

ICS

Q/LNB

Enterprise standard of Li Ning Co., Ltd

Q/LNB 8001-2014
Replacing Q/LNG 8001-2012A

Safety technical requirement for
footwear, apparel and accessories

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Li Ning (China) Sports Goods Co., Ltd publish

Foreword

Appendix A is normative reference.

The standard replaces Q/LNB 8001-2012A. Compared with the previous one, this new standard has the following main differences:

- Added extractable heavy metals mercury, antimony, arsenic, chromium, cobalt and copper requirements for infant product testing
- Modified requirement of Phthalates, from 1000mg/kg to 500mg/kg
- Modified the pH value of natural leather products, from 4.0~7.5 to 3.5~7.5
- Modified requirement of AP/APEO, from NP+OP \leq 100mg/kg to NP\OP each \leq 10mg/kg, from NPEO+OPEO \leq 1000mg/kg to NPEO\OPEO each \leq 100mg/kg
- Added two PAHs: Benzo[e]pyrene (192-97-2) and Benzo[j]fluoranthene (205-82-3)
- Deleted EN ISO 17353 Water quality - Determination of selected organotin compounds-Gas chromatographic method
- Deleted ISO 18287 Soil quality - Determination of polycyclic aromatic hydrocarbons (PAH) - Gas chromatographic method with mass spectrometric detection (GC-MS)
- Added GB/T 29439.3-2013 Determination of harmful substances in textile dyeing and finishing auxiliaries-Part3: Determination of organotins - GC/MS method
- Added GB/T 28189-2011 Textiles - Determination of polycyclic aromatic hydrocarbons
- Deleted clause of " Requirement on PVC is limited to footwear and fabric currently. PVC in printing and accessories will be eliminated gradually "
- Added testing of pH value and Azo dyes as requirement for printing and bronzing in Table 3
- Added testing of extractable heavy metals as requirement for infant products printing and bronzing in Table 3

The standard was put forward by Li Ning (China) Sports Goods Co. Ltd.

The standard was under the jurisdiction of Li Ning company Standardization Technical Committee.

Li Ning Company Standardization Technical Committee keeps the rights for explanation.

The standard was drafted by Quality management center, Environmental protection and social responsibility.

The main drafters are: Mingming Xu, Desheng Zhang, Zhirong Wu, Jieyi Miao and Jianping Jing.

Safety technical requirement for footwear, apparel and accessories

1 Scope

The standard specifies terminology and definition of footwear, apparel and accessories, the Restricted Substance List (RSL) requirements and test methods, sampling and judgement rules.

The standard applies to all the brands' products belonging to Li Ning Group.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest version of the referenced document (including any amendments) applies.

EPA 3050B Acid digestion of sediments, sludges and soils

EPA 8020A Aromatic volatile organics by gas chromatography

GB/T 2912.1 Textiles - Determination of formaldehyde Part 1: Free and hydrolyzed formaldehyde (Water extraction method)

GB/T 7573 Textiles - Determination of pH of aqueous extract

GB/T 17592 Textiles - Determination of the banned azo colorants

GB/T 17593 (All Parts) Textiles - Determination of heavy metals

GB/T 18414 (All Parts) Textiles - Determination of the content of chlorinated phenols

GB/T 19941 Leather and Fur - Chemical tests - Determination of formaldehyde content

GB/T 19942 Leather and Fur - Chemical tests - Determination of banned azo colorants

GB/T 20383 Textile - Determination of allergenic disperse dyes

GB/T 20386 Textiles - Determination of the content of ortho-phenylphenol

GB/T 20387 Textiles - Determination of polychlorinated biphenyls

GB/T 20388 Textiles - Determination of phthalates

GB/T 22048 Toys and children's products - Determination of phthalate plasticizers in polyvinyl chloride plastic

GB/T 22866 Leather hardware accessory - Determination of release of nickel

GB/T 22930 Leather and fur - Chemical tests - Determination of heavy metal content

GB/T 23344 Textiles - Determination of 4-aminoazobenzene

GB/T 23345 Textiles - Determination of dyestuffs of disperse yellow 23 and disperse orange 149

GB/T 24153 Rubber and elastomer materials - Determination of N-nitrosamines

GB/T 24279 Textiles - Determination of the banned/limited flame retardants

GB/T 26713-2011 Footwear - Chemical tests - Determination of dimethyl fumarate (DMF)

GB/T 28189-2011 Textiles - Determination of polycyclic aromatic hydrocarbons

GB/T 28190-2011 Textiles - Determination of dimethyl fumarate
 GB/T 29439.3-2013 Determination of harmful substances in textile dyeing and finishing auxiliaries-Part3: Determination of organotins - GC/MS method
 ISO 17075 Leather - Chemical tests - Determination of chromium (VI) content
 ZEK 01.4-08 Testing and validation of polycyclic aromatic hydrocarbons (PAH)

3 Terminology and Definition

The below terminology and definition are applicable to this standard.

3.1 Infant: baby and child with age under 36 months or height under 100 cm.

4 The requirement and test method of Restricted Substance List.

4.1 Requirements and test method (Table 1)

Table 1

No	Testing Items	Requirements	Test Method	
1	Heavy metal(extractable) ≤	Arsenic (As)	Infant: 0.2 mg/kg Footwear: 1.0 mg/kg	Textile: GB/T 17593 (All Parts) Leather: GB/T 22930
		Cadmium (Cd)	Infant: 0.1 mg/kg Footwear: 0.1 mg/kg	
		Lead (Pb)	Infant: 0.2 mg/kg Footwear: 1.0 mg/kg	
		Mercury (Hg)	Infant: 0.02 mg/kg	
		Antimony (Sb)	Infant: 30 mg/kg	
		Chromium (Cr)	Infant: 0.2 mg/kg	
		Cobalt (Co)	Infant: 1.0 mg/kg	
2	Heavy metal(total) ≤	Cadmium (Cd)	50 mg/kg	Leather: GB/T 22930 Others: EPA 3050B
		Lead (Pb)	90 mg/kg	
3	Chromium VI ≤	not detected (3 mg/kg)	ISO 17075 (Leather)	
4	Nickel release ≤	0.5 μg/cm ² /week	GB/T 22866	
5	Phthalates(total) ^a ≤	500 mg/kg	GB/T 20388 (Textile, Synthetic Leather and Printing) GB/T 22048 (Plastic and Rubber)	
6	Formaldehyde ≤	Infant: 20 mg/kg Others: 75 mg/kg	GB/T 2912.1 (Textile) GB/T 19941 (Leather)	
7	pH value	Natural Leather: 3.5~7.5 Others: 4.0~7.5	QB/T 2724 (Leather) GB/T 7573 (Textile)	
8	Azo dyes ^a ≤	Each	Forbidden (20 mg/kg) GB/T 17592 (Textile) GB/T 19942 (Leather)	

9	Allergenic and other disperse dyes ^a	≤	Each	Forbidden (50 mg/kg)	GB/T 20383 and GB/T 23345
10	Chlorinated phenols	≤	PCP+TeCP	Forbidden (0.5 mg/kg)	GB/T 18414 (All Parts)
11	Organotins ^a	≤	TBT+TPHT	0.5 mg/kg	GB/T 29439.3
			DBT	1.0 mg/kg	
			DOT	1000 mg/kg	
12	AP/APEO ≤		NP\OP (each)	10 mg/kg	LC-MS
			NPEO\OPEO (each)	100 mg/kg	
13	PFOS/PFOA	≤	Each	1 μg/m ²	LC-MS
14	PCBs/PCTs	≤	Each	Forbidden (50 mg/kg)	GB/T 20387 or EPA 8082A
15	PAHs ^a	≤	Benzo[a]pyrene	1 mg/kg	GB/T 28189 or ZEK01.4-08
			Total	10 mg/kg	
16	Flame retardants ^a	≤	Each	Forbidden (5 mg/kg)	GB/T 24279
17	Dimethyl fumarate	≤		Forbidden (0.1 mg/kg)	GB/T 26713 (Leather) GB/T 28190 (Textile)
18	SCCP	≤		500 mg/kg	GC-ECD
19	N-nitrosamine ^a	≤		not detected (0.5 mg/kg)	GB/T 24153
20	PVC	≤		Forbidden	Infrared Spectroscopic Analysis
<p>Note 1: If requirement of test item is indicated as infant, footwear, only the indicated product category should be required and tested.</p> <p>Note 2: The test methods are mainly used for products for domestic market. Export products need to be tested based on the standard and requirement of importing country.</p> <p>Note 3: If there is no national or international standards available currently, the test should be performed according to the testing equipments and methods specified by this standard, such as GC-MS、LC-MS and etc</p>					
^a For the detail substance list, please refer to appendix A.					

4.2 Footwear Materials Test Requirement (Table 2)

Table 2

No	Testing Items	Nature Fiber	Synthetic Fiber	Natural and Blended Fiber	Natural Leather	Bonded Leather	Artificial Leather/Synthetic Leather/Coating	Plastics (EVA\TPU\TPR)	Rubber/Latex	Printing/Painting/Bonding	Paper/Insoluble	Metal
1	Heavy metal (extractable)	Arsenic	●	-	●	●	-	-	-	-	-	-
		Cadmium	●	-	●	●	-	-	-	-	-	-
		Lead	●	-	●	●	-	-	-	-	-	-
		Mercury ^a	○	-	○	○	-	-	-	-	-	-
		Antimony ^a	○	-	○	○	-	-	-	-	-	-
		Chromium ^a	○	-	○	○	-	-	-	-	-	-
		Cobalt ^a	○	-	○	○	-	-	-	-	-	-
	Copper ^a	○	-	○	○	-	-	-	-	-	-	
2	Heavy metal (total)	Cadmium	-	-	-	●	●	●	●	●	●	●
		Lead	-	-	-	●	●	●	●	●	●	●

3	Chromium VI	-	-	-	●	●	-	-	-	-	-	-
4	Nickel release	-	-	-	-	-	-	-	-	-	-	●
5	Phthalates	-	-	-	-	-	●	●	●	●	-	-
6	Formaldehyde	●	●	●	●	●	●	-	-	●	●	-
7	pH value	●	●	●	●	●	●	-	-	-	-	-
8	Azo dyes	●	●	●	●	●	●	-	-	-	-	-
9	Allergenic and other disperse dyes		●	●	-	-	-	-	-	-	-	-
10	Chlorinated phenols	●		●	●	●	-	-	-	-	●	-
11	Organotins	-	-	-	-	-	●	●	●	●	-	-
12	AP/APEO	●	●	●	●	●	●	-	-	●	-	-
13	PFOS/PFOA ^b	○	○	○	○	○	○	-	-	-	-	-
14	PCBs/PCTs ^c	-	-	-	-	○	○	○	-	-	-	-
15	PAHs	-	-	-	-	-	-	●	●	-	-	-
16	Flame retardants ^c	○	○	○	○	○	○	○	-	-	-	-
17	Dimethyl fumarate ^d	○	○	○	○	○	○	-	-	-	-	-
18	SCCP	-	-	-	●	●	-	-	-	-	-	-
19	N-nitrosamine	-	-	-	-	-	-	-	●	-	-	-
20	PVC ^e	-	-	-	-	-	-	-	●	-	●	-

Note 4: ● Mandatory ○ may be tested based on the indicated requirement

^a For infant product only
^b Only for products after waterproof or dustproof finishing treatment
^c Only for products after flame-retardant finishing treatment
^d Only for products after antibacterial finishing treatment
^e For leather suppliers who have promised no PVC in leather, only spot check is required

4.3 Apparel and accessories test requirement (Table 3)

Table 3

No	Testing Items	Nature Fiber	Synthetic Fiber	Natural and Blended Fiber	Natural Leather	Bonded Leather	Artificial Leather/Synthetic Leather/Coating	Plastics (EVA\TPU\TPE\TPR)	Rubber/Latex	Painting/Binding	Printing/Bringing	Metal
1	Heavy metal ^a (extractable)	Arsenic	○	-	○	○	-	-	-	-	○	-
		Cadmium	○	-	○	○	-	-	-	-	○	-
		Lead	○	-	○	○	-	-	-	-	○	-
		Mercury	○	-	○	○	-	-	-	-	○	-
		Antimony	○	-	○	○	-	-	-	-	○	-
		Chromium	○	-	○	○	-	-	-	-	○	-
		Cobalt	○	-	○	○	-	-	-	-	○	-
		Copper	○	-	○	○	-	-	-	-	○	-
2	Heavy metal (total)	Cadmium	-	-	-	●	●	●	●	●	●	●
		Lead	-	-	-	●	●	●	●	●	●	●
3	Chromium VI	-	-	-	●	●	-	-	-	-	-	-

4	Nickel release	-	-	-	-	-	-	-	-	-	-	-	●
5	Phthalates	-	-	-	-	-	●	●	●	●	●	●	-
6	Formaldehyde	●	●	●	●	●	●	-	-	●	●	●	-
7	pH value	●	●	●	●	●	●	-	-	-	●	●	-
8	Azo dyes	●	●	●	●	●	●	-	-	-	●	●	-
9	Allergenic and other disperse dyes		●	●	-	-	-	-	-	-	-	-	-
10	Chlorinated phenols	●		●	●	●	-	-	-	-	-	-	-
11	Organotins	-	-	-	-	-	●	●	●	●	●	●	-
12	AP/APEO	●	●	●	●	●	●	-	-	●	●	●	-
13	PFOS/PFOA ^b	○	○	○	○	○	○	-	-	-	-	-	-
14	PCBs/PCTs ^c	-	-	-	-	○	○	○	-	-	-	-	-
15	PAHs	-	-	-	-	-	-	●	●	-	-	-	-
16	Flame retardants ^c	○	○	○	○	○	○	○	-	-	-	-	-
17	Dimethyl fumarate ^d	○	○	○	○	○	○	-	-	-	-	-	-
18	SCCP	-	-	-	●	●	-	-	-	-	-	-	-
19	N-nitrosamine	-	-	-	-	-	-	-	●	-	-	-	-
20	PVC ^e	-	-	-	-	-	-	-	●	-	-	●	-
Note 5: ● Mandatory ○ may be tested based on the indicated requirement													
^a For infant product only ^b Only for products after waterproof or dustproof finishing treatment ^c Only for products after flame-retardant finishing treatment ^d Only for products after antibacterial finishing treatment ^e For leather suppliers who have promised no PVC in leather, only spot check is required													

5 Sampling

5.1 Randomly select representative samples from each batch of products. For finished products, select one piece of garment, a pair of shoes or one piece of accessories. For fabric, the size is [1 meter × fabric width] (cut from 2 meters away from the fag end). Increase sampling size if the sample is not enough.

5.2 Samples should be sealed immediately once taken.

6 Judgment Rule

If one or more test items listed above are non-compliant to the requirements of table 1 and table 2, the batch products are not acceptable, otherwise are acceptable.

Appendix A
(Normative Reference)
Restricted Substance List.

A. 1 Phthalates (Table A.1)

Table A.1

No	Name	CAS No
1	Diisononyl phthalate (DINP)	28553-12-0
2	di-n-octyl phthalate (DNOP)	117-84-0
3	Di 2-ethylhexylphthalate (DEHP)	117-81-7
4	Di-iso-decylphthalate (DIDP)	26761-40-0
5	Butyl Benzyl Phthalate (BBP)	85-68-7
6	Dibutyl phthalate (DBP)	84-74-2
7	Diisobutylphthalate (DIBP)	84-69-5

A. 2 Derived Carcinogenic Aromatic Amines Azo Colorant (Table A2)

Table A2

No	Name	CAS No
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	p-chloroaniline	106-47-8
8	2,4-diaminoanisole	615-05-4
9	4,4'-diaminobiphenylmethane	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	3,3'-dimethyl-4,4'-diaminobiphenylmethane	838-88-0
14	p-cresidine	120-71-8
15	4,4'-methylene-bis-(2-chloroaniline)	101-14-4
16	4,4'-oxydianiline	101-80-4
17	4,4'-thiodianiline	139-65-1
18	o-toluidine	95-53-4

19	2,4-toluyldiamine	95-80-7
20	2,4,5-trimethylaniline	137-17-7
21	o-anisidine	90-04-0
22	4-aminoazobenzene	60-09-3
23	2,4-xylydine	95-68-1
24	2,6-xylydine	87-62-7

A.3 Allergenic Disperse Dyes (Table A3)

Table A3

No	Name	CAS No
1	Disperse Blue 1	2475-45-8
2	Disperse Blue 3	2475-46-9
3	Disperse Blue 7	3179-90-6
4	Disperse Blue 26	3860-63-7
5	Disperse Blue 35	12222-75-2
6	Disperse Blue 102	12222-97-8
7	Disperse Blue 106	12223-01-7
8	Disperse Blue 124	61951-51-7
9	Disperse Brown 1	23355-64-8
10	Disperse Orange 1	2581-69-3
11	Disperse Orange 3	730-40-5
12	Disperse Orange 37/59/76*	12223-33-5
13	Disperse Red 1	2872-52-8
14	Disperse Red 11	2872-48-2
15	Disperse Red 17	3179-89-3
16	Disperse Yellow 1	119-15-3
17	Disperse Yellow 3	2832-40-8
18	Disperse Yellow 9	6373-73-5
19	Disperse Yellow 39	12236-29-2
20	Disperse Yellow 49	54824-37-2
21	Disperse Orange 149	85136-74-9
22	Disperse Yellow 23	6250-23-3

A.4 Organotin Compounds (Table A4)

Table A4

No	Name	CAS No
1	Tributyltin (TBT)	56573-85-4
2	Triphenyltin (TPHT)	668-34-8

3	Dibutyltin (DBT)	1002-53-5
4	Diocetyl tin (DOT)	94410-05-6

A.5 Polycyclic Aromatic Hydrocarbons (Table A5)

Table A5

No	Name	CAS No
1	Acenaphthene	83-32-9
2	Acenaphthylene	208-96-8
3	Anthracene	120-12-7
4	Benzantracene	56-55-3
5	benzo[A]pyrene	50-32-8
6	Benzo(b)fluoranthene	205-99-2
7	Benzo[g,h,i]perylene	191-24-2
8	Benzo(k)fluoranthene	207-08-9
9	Chrysene	218-01-9
10	Dibenz[a,h]anthracene	53-70-3
11	Fluoranthene	206-44-0
12	Fluorene	86-73-7
13	Indeno(1,2,3-c,d)pyrene	193-39-5
14	Naphthalene	91-20-3
15	Phenanthrene	85-01-8
16	Pyrene	129-00-0
17	Benzo[e]pyrene	192-97-2
18	Benzo[j]fluoranthene	205-82-3

A.6 Flame Retardants (Table A6)

Table A6

No	Name	CAS No
1	Polybrominated biphenyl (PBB)	59536-65-1
2	Tri-(2,3-dibromopropyl)-phosphate (TRIS)	126-72-7
3	Tris-(aziridinyl)-phosphin oxide (TEPA)	545-55-1
4	Pentabromodiphenylether (PentaBDE)	32534-81-9
5	Octabromodiphenylether (OctaBDE)	32536-52-0
6	Decabromodiphenylether (DecaBDE)	1163-19-5
7	Hexabromocyclododecane (HBCDD)	25637-99-4
8	Bis(2,3-dibromopropyl)phosphate	5412-25-9

A.7 N-nitrosamines (Table A7)

Table A7

No	Name	CAS No
1	N-Nitrosodimethylamine	62-75-9
2	N-Nitrosodiethylamine	55-18-5
3	N-nitrosodipropyamine	621-64-7
4	N-Nitrosodibutylamine	924-16-3
5	N-Nitrosopiperidine	100-75-4
6	N-Nitrosopyrrolidine	930-55-2
7	N-Nitrosomorpholine	59-89-2
8	N-Nitroso-N-methylaniline	614-00-6
9	N-Nitroso-N-ethylaniline	612-64-6
