

TEST REPORT

<u>APPLICANT</u>	: Mid Ocean Hong Kong Ltd.
<u>ADDRESS</u>	: 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
<u>SAMPLE DESCRIPTION</u>	: Polyester Frisbee
<u>ITEM NO.</u>	: IT3087
<u>AGE REQUESTED ON APPLICATION FORM</u>	: 3+
<u>LABELED AGE GRADE</u>	: Not suitable for children under 3 years
<u>AGE GRADE APPLIED IN TESTING</u>	: Over 3 Years
<u>SAMPLE RECEIVED DATE</u>	: 01-Nov-2019
<u>SAMPLE RESUBMISSION DATE</u>	: 08-Nov-2019
<u>TURN AROUND TIME</u>	: 01-Nov-2019 to 12-Nov-2019

The following test item(s) was/were performed on selected sample(s) and/or component(s) confirmed by applicant

TEST REQUESTED	TEST METHOD/REGULATION	RESULT
Mechanical and Physical Properties	EN71 Part 1:2014+A1:2018	Pass
Labeling Requirement	Directive 2009/48/EC	Pass
Flammability of Toys	EN71 Part 2:2011+A1:2014	Pass
Migration of Certain Elements	EN71 Part 3:2019	Pass
Banned AZO Dyes	REACH Annex XVII, Entry 43	Pass
Colourfastness to Rubbing	ISO 105-X12:2016	See Test Result
Total Cadmium Content	REACH Annex XVII, Entry 23	Pass
Phthalates Content	REACH Annex XVII, Entry 51 & 52	Pass
Polycyclic Aromatic Hydrocarbons (PAHs)	German GS Specification document: AfPS GS 2014:01 PAK (PAK=PAHs)	Pass
Benzene Content	REACH Annex XVII, Entry 5	Pass

Samples are obtained by express delivery, Results obtained refer only to samples, products or material received in Laboratory, as described in point related to sample description, and tested in conditions shown in present report. Eurofins Product Testing Service (Shanghai) Co., Ltd ensures that this job has been performed according to our Quality System and complying contract and legal conditions. If you happen to have any comments, please do it by sending email to info.sh@eurofins.com and referring to this report number. Reproduction of this document is only valid if it is done completely and under the written permission of Eurofins Product Testing Service (Shanghai) Co., Ltd. If you happen to have any complaints, please do it by sending email to chinacomplaint@eurofins.com and referring to this report number.

***** FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) *****

Signed for and on behalf of
Eurofins Product Testing Service (Shanghai) Co., Ltd



Joyce Liu
Lab Manager

SAMPLE PHOTO



EFSH19110031-CG-01

TO BE CONTINUED

COMPONENT LIST

Component No.	Component
1	Blue fabric

TO BE CONTINUED

TEST RESULT

Mechanical and Physical Properties

Test Request: As specified in European Standard on Safety of Toys EN71 Part 1:2014+A1:2018

Section	Description	Result
4	General requirements	
4.1	Material cleanliness (by visual assessment)	P
4.2	Assembly	N/A
4.3	Flexible plastic sheeting	N/A
4.4	Toy Bags	N/A
4.5	Glass	N/A
4.6	Expanding Materials	N/A
4.7	Edges	P
4.8	Points and Metallic Wires	P
4.9	Protruding parts	N/A
4.10	Parts moving against each other	
4.10.1	Folding and sliding mechanisms	N/A
4.10.2	Driving mechanisms	N/A
4.10.3	Hinges	N/A
4.10.4	Springs	N/A
4.11	Mouth-actuated toys and other toys intended to be put in the mouth	N/A
4.12	Balloons	N/A
4.13	Cords of toy kites and other flying toys	N/A
4.14	Enclosures	
4.14.1	Toys which a child can enter	N/A
4.14.2	Masks and helmets	N/A
4.15	Toys intended to bear the mass of a child	
4.15.1	Toys propelled by the child or by other means	N/A
4.15.2	Toy bicycles	N/A
4.15.3	Rocking horses and similar toys	N/A
4.15.4	Toys not propelled by a child	N/A
4.15.5	Toys scooters	N/A
4.16	Heavy immobile toys	N/A
4.17	Projectiles	P
4.17.1	General	N/A
4.17.2	All projectiles	N/A
4.17.3	Projectile toy with stored energy	N/A
4.17.4	Certain projectile toys without stored energy	N/A
4.18	Aquatic toys and inflatable toys	N/A
4.19	Percussion caps specifically designed for use in toys and toys using percussion caps	N/A
4.20	Acoustics	
4.20.2.1	General	N/A
4.20.2.2	Close-to-the-ear toys	N/A
4.20.2.3	Table-top or floor toys	N/A
4.20.2.4	Hand-held toys	N/A
4.20.2.5	Toys using headphones or earphones	N/A
4.20.2.6	Rattles	N/A
4.20.2.7	Squeeze toys	N/A
4.20.2.8	Pull-along or push toys	N/A
4.20.2.9	Percussion toys	N/A
4.20.2.10	Wind toys	N/A

TEST RESULT

Section	Description	Result
4.20.2.11	Cap-firing toys	N/A
4.20.2.12	Voice toys	N/A
4.21	Toys containing a non-electrical heat source	N/A
4.22	Small balls	N/A
4.23	Magnets	N/A
4.24	Yo-yo balls	N/A
4.25	Toys attached to food	N/A
4.26	Toy disguise costumes	N/A
4.27	Flying toys	N/A
4.27.1	General	N/A
4.27.2	Rotors and propellers on flying toys	N/A
4.27.3	Rotors and propellers on remote controlled flying toys	N/A
5	Toys intended for children under 36 months	
5.1	General requirements	N/A
5.2	Soft-filled toys and soft-filled parts of a toy	N/A
5.3	Plastic sheeting	N/A
5.4	Cords, chains and electrical cables in toys	N/A
5.5	Liquid-filled toys	N/A
5.6	Speed limitation of electrically-driven ride-on toys	N/A
5.7	Glass and porcelain	N/A
5.8	Shape and size of certain toys	N/A
5.9	Toys comprising monofilament fibres	N/A
5.10	Small balls	N/A
5.11	Play figures	N/A
5.12	Hemispheric-shaped toys	N/A
5.13	Suction cups	N/A
5.14	Straps intended to be worn fully or partially around the neck	N/A
5.15	Sledges with cords for pulling	N/A
6	Packaging	N/A
7	Warnings, markings and instructions for use	
7.1	General	N/A
7.2	Toys not intended for children under 36 months	N/A
7.3	Latex Balloons	N/A
7.4	Aquatic toys	N/A
7.5	Functional Toys	N/A
7.6	Hazardous sharp functional edges and points	N/A
7.7	Projectiles toys	N/A
7.8	Imitation protective masks and helmets	N/A
7.9	Toy kites	N/A
7.10	Roller skates, inline skates, skateboards and certain other ride-on toys	N/A
7.11	Toys intended to be strung across a cradle, cot, or perambulator	N/A
7.12	Liquid-filled teethers	N/A
7.13	Percussion caps specifically designed for use in toys	N/A
7.14	Acoustics	N/A
7.15	Toys bicycles	N/A
7.16	Toys intended to bear the mass of a child	N/A
7.17	Toys comprising monofilament fibres	N/A
7.18	Toy scooters	N/A
7.19	Rocking horses and similar toys	N/A
7.20	Magnetic/electrical experimental sets	N/A
7.21	Toy with electrical cables exceeding 300mm in length	N/A
7.22	Toys with cords or chains intended for children of 18 months and over	N/A

TEST RESULT

Section	Description	Result
	but under 36 months	
7.23	Toys intended to be attached to a cradle, cot or perambulator	N/A
7.24	Sledges with cords for pulling	N/A
7.25	Flying toys	N/A
7.25.1	Flying toys	N/A
7.25.2	Remote controlled flying toys	N/A
7.26	Improvised projectiles	N/A

Remark:

P – Pass

N/A – Not Applicable

TO BE CONTINUED

TEST RESULT

Labeling Requirement

Test Request: Labeling requirement including Washing/Cleaning instruction, CE mark, importer / manufacturer name and address, product identification as specified in Directive 2009/48/EC – Safety of toys

Labeling Content	Observation Result	Location	Conclusion
Washing/Cleaning Instruction	Not Applicable	-	-
CE Mark	Present, Correct form, CE marking (height >5 mm)	Packaging	Pass
Importer's Name & Address	Present	Packaging	Pass
Manufacturer's Name & Address	Present	Packaging	Pass
Product ID	Present	Packaging	Pass

Flammability of Toys

Test Request: As specified in European Standard on Safety of Toys EN71 Part 2:2011+A1:2014

Section	Description	Result
4	Requirements	
4.1	General Requirements	P
4.2	Toys to be worn on the head	N/A
4.3	Toy disguise costumes and toys intended to be worn by a child in play	N/A
4.4	Toys intended to be entered by a child.	N/A
4.5	Soft-filled toys (animals and dolls, etc) (Sample was not tested if its maximum dimension is 150mm or less.)	N/A

Remark:

P – Pass

N/A – Not Applicable

TO BE CONTINUED

TEST RESULT

Migration of Certain Elements

Test Request: Migration of certain elements as specified in European Standard on Safety of Toys EN71 Part 3:2019

Test Method: General elements, with reference to EN 71 Part 3:2019, analysis was performed by ICP-MS; Extractable Chromium (VI), with reference to EN 71 Part 3:2019, analysis was performed by IC-ICP-MS; Extractable organic tin, with reference to EN 71 Part 3:2019, analysis was performed by GC-MS.

Test Item(s):	Unit	Result
		1
Category Type		III
Extractable Lead (Pb)	mg/kg	ND
Extractable Antimony (Sb)	mg/kg	ND
Extractable Arsenic (As)	mg/kg	ND
Extractable Barium (Ba)	mg/kg	ND
Extractable Cadmium (Cd)	mg/kg	ND
Extractable Mercury (Hg)	mg/kg	ND
Extractable Selenium (Se)	mg/kg	ND
Extractable Boron (B)	mg/kg	ND
Extractable Cobalt (Co)	mg/kg	ND
Extractable Manganese (Mn)	mg/kg	ND
Extractable Strontium (Sr)	mg/kg	ND
Extractable Zinc (Zn)	mg/kg	ND
Extractable Copper (Cu)	mg/kg	ND
Extractable Aluminum (Al)	mg/kg	ND
Extractable Nickel (Ni)	mg/kg	ND
Extractable Tin (Sn)	mg/kg	ND
Extractable Organic Tin#1	mg/kg	ND
Extractable Chromium#2	mg/kg	-
Extractable Chromium (III) (Cr III)#3	mg/kg	ND
Extractable Chromium (VI) (Cr VI)	mg/kg	ND

Note:

- #1 - Result of Organic Tin is calculated by assuming the extractable Tin content is wholly contributed from tributyltin (TBT) cation unless further specified.
- #2 - If the migration of total Chromium is below the maximum limit for Chromium (VI), it can be inferred that the material complies with the requirements for both Chromium(III) and Chromium(VI).
- #3 - In particular Chromium (III) is calculated by subtracting the Chromium (VI) concentration from the total chromium concentration.

Remarks:

mg/kg = milligram per kilogram

MDL = Method Detection Limit

ND = Not Detected, less than MDL

As per client's request, only the appointed materials have been tested.

TO BE CONTINUED

TEST RESULT

Limits –MDL per category type:

Test Item(s):	Unit	Limit	MDL	Limit	MDL	Limit	MDL
Category Type		I		II		III	
Extractable Lead (Pb)	mg/kg	2.0	1.0	0.5	0.2	23	10
Extractable Antimony (Sb)	mg/kg	45	5	11.3	1	560	10
Extractable Arsenic (As)	mg/kg	3.8	0.2	0.9	0.1	47	5
Extractable Barium (Ba)	mg/kg	1500	50	375	10	18750	50
Extractable Cadmium (Cd)	mg/kg	1.3	0.1	0.3	0.05	17	1
Extractable Mercury (Hg)	mg/kg	7.5	0.5	1.9	0.2	94	10
Extractable Selenium (Se)	mg/kg	37.5	2	9.4	1	460	10
Extractable Boron (B)	mg/kg	1200	50	300	10	15000	50
Extractable Cobalt (Co)	mg/kg	10.5	1	2.6	0.2	130	10
Extractable Manganese (Mn)	mg/kg	1200	50	300	10	15000	50
Extractable Strontium (Sr)	mg/kg	4500	50	1125	50	56000	50
Extractable Zinc (Zn)	mg/kg	3750	50	938	50	46000	50
Extractable Copper (Cu)	mg/kg	622.5	10	156	10	7700	50
Extractable Aluminum (Al)	mg/kg	5625	50	1406	50	70000	50
Extractable Nickel (Ni)	mg/kg	75	5	18.8	2	930	10
Extractable Tin (Sn)	mg/kg	15000	50	3750	50	180000	50
Extractable Organic Tin	mg/kg	0.9	0.2	0.2	0.2	12	0.2
Extractable Chromium	mg/kg	-	0.02	-	0.005	-	0.02
Extractable Chromium (III) (Cr III)	mg/kg	37.5	2	9.4	1	460	10
Extractable Chromium (VI) (Cr VI)	mg/kg	0.02	0.02	0.005	0.005	0.2 / 0.053*	0.02

Category I: dry, brittle, powder-like or pliable toy material

Category II: liquid or sticky toy material

Category III: scrapped-off toy material

"-" = Not Regulated

*: The migration limit for Chromium (VI) for Category III has been amended by Commission Directive (EU) 2018/725. The new limit value (0.053 mg/kg) applies from 2019-11-18. Before this date the limit value 0.2 mg/kg applies.

TO BE CONTINUED

TEST RESULT

Banned AZO Dyes

Test Request: Banned AZO dyes as specified in entry 43 of annex XVII of REACH Regulation (EC) No 1907/2006.

Test Method: EN ISO 14362-1:2017

Tested Item(s)	CAS No.	Unit	Limit	MDL	Result
					1
4-Aminobiphenyl	92-67-1	mg/kg	30	5	ND
4,4'-Benzidine	92-87-5	mg/kg	30	5	ND
4-Chloro-2-methylaniline	95-69-2	mg/kg	30	5	ND
2-Naphthylamine	91-59-8	mg/kg	30	5	ND
o-Aminoazotoluene (Note 1)	97-56-3	mg/kg	30	5	ND
5-Nitro-o-toluidine (Note 2)	99-55-8	mg/kg	30	5	ND
4-Chloroaniline	106-47-8	mg/kg	30	5	ND
4-Methoxy-1,3-phenylenediamine	615-05-4	mg/kg	30	5	ND
Bis-(4-aminophenyl)methane	101-77-9	mg/kg	30	5	ND
3,3'-Dichlorobenzidine	91-94-1	mg/kg	30	5	ND
3,3'-Dimethoxybenzidine	119-90-4	mg/kg	30	5	ND
3,3'-Dimethylbenzidine	119-93-7	mg/kg	30	5	ND
3,3'-Dimethyl-4,4'- diaminodiphenylmethane	838-88-0	mg/kg	30	5	ND
2-Methoxy-5-methylaniline	120-71-8	mg/kg	30	5	ND
4,4'-Methylene bis(o-chloroaniline)	101-14-4	mg/kg	30	5	ND
4,4'-Oxydianiline	101-80-4	mg/kg	30	5	ND
4,4'-Thiodianiline	139-65-1	mg/kg	30	5	ND
o-Toluidine	95-53-4	mg/kg	30	5	ND
2,4-Diaminotoluene	95-80-7	mg/kg	30	5	ND
2,4,5-Trimethylaniline	137-17-7	mg/kg	30	5	ND
o-Anisidine	90-04-0	mg/kg	30	5	ND
4-Amino-azobenzene (Note 3)	60-09-3	mg/kg	30	5	ND

Remark:

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

Note 1: o-Aminoazotoluene(CAS No.:97-56-3) is reduced to o-Toluidine(CAS No.:95-53-4) and quantified by this.

Note 2: 5-Nitro-o-toluidine(CAS No.:99-55-8) is reduced to 4-Methyl-m-phenylene Diamine (CAS No.:95-80-7) and quantified by this.

Note 3: 4-Amino-azobenzene(CAS No.:60-09-3) is reduced to aniline and 1,4-phenylenediamine. Need further confirmation when aniline and 1,4-phenylenediamine are detected.

As per client's request, only the appointed materials have been tested.

TO BE CONTINUED

TEST RESULT

Colourfastness to Rubbing

ISO 105-X12:2016

	1	Requirement:
Lengthwise		
Dry	4-5	/
Wet	4-5	/

Remark:

Grey Scale for Assessing Colour Change/Staining

Grade 5 negligible or no change or staining

Grade 4 slightly changed or stained

Grade 3 noticeably changed or stained

Grade 2 considerably changed or stained

Grade 1 much changed or stained

As per client's request, only the appointed materials have been tested.

TO BE CONTINUED

TEST RESULT

Total Cadmium Content

Test Request: Total cadmium content as specified in Commission Regulation (EU) 2016/217 amending entry 23 of Annex XVII of REACH Regulation (EC) No 1907/2006.

Test Method: EPA 3050B:1996, EPA 3052:1996, EN 1122:2001 Method B, acid digestion method was used and total cadmium content was determined by ICP-OES.

Tested Item(s)	Unit	Limit	MDL	Result
				1
Total Cadmium(Cd)	%	0.01	0.0005	ND

Remark:

MDL = method detection limit

ND = Not detected, less than MDL

TO BE CONTINUED

TEST RESULT

Phthalates Content

Test Request: Phthalates content as specified in entry 51&52 of annex XVII of REACH Regulation (EC) No 1907/2006 and its amendment Commission Regulation (EU) 2018/2005.

Test Method: EPA 3550C:2007, EPA 8270E:2018, solvent extraction and quantification by GC-MS.

Tested Item(s)	CAS No.	Unit	Limit	MDL	Result
					1
Dibutylphthalate (DBP)	84-74-2	%	-	0.005	ND
Benzylbutylphthalate (BBP)	85-68-7	%	-	0.005	ND
Diethylhexylphthalate (DEHP)	117-81-7	%	-	0.005	ND
Diisobutylphthalate (DIBP)	84-69-5	%	-	0.005	ND
Sum (DBP + BBP + DEHP + DIBP)	-	%	0.1	-	ND
Di-n-octylphthalate (DNOP)	117-84-0	%	-	0.005	ND
Diisononylphthalate (DINP)	28553-12-0	%	-	0.005	ND
Diisodecylphthalate (DIDP)	26761-40-0	%	-	0.005	ND
Sum (DNOP + DINP + DIDP)	-	%	0.1	-	ND

Remark:

MDL = method detection limit

ND = Not detected, less than MDL

TO BE CONTINUED

TEST RESULT

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Request: 18 Polycyclic Aromatic Hydrocarbons in polymers (PAHs) according to German GS Specification document: AfPS GS 2014:01 PAK (PAK=PAHs)
 Test Method: Solvent extraction and quantification by gas chromatography-mass selective detection (GC-MS) with respect to AfPS GS 2014:01 PAK (PAK=PAHs) requirement
 Requirement: AfPS GS 2014:01 PAK (PAK=PAHs) requirement: Limits for PAHs in Toys under Directive 2009/48/EC and Other products under ProdSG, see table 1 on next page(s):

Parameter	CAS No.	Unit	Result
			1
Benzo(a)pyrene	50-32-8	mg/kg	ND
Benzo(e)pyrene	192-97-2	mg/kg	ND
Benzo(a)anthracene	56-55-3	mg/kg	ND
Benzo(b)fluoranthene	205-99-2	mg/kg	ND
Benzo(j)fluoranthene	205-82-3	mg/kg	ND
Benzo(k)fluoranthene	207-08-9	mg/kg	ND
Chrysene	218-01-9	mg/kg	ND
Dibenzo(a,h)anthracene	53-70-3	mg/kg	ND
Benzo(ghi)perylene	191-24-2	mg/kg	ND
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	ND
Sum of Acenaphthene, Acenaphthylene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	-	mg/kg	ND
Naphthalene	91-20-3	mg/kg	ND
Sum 18 PAHs	-	mg/kg	ND
Conclusion:	For Category 1		Pass

Remark:

mg/kg = milligram per kilogram

ND = not detected, less than 0.2 mg/kg

TO BE CONTINUED

TEST RESULT

Table 1

AfPS GS 2014:01 PAK (PAK=PAHs) requirement: Limits for PAHs in Toys under Directive 2009/48/EC and Other products under ProdSG.

Parameter	Unit	Category 1 Materials indented to be put in the mouth, or materials of toys intended long term skin contact (longer than 30s)	Category 2 Materials not covered by category 1, with foreseeable skin contact for longer than 30 seconds (long-term skin contact) or repeated short-term skin contact		Category 3 Materials not covered by category 1 or 2 with foreseeable skin contact up to 30 seconds (short term skin contact)	
		-	Toys under Directive 2009/48/EC	Other products under ProdSG	Toys under Directive 2009/48/EC	Other products under ProdSG
Benzo(a)pyrene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Benzo(e)pyrene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Benzo(a)anthracene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Benzo(b)fluoranthene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Benzo(j)fluoranthene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Benzo(k)fluoranthene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Chrysene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Dibenzo(a,h)anthracene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Benzo(ghi)perylene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Indeno(1,2,3-cd)pyrene	mg/kg	<0.2	<0.2	<0.5	<0.5	<1
Acenaphthene, Acenaphthylene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	mg/kg	<1 Sum*	<5 Sum*	<10 Sum*	<20 Sum*	<50 Sum*
Naphthalene	mg/kg	<1	<2		<10	
Sum* 18 PAHs	mg/kg	<1	<5	<10	<20	<50

* = Only those PAH components are taken into account, which have been specified in the material over the 0.2 mg/kg.

TO BE CONTINUED

TEST RESULT

Benzene Content

Test Request: Benzene content as specified in entry 5 of annex XVII of REACH Regulation (EC) No 1907/2006 and its amendment Regulation (EU) 2015/1494.

Test Method: EPA 3550C:2007, EPA 8270E:2018, solvent extraction and quantification by GC-MS.

Tested Item(s)	CAS No.	Unit	Limit	MDL	Result
					1
Benzene	71-43-2	mg/kg	5	5	ND

Remark:

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

END OF THE REPORT