

TEST REPORT

Report No.: DPHTL2504213071E

Date: May 7,2025

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Applicant : Mid Ocean Brands B.V.**Address:** 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

The following sample(s) and sample information was/were submitted and identified by client as:

Sample Name: Wooden brain teaser**Model:** MO6990; MO6989**Vendor code:** 107978**Labeled Age Grade:** Not provided**Requested Age Grade:** Over 3 years old**Tested Age Grade:** Over 3 years old**Receiving Date:** Apr 21,2025**Test Period:** From Apr 21,2025 to Apr 30,2025**Add Information:** -

Test Summary:

#	Test Item(s)	Conclusion
1	EN 71-1:2014+A1:2018 Safety of Toys: Mechanical and Physical Properties	PASS
2	EN 71-2:2020 Safety of Toys: Flammability	PASS
3	EN 71-3:2019+A2:2024 Safety of Toys: Migration of Certain Elements	PASS
4	Item 77 of Annex XVII of REACH Regulation (EC) 1907/2006 - Formaldehyde	PASS
5	POPs European Regulation (EU) 2019/1021 Annex I - Pentachlorophenol (PCP) content	PASS

*****Please refer to the following page for detailed results*****

Authorized Signatory

Mark Mai
(Technical Director)

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#	Test Item(s)	Conclusion
6	Azo colorants content - Item 43 of Annex XVII of the REACH Regulation (EC) No 1907/2006 & amendment (EC) No 552/2009 and (EU) No 126/2013	PASS
7	Release of Nickel -Item 27 of Annex XVII of REACH Regulation (EC) 1907/2006	PASS
8	Colour Fastness to Rubbing-ISO 105-X12:2016	PASS

Result:

1. EN 71-1:2014+A1:2018 Safety of Toys: Mechanical and Physical Properties

Clause	Test Item(s)	Results
4	General requirements	
4.1	Material cleanliness	Pass
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	Edges	Pass
4.8	Points and metallic wires	Pass
4.9	Protruding parts	NA
4.10	Parts moving against each other	NA
4.11	Mouth-actuated toys and other toys intended to be put in the mouth	NA
4.12	Balloons	NA
4.13	Cords of toy kites and other flying toys	NA
4.14	Enclosures	NA
4.15	Toys intended to bear the mass of a child	NA

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4.16	Heavy immobile toys	NA
4.17	Projectile toys	NA
4.18	Aquatic toys and inflatable toys	NA
4.19	Percussion caps specifically designed for use in toys and toys using percussion caps	NA
4.20	Acoustics	NA
4.21	Toys containing a non-electrical heat source	NA
4.22	Small balls	NA
4.23	Magnets	NA
4.24	Yo-yo balls	NA
4.25	Toys attached to food	NA
4.26	Toy disguise costumes	NA
4.27	Flying toys	NA
5	Toys intended for children under 36 months	
5.1	General requirement	NA
5.2	Soft-filled toys and soft-filled parts of a toy	NA
5.3	Plastic sheeting	NA
5.4	Cords, chains and electrical cables in toys	NA
5.5	Liquid-filled toys	NA
5.6	Speed limitation of electrically-driven ride-on toys	NA
5.7	Glass and porcelain	NA
5.8	Shape and size of certain toys	NA
5.9	Toys comprising monofilament fibres	NA
5.10	Small balls	NA
5.11	Play figures	NA

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5.12	Hemispheric-shaped toys	NA
5.13	Suction cups	NA
5.14	Straps intended to be worn fully or partially around the neck	NA
5.15	Sledges with cords for pulling	NA
6	Packaging	NA
7	Warnings, markings and instructions for use	
7.1	General	Pass
7.2	Toys not intended for children under 36 months	Pass
7.3	Latex balloons	NA
7.4	Aquatic toys	NA
7.5	Functional toys	NA
7.6	Hazardous sharp functional edges and points	NA
7.7	Projectile toys	NA
7.8	Imitation protective masks and helmets	NA
7.9	Toy kites	NA
7.10	Roller skates, inline skates, skateboards and certain other ride-on toys	NA
7.11	Toys otherwise intended to be strung across a cradle, cot, or perambulator	NA
7.12	Liquid-filled teethingers	NA
7.13	Percussion caps specifically designed for use in toys	NA
7.14	Acoustics	NA
7.15	Toy bicycles	NA
7.16	Toys intended to bear the mass of a child	NA
7.17	Toys comprising monofilament fibres	NA
7.18	Toy scooters	NA

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7.19	Rocking horses and similar toys	NA
7.20	Magnetic / electrical experimental sets	NA
7.21	Toys with electrical cables exceeding 300 mm in length	NA
7.22	Toys with cords or chains intended for children of 18 months and over but under 36 months	NA
7.23	Toys intended to be attached to a cradle, cot or perambulator	NA
7.24	Sledges with cords for pulling	NA
7.25	Flying toys	NA
7.26	Improvised projectiles	NA

Remark(s): (a) NA = Not Applicable

2. EN 71-2:2020 Safety of Toys: Flammability

Clause	Test Item(s)	Results
4.1	General requirements	Pass
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
4.4	Toys intended to be entered by a child	NA
4.5	Soft-filled toys	NA

Remark(s): (a) NA = Not Applicable
(b) Except for 4.1 Flammable, highly flammable and extremely flammable gases, liquids and gelatinous bodies materials.

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3. Safety of Toys: Migration of Certain Elements

EN 71-3:2019+A2:2024

General elements determined by ICP-MS

Chromium(VI) determined by LC-ICP-MS

Organic tin determined by GC-MS

Test Item(s)		Results					Limit (mg/kg)	MDL (mg/kg)
		Category III ^{*1}						
		1	2	3	4	5		
1	Aluminum (Al)	N.D.	N.D.	N.D.	N.D.	898	28130	10
2	Antimony (Sb)	N.D.	N.D.	N.D.	N.D.	N.D.	560	2
3	Arsenic(As)	N.D.	N.D.	N.D.	N.D.	17	47	0.2
4	Barium(Ba)	N.D.	N.D.	N.D.	N.D.	N.D.	18750	10
5	Boron (B)	N.D.	N.D.	N.D.	N.D.	10	15000	10
6	Cadmium (Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	17	0.01
7	Chromium (III) (Cr)	N.D.	N.D.	N.D.	N.D.	N.D.	460	1.0
8	Chromium (VI) (Cr)	N.D.	N.D.	N.D.	N.D.	N.D.	0.053	0.005
9	Cobalt (Co)	N.D.	N.D.	N.D.	N.D.	N.D.	130	0.2
10	Copper (Cu)	N.D.	N.D.	N.D.	N.D.	N.D.	7700	10
11	Lead(Pb)	N.D.	N.D.	N.D.	N.D.	N.D.	23	0.1
12	Manganese (Mn)	N.D.	N.D.	56	N.D.	30	15000	10
13	Mercury (Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	94	0.2
14	Nickel (Ni)	N.D.	N.D.	N.D.	N.D.	N.D.	930	1.0
15	Selenium(Se)	N.D.	N.D.	N.D.	N.D.	N.D.	460	1.0
16	Strontium (Sr)	N.D.	N.D.	N.D.	N.D.	25	56000	10
17	Tin (Sn)	N.D.	N.D.	N.D.	N.D.	N.D.	180000	2.0
18	Organic tin (Sn) ^{*2}	N.D.	N.D.	N.D.	N.D.	N.D.	12	0.05
19	Zinc (Zn)	N.D.	N.D.	N.D.	N.D.	24	46000	10
-	Conclusion	PASS	PASS	PASS	PASS	PASS	-	-

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Remark(s): (a) mg/kg: milligram per kilogram = part per million = ppm
 (b) MDL: Method detected limit
 (c) N.D.: Not detected (result is less than MDL)
 *1: Categories of various materials:
 Category I: Dry, brittle, powder like or pliable material
 Category II: Liquid or sticky material
 Category III: Scraped-off material
 *2: Measured by soluble Tributyltin.

4. Item 77 of Annex XVII of REACH Regulation (EC) 1907/2006 - Formaldehyde EN 717-1:2004, determined by UV-Vis

Compound		Material		Limit (mg/m ³)	RL (mg/m ³)
		2	3		
1	Formaldehyde CAS#50-00-0	N.D.	0.017	0.062	0.005
	Conclusion	PASS	PASS	-	-

Remark: (a) mg/m³: mg per cubic meter
 (b) RL: Report limit
 (c) N.D.: Not detected (result is less than RL)

5. POPs European Regulation (EU) 2019/1021 Annex I - Pentachlorophenol (PCP) content In house method, determined by GC-MS

Test Item(s)		Result		Limit (mg/kg)	MDL (mg/kg)
		2	3		
1	Pentachlorophenol(PCP) CAS#87-86-5	N.D.	N.D.	Not Detected	5
-	Conclusion	PASS	PASS	-	-

Remark(s): (a) MDL: Method detected limit
 (b) N.D.: Not detected (result is less than MDL)
 (c) mg/kg = milligram per kilogram = ppm

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6. Azo colourants content - Item 43 of Annex XVII of REACH Regulation (EC) No 1907/2006 & amendment EC No 552/2009 and (EU) No 126/2013
ISO 14362-1:2017 & ISO 14362-3:2017, determined by GC-MS and HPLC

Test Item(s)		Result	Limit (mg/kg)	MDL (mg/kg)
		1		
1	Biphenyl-4-ylamine/4-aminobiphenyl/Xenylamine CAS#92-67-1	N.D.	30	5
2	Benzidine CAS#92-87-5	N.D.	30	5
3	4-chloro-o-toluidine CAS#95-69-2	N.D.	30	5
4	2-Naphthylamine CAS#91-59-8	N.D.	30	5
5	o-aminoazotoluene/4-o-tolylazo-o-toluidine /4-amino-2',3'-dimethylazobenzene CAS#97-56-3	N.D.	30	5
6	5-nitro-o-toluidine/2-amino-4-nitrotoluol CAS#99-55-8	N.D.	30	5
7	4-chloroaniline CAS#106-47-8	N.D.	30	5
8	4-methoxy-m-phenylenediamine/2,4-diaminoanisole CAS#615-05-4	N.D.	30	5
9	4,4'-methylenedianiline/4,4'-diaminodiphenylmethane CAS#101-77-9	N.D.	30	5
10	3,3'-dichlorobenzidine/3,3'-dichlorobiphenyl-4,4'-ylenediamine CAS#91-94-1	N.D.	30	5
11	3,3'-dimethoxybenzidine/o-dianisidine CAS#119-90-4	N.D.	30	5
12	3,3'-dimethylbenzidine/4,4'-bi-o-toluidine CAS#119-93-7	N.D.	30	5
13	4,4'-methylenedi-o-toluidine CAS#838-88-0	N.D.	30	5
14	6-methoxy-m-toluidine/p-cresidine CAS#120-71-8	N.D.	30	5
15	4,4'-methylene-bis-(2-chloro-aniline)/2,2'-dichloro-4,4'-methylene-dianiline CAS#101-14-4	N.D.	30	5
16	4,4'-oxydianiline CAS#101-80-4	N.D.	30	5
17	4,4'-thiodianiline CAS#139-65-1	N.D.	30	5
18	o-toluidine/2-aminotoluen CAS#95-53-4	N.D.	30	5

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19	2,4-diaminotoluene/2,4-toluylendiamine/ methyl-m-phenylenediamine CAS#95-80-7	N.D.	30	5
20	2,4,5-trimethylaniline CAS#137-17-7	N.D.	30	5
21	o-anisidine/2-methoxyaniline CAS#90-04-0	N.D.	30	5
22	4-aminoazobenzene** CAS#60-09-3	N.D.	30	5
-	Conclusion	PASS	-	-

Remark(s): (a) mg/kg: milligram per kilogram

(b) N.D.: Not detected (result is less than MDL)

(c) MDL: Method detected limit

*: The amines o-aminoazotoluene (No 5, CAS No.97-56-3) and 2-amino-4-nitrotoluene (No 6, CAS No.99-55-8) are further reduced to o-toluidine (No 18, CAS No. 95-53-4) and 2, 4-diaminotoluene (No 19, CAS No. 95-80-7).

**: Azo colorants that are able to form 4-aminoazobenzene (No 22, CAS No. 60-09-3) generate, under the condition of this method, aniline (CAS No. 62-53-3) and 1, 4-phenylenediamine (CAS No. 106-50-3). Due to detection limits, only aniline may be detected. If aniline is detected above 5mg/kg, then the presence of these colorants should be tested by ISO 14362-3:2017.

7. Release of Nickel -Item 27 of Annex XVII of REACH Regulation (EC) 1907/2006 EN 12472:2020&EN 1811:2023,determined by ICP-OES

Test Item(s)	Result			MDL ($\mu\text{g} \cdot \text{cm}^{-2} \cdot \text{week}^{-1}$)
	4			
	A	B	C	
Sample area (cm ²)	6.3	6.3	6.3	-
Volume of Test Solution (ml)	7	7	7	-
Result	N.D.	N.D.	N.D.	0.05
Conclusion	Pass	Pass	Pass	-

Limit :

Sample type	Annex XVII of REACH Limit ($\mu\text{g} \cdot \text{cm}^{-2} \cdot \text{week}^{-1}$)	EN 1811-2023 Limit ($\mu\text{g} \cdot \text{cm}^{-2} \cdot \text{week}^{-1}$)	
inserted into pierced ears and other pierced parts of the human body	0.2	<0.35	pass
		≥ 0.35	fail
articles intended to come into direct and prolonged contact with the skin	0.5	≤ 0.88	pass
		>0.88	fail

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Remark(s): (a) $\mu\text{g} \cdot \text{cm}^{-2} \cdot \text{week}^{-1}$:microgram per square centimeter per week
(b) MDL: Method detected limit
(c) N.D.: Not detected (result is less than MDL)

8. Colour Fastness to Rubbing - ISO 105-X12:2016

(Minimum requirement(Grade): Dry $\geq$ 4, Wet $\geq$ 3)

Sample No.	Result (Grade)	
	Dry	Wet
1	4-5	4-5

Remark(s): Grey Scale Rating is based on the 5-step of 1 to 5, where 1 is bad and 5 is good.

Material List:

Material #	Sample Description / Position
1	Beige textile,cord
2	Brown wood,block
3	Brown wood,bead
4	Silvery metal,ring
5	Black printed brown paper,box

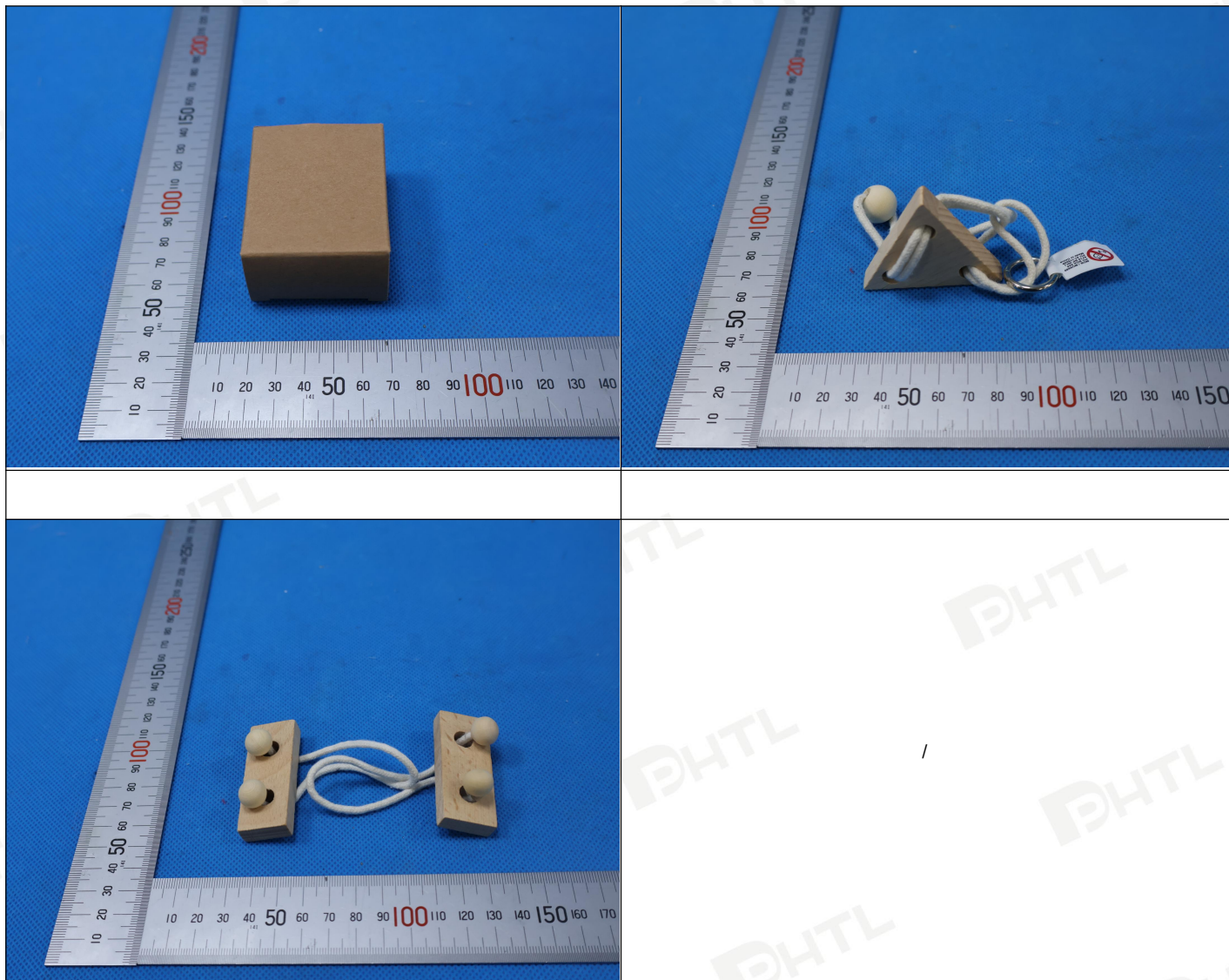
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Photo(s):



Test Sample Photo

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