	0.0907	PASS
V.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
W.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
X.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
Y.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
Z.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AA.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AA.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AB.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AC.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AD.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AE.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AF.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS

mg/kg = milligrams per kilogram (ppm=parts per million)
 CR = adjusted analytical result
 LT = Less Than
 * = Average of duplicate analysis

As = Arsenic, Ba = Barium, Cd = Cadmium,
 Cr = Chromium, Hg = Mercury, Pb = Lead,
 Sb = Antimony, Se = Selenium



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 38 of 50

RESULTS:

TOTAL LEAD CONTENT IN SURFACE COATING BY COMPOSITE TESTING ("Ban of Lead-containing paint and certain consumer products bearing Lead-containing paint", Consumer Product Safety Improvement Act (CPSIA) of 2008)

Test Method: U.S. CPSC-CH-E1003.09.1:2011

Element:			Lead		Conclusion
Requirement: Maximum allowable limit:			90 mg/kg		
Sample Description			Result (mg/kg)		Conclusion
Color / Component	Location	Style	Overall	Potential	
(A) Black coating	Pegs	B	LT 10	-	PASS
White coating	Geometric shape pegs	E			
Deep blue coating	Geometric shape pegs	E			
	Gear wheels	H			

LT = Less Than

** = Average of duplicate analyses*

mg/kg = milligrams per kilogram (ppm = parts per million)

Potential = Estimated lead content per component is based on calculation by component individual weight



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 39 of 50

RESULTS:

TOTAL LEAD CONTENT IN SUBSTRATE BY COMPOSITE TESTING (100PPM) (Consumer Product Safety Improvement Act (CPSIA) of 2008)

Test Method: U.S. CPSC-CH-E1001-08.3:2012 or U.S. CPSC-CH-E1002-08.3:2012

Analyte	Lead
Requirement: Maximum allowable limit:	100 mg/kg

Analyte			Lead (Pb)		Conclusion
Sample Description			Result (mg/kg)		
Color / Component	Location	Style			
(A)	Red plastic	Pegs	A	LT 10	PASS
		Screws	C		
		Geometric shape pegs	D,F		
	Green plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
	Blue plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
(B)	Black plastic	Pegs	A	LT 10	PASS
		Screws	C		
		Geometric shape pegs	D-G		
	Purple plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
	Orange plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
(C)	Yellow plastic	Pegs	A	LT 10	PASS
		Screws	C		
		Geometric shape pegs	D,F		
	White plastic	Pegs	A-B		
		Screws	C		
		Geometric shape pegs	D-G		
	Light blue plastic	Pegs	B		
		Geometric shape pegs	E,G		
(D)	Light green plastic	Pegs	B	LT 10	PASS
		Geometric shape pegs	E,G		
	Pink plastic	Pegs	B		
		Geometric shape pegs	E,G		
	Brown plastic	Pegs	B		
		Geometric shape pegs	E,G		
(E)	Grey plastic	Pegs	B	LT 10	PASS
		Geometric shape pegs	E,G		
		Chains	H		
	Light brown plastic	Geometric shape pegs	E,G		
		Pegs	I		
		Gear wheels	H		
(F)	Deep flesh plastic	Gear wheels	H	LT 10	PASS
	Light yellow plastic	Gear wheels	H		
	Soft red plastic	Gear wheels	H		



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 40 of 50

RESULTS:

TOTAL LEAD CONTENT IN SUBSTRATE BY COMPOSITE TESTING (100PPM) (Consumer Product Safety Improvement Act (CPSIA) of 2008)

Test Method: U.S. CPSC-CH-E1001-08.3:2012 or U.S. CPSC-CH-E1002-08.3:2012

Analyte	Lead	
Requirement: Maximum allowable limit:	100 mg/kg	

Analyte			Lead (Pb)		Conclusion
Sample Description			Result (mg/kg)		
	Color / Component	Location	Style		
(G)	Soft orange plastic	Gear wheels	H	LT 10	PASS
	Soft purple plastic	Gear wheels	H		
	Soft blue plastic	Gear wheels	H		
(H)	Soft green plastic	Gear wheels	H	LT 10	PASS
	Clear plastic	End of rope	I		
(I)	Silvery metal	Bolt of knob	H	LT 10	PASS

LT = Less Than

* = Average of duplicate analyses

mg/kg = milligrams per kilogram (ppm = parts per million)



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 41 of 50

RESULTS:

SOLUBLE HEAVY METALS CONTENT IN SURFACE COATING (ASTM F963-17, Section 4.3.5.1(2))

Test Method: ASTM International Standard ASTM F963-17, Section 8.3.2 to 8.3.4

Sample Identity	Color	Location	Style
A.	Black coating	Pegs Geometric shape pegs	B E
B.	White coating	Geometric shape pegs	E

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se
Maximum Limit (mg/kg)	25	1000	75	60	60	90	60	500
Analytical Correction	60%	30%	30%	30%	50%	30%	60%	60%

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se	Mass of Trace Amount	Conclusion
Sample	Result (mg/kg)								(g)	
A.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	0.0104	PASS
B.	LT 2	3	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	0.0121	PASS

LT = Less Than

CR = adjusted analytical result

mg/kg = milligrams per kilogram (ppm=parts per million)

* = Average of duplicate analysis

As = Arsenic, Ba = Barium, Cd = Cadmium,

Cr = Chromium, Hg = Mercury, Pb = Lead,

Sb = Antimony, Se = Selenium



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 42 of 50

RESULTS:

SOLUBLE HEAVY METALS CONTENT IN SUBSTRATE (ASTM F963-17, Section 4.3.5.2(2)(b))

Test Method: ASTM International Standard ASTM F963-17, Section 8.3.5 (Excluding 8.3.5.5(3))

Sample Identity	Color	Location	Style
Type I: Substrate other than modeling clay			
A	Red plastic	Pegs Screws Geometric shape pegs	A C D,F
B	Green plastic	Pegs Screws Geometric shape pegs	A C D,F
C	Blue plastic	Pegs Screws Geometric shape pegs	A C D,F
D	Black plastic	Pegs Screws Geometric shape pegs	A C D-G
E	Purple plastic	Pegs Screws Geometric shape pegs	A C D,F
F	Orange plastic	Pegs Screws Geometric shape pegs	A C D,F
G	Yellow plastic	Pegs Screws Geometric shape pegs	A C D,F
H	White plastic	Pegs Screws Geometric shape pegs	A-B C D-G
I	Light blue plastic	Pegs Geometric shape pegs	B E,G
J	Light green plastic	Pegs Geometric shape pegs	B E,G
K	Pink plastic	Pegs Geometric shape pegs	B E,G
L	Brown plastic	Pegs Geometric shape pegs	B E,G
M	Grey plastic	Pegs Geometric shape pegs Chains	B E,G H
N	Light brown plastic	Geometric shape pegs Pegs	E,G I
O	Flesh plastic	Gear wheels	H
P	Deep flesh plastic	Gear wheels	H
Q	Light yellow plastic	Gear wheels	H
R	Soft red plastic	Gear wheels	H
S	Soft orange plastic	Gear wheels	H



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 45 of 50

RESULTS:

SOLUBLE HEAVY METALS CONTENT IN SUBSTRATE (ASTM F963-17, Section 4.3.5.2(2)(b))

Test Method: ASTM International Standard ASTM F963-17, Section 8.3.5 (Excluding 8.3.5.5(3))

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se
Max. Limit Type I (mg/kg)	25	1000	75	60	60	90	60	500
Max. Limit Type II (mg/kg)	25	250	50	25	25	90	60	500
Analytical Correction	60%	30%	30%	30%	50%	30%	60%	60%

Analyte	As	Ba	Cd	Cr	Hg	Pb	Sb	Se	Mass of Trace Amount	Conclusion
Sample	Result (mg/kg)								(g)	
Z	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AA.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AB.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS
AC.	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2	LT 2		PASS

mg/kg = milligrams per kilogram (ppm=parts per million)

CR = adjusted analytical result

LT = Less Than

ND = None Detected

As = Arsenic, Ba = Barium, Cd = Cadmium,

Cr = Chromium, Hg = Mercury, Pb = Lead,

Sb = Antimony, Se = Selenium

Detection limit (mg/kg): Each element 2

Remark:

Textiles (natural or synthetic) are exempted for lead content requirement according to clarification of Toy Industry Association for ASTM F963-17. The lead content analysis result of corresponding material herein is for client's reference only.



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 46 of 50

RESULTS:

HEAVY METALS CONTENT IN SURFACE COATING (Canada Consumer Product Safety Act - Toys Regulations, SOR/2011-17 Sec. 23 with Amendment in SOR/2016-195)

Sample Identity	Color	Location	Style
(A)	Black coating	Pegs	B
	White coating	Geometric shape pegs	E
	Deep blue coating	Geometric shape pegs	E
(B)	Deep blue coating	Gear wheels	H
	Bright red coating	Bright red paint	H

Analyte		As	Ba	Cd	Hg	Pb	Sb	Se
Maximum Limit (mg/kg)	(T)	-	-	-	ND	90	-	-
	(S)	1000	1000	1000	-	-	1000	1000

Analyte		As	Ba	Cd	Hg	Pb	Sb	Se	
	Method	Result (mg/kg)							Conclusion
(A)	(T)	LT 10	58	LT 10	ND	LT 10	LT 10	LT 10	PASS
	(S)	-	-	-	-	-	-	-	
(B)	(T)	LT 10	LT 10	LT 10	ND	LT 10	LT 10	LT 10	PASS
	(S)	-	-	-	-	-	-	-	

mg/kg = milligrams per kilogram (ppm=parts per million)

*= Average of duplicate analysis

ND = Not detected (Detection Limit = 10 mg/kg)

(T) = Total Analysis (With referenced to ASTM F963-17 Sec. 8.3)

(S) = Soluble analysis (Canada Product Safety Manual Book 5, Part-B, C-03 (2014))

LT = Less Than

As = Arsenic, Ba = Barium, Cd = Cadmium,

Hg = Mercury, Pb = Lead, Sb = Antimony,

Se = Selenium



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 47 of 50

RESULTS:

TOTAL LEAD CONTENT (Canada Consumer Product Safety Act – Consumer Products Containing Lead Regulations SOR/2018-83)

Test Method: Health Canada, Product Safety Laboratory, Reference Manual, Book 5 - Laboratory Policies and Procedures – Part B: Test Method Section, Method C-02.2:2017, C-02.3:2017 or C-02.4:2017

Analyte	Lead
Requirement: Maximum allowable limit:	90 mg/kg

Analyte			Lead (Pb)		Conclusion
Sample Description			Result (mg/kg)		
	Color / Component	Location	Style		
(A)	Black coating	Pegs	B	LT 10	PASS
		Geometric shape pegs	E		
	White coating	Geometric shape pegs	E		
	Deep blue coating	Gear wheels	H		
(B)	Red plastic	Pegs	A	LT 10	PASS
		Screws	C		
		Geometric shape pegs	D,F		
	Green plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
	Blue plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
(C)	Black plastic	Pegs	A	LT 10	PASS
		Screws	C		
		Geometric shape pegs	D-G		
	Purple plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
	Orange plastic	Pegs	A		
		Screws	C		
		Geometric shape pegs	D,F		
(D)	Yellow plastic	Pegs	A	LT 10	PASS
		Screws	C		
		Geometric shape pegs	D,F		
	White plastic	Pegs	A-B		
		Screws	C		
		Geometric shape pegs	D-G		
	Light blue plastic	Pegs	B		
		Geometric shape pegs	E,G		
	(E)	Light green plastic	Pegs		
Geometric shape pegs			E,G		
Pink plastic		Pegs	B		
		Geometric shape pegs	E,G		
Brown plastic		Pegs	B		
		Geometric shape pegs	E,G		



CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 48 of 50

RESULTS:

TOTAL LEAD CONTENT (Canada Consumer Product Safety Act – Consumer Products Containing Lead Regulations SOR/2018-83)

Test Method: Health Canada, Product Safety Laboratory, Reference Manual, Book 5 - Laboratory Policies and Procedures – Part B: Test Method Section, Method C-02.2:2017, C-02.3:2017 or C-02.4:2017

Analyte	Lead
Requirement: Maximum allowable limit:	90 mg/kg

Analyte			Lead (Pb)		Conclusion
Sample Description			Result (mg/kg)		
	Color / Component	Location	Style		
(F)	Grey plastic	Pegs	B	LT 10	PASS
		Geometric shape pegs	E,G		
		Chains	H		
	Light brown plastic	Geometric shape pegs	E,G		
		Pegs	I		
	Flesh plastic	Gear wheels	H		
(G)	Deep flesh plastic	Gear wheels	H	LT 10	PASS
	Light yellow plastic	Gear wheels	H		
	Soft red plastic	Gear wheels	H		
(H)	Soft orange plastic	Gear wheels	H	LT 10	PASS
	Soft purple plastic	Gear wheels	H		
	Soft blue plastic	Gear wheels	H		
(I)	Soft green plastic	Gear wheels	H	LT 10	PASS
	Clear plastic	End of rope	I		
(J)	Silvery metal	Bolt of knob	H	LT 10	PASS
(K)	Bright red coating	Bright red paint	H	LT 10	PASS

LT = Less Than

* = Average of duplicate analyses

mg/kg = milligrams per kilogram (ppm=parts per million)

ND= Not detected



**BUREAU
VERITAS**

CARPENTERS MANUFACTORY LIMITED

Technical Report: **(8520)020-0197**

February 24, 2020

Page 49 of 50

RESULTS:



RESULTS:



END OF REPORT