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Hohenstein Laboratories (HK) Limited - Sciene Park, Shatin, N.T., Hong Kong
Ningbo Widen Industry Co., Ltd
No.188, Wanjin Road
Yinzhou District, Ningbo
CHINA, P.R.

Hohenstein Laboratories (HK) Limited
1/F, Biotech Centre 1
No. 9 Science Park West Avenue
Hong Kong Science Park
Shatin, N.T., Hong kong

Textile Testing
Phone +852 3191 5815
Fax +852 3191 5801
J.Yim@hohenstein.com

Client number	Person for queries	Our reference	Date
-	Yim, Jade	20160929-001 Regular Service	10/5/2016

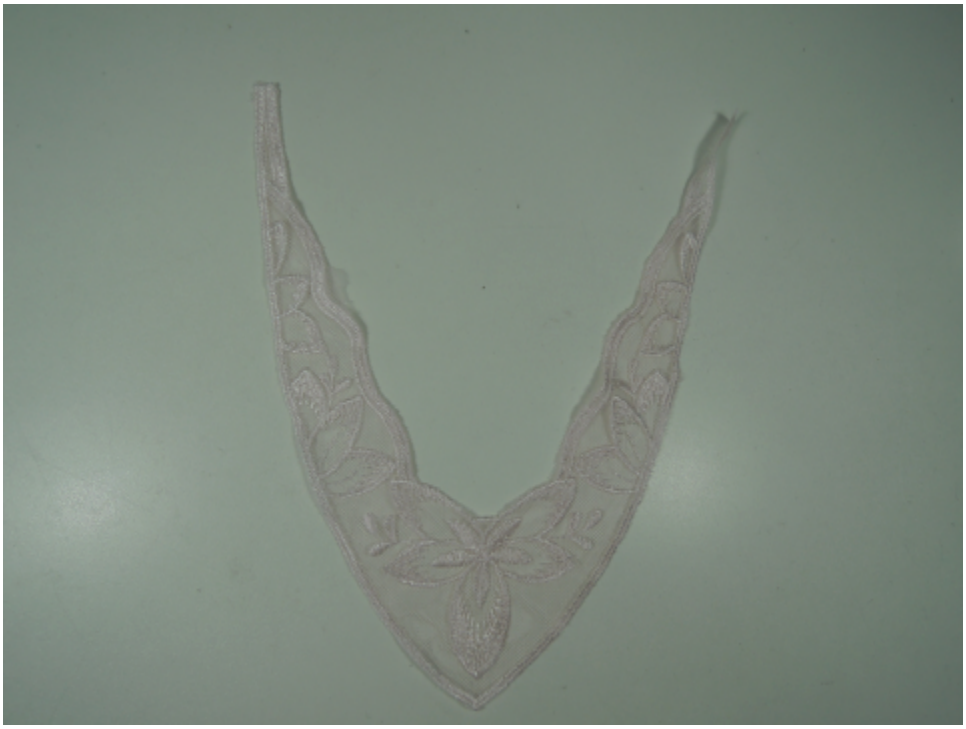
REPORT No. 16.0.94684

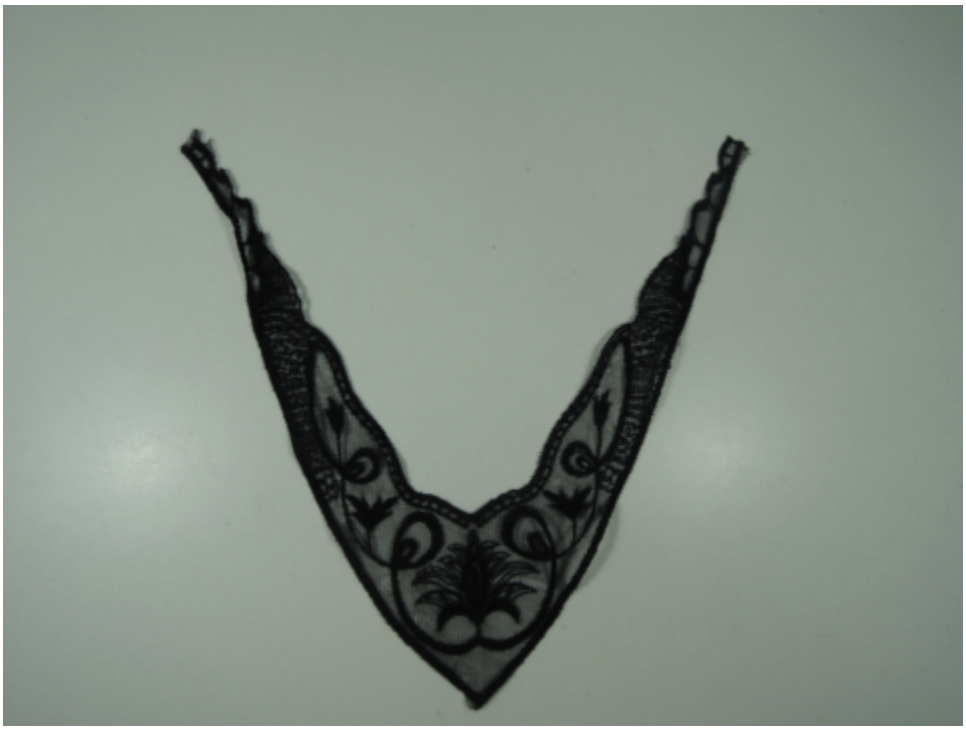
Client:	Ningbo Widen Industry Co., Ltd
Contact person:	Mr Wang Sandra Phone: +86 574 82815751 Fax: +86 573 82815753
Receipt of material / sample:	9/29/2016
Order no. / supplier	Chicca/ 280723
Test material / specimen:	Lace in 2 styles
Test period:	9/29/2016 to 10/5/2016
Aim of test(s):	Determination of the pH-value Determination of banned Azo-colourants Determination of allergenic and carcinogenic colourants Determination of polycyclic aromatic hydrocarbons (PAH) Determination of chlorinated benzenes and toluenes

The report comprises 12 pages.

The following material was submitted for the tests:

Sample		Material composition according to information	Note
1	Lace Pink		
2	Lace Black		





RESULT

Determination of the pH-value[A]

The test was carried out according to DIN EN ISO 3071 (May 2006); extraction solution B (potassium chloride solution, 0,1 molar).

Test result:

Sample		pH-Value
1	Lace Pink	5,8
2	Lace Black	6,1

Limit value/requirement of the orderer:

For babies or for textiles near to skin:	4,0 - 7,5
For textiles without contact to skin:	4,0 - 9,0

Determination of banned azo colourants[A]

(as well as for free available, below listed, carcinogenic aryl amines, detectable at utilisation of the official test methods)

Corresponding to the Ordinance on Commodities (Bedarfsgegenständeverordnung) be in force the directive 2002/61/EEC respectively the ordinance (EC) no 1907/2006 of 18 December 2006 (REACh) the use of certain azo colourants is banned, which can release by reductive cleavage of their azo group(s) one or more of certain listed aromatic and cancerogenic amines.

No.	CAS number	Index number	EC number	Chemical name
1	92-67-1	612-072-00-6	202-177-1	Biphenyl-4-ylamine 4-Aminodiphenyl 4-Aminobiphenyl Xenylamine
2	92-87-5	612-042-00-2	202-199-1	Benzidine
3	95-69-2		202-441-6	4-chloro-o-toluidine
4	91-59-8	612-022-00-3	202-080-4	2-naphthylamine
5[x]	97-56-3	611-006-00-3	202-591-2	o-aminoazotoluene 4-Amino-2',3-dimethylazobenzene 4-o-Tolylazo-o-toluidine
6[x]	99-55-8		202-765-8	2-Amino-4-nitrotoluene 5-Nitro-o-toluidine
7	106-47-8	612-137-00-9	203-401-0	4-Chloroaniline p-Chloroaniline
8	615-05-4		210-406-1	2,4-Diaminoanisole 4-Methoxy-m-phenylenediamine
9	101-77-9	612-051-00-1	202-974-4	4,4'-Methylenedianiline 4,4'-Diaminodiphenylmethane 4,4'-Diaminobiphenylmethane
10	91-94-1	612-068-00-4	202-109-0	3,3'-Dichlorobenzidine 3,3'-Dichlorobiphenyl-4,4'-ylene-diamine
11	119-90-4	612-036-00-X	204-355-4	3,3'-Dimethoxybenzidine o-Dianisidine
12	119-93-7	612-041-00-7	204-358-0	3,3'-Dimethylbenzidine 4,4'-Bi-o-toluidine
13	838-88-0	612-085-00-7	212-658-8	3,3'-Dimethyl-4,4'-diaminodiphenyl-methane 4,4'-Methylenedi-o-toluidine
14	120-71-8		204-419-1	6-Methoxy-m-toluidine p-Cresidine

No.	CAS number	Index number	EC number	Chemical name
15	101-14-4	612-078-00-9	202-918-9	4,4'-Methylene-bis-(2-chloro-aniline) 2,2'-Dichloro-4,4'-methylene-di-aniline
16	101-80-4		202-977-0	4,4'-Oxydianiline
17	139-65-1		205-370-9	4,4'-Thiodianiline
18	95-53-4	612-091-00-X	202-429-0	o-Toluidine 2-Aminotoluene
19	95-80-7	612-099-00-3	202-453-1	2,4-Toluylenediamine 4-Methyl-m-phenylenediamine
20	137-17-7		205-282-0	2,4,5-Trimethylaniline
21	90-04-0	612-035-00-4	201-963-1	o-Anisidine 2-Methoxyaniline
22[xx]	60-09-3	611-008-00-4	200-453-6	4-Aminoazobenzene
23	95-68-1			2,4-Xylidine
24	87-62-7			2,6-Xylidine

x The CAS-numbers 97-56-3 (No. 5) and 99-55-8 (No. 6) are detected further reduced to CAS-numbers 95-53-4 (No. 18) and 95-80-7 (No. 19).

xx Azo colourants that are able to form 4-aminoazobenzene, generate under the condition of some below mentioned methods aniline and 1,4-phenylenediamine. For the detection of 4-aminoazobenzene therefore additional testing methods are carried out if necessary.

The tests were carried out

- according to the official method § 64 LFGB B 82.02-2:2013-01 (DIN EN 14362-1:2012-04) [A]
- according to the official method § 64 LFGB B 82.02-15:2013-01 (DIN EN 14362-3:2012-09) [A];if necessary
- at coloured leather according to the official method § 35 LMBG 82.02-3(V):2004-06; (DIN ISO/TS 17234) respectively DIN EN ISO 17234-1:2010-06 and DIN EN ISO 17234-2:2011-06 [A]
- regarding 4-aminoazobenzene: According to the official method (§ 64 LFGB B 82.02-9, edition September 2006) under consideration of the amendment § 64 LFGB B 82.02-9, amendment April 2008 [A]

Listed amines released by the reductive cleavage were detected and quantified by means of high performance liquid chromatography using a diode array detector (LC/DAD). Positive results were verified by means of gas chromatography with a mass specific detector (GC/MS).

Note: If necessary several test methods were carried out.

Test result:

Sample		Detected cancerogenic aryl amine(s) in mg/kg (ppm)
1	Lace Pink	n.d.
2	Lace Black	n.d.

Abbreviations used:

n.d. = According to the analysis as carried out, azo colourants, which can release one or more of certain listed amines (see table) by cleavage of their azo group(s) were not detected in the commodity submitted.

0 = Test not necessary (e.g. commodity not coloured or printed).

Determination of allergenic and carcinogenic colourants[A]

The test was performed according to DIN 54 231 and after a suitable handling of the sample on colourant extracts in comparison with reference substances. The analyses was carried out by means of high performance liquid chromatography using a diode array detector (LC/DAD) as well as a mass detector (LC/MS); if necessary positive results were verified by means of thin layer chromatography (TLC).

The following colourants were included in the test:

Allergenic Disperse Colourants				
Colourant		**C.I.-no.**	**Colourant**	**C.I.-no.**
C.I. Disperse Blue 1	1)	C.I. 64500	C.I. Disperse Yellow 9	C.I. 10375
C.I. Disperse Blue 3		C.I. 61505	C.I. Disperse Yellow 39	
C.I. Disperse Blue 7		C.I. 62500	C.I. Disperse Yellow 49	
C.I. Disperse Blue 26		C.I. 63305	C.I. Disperse Orange 1	C.I. 11080
C.I. Disperse Blue 35			C.I. Disperse Orange 3	C.I. 11005
C.I. Disperse Blue 102			C.I. Disperse Orange 37	
C.I. Disperse Blue 106			C.I. Disperse Orange 76 = 37	
C.I. Disperse Blue 124			C.I. Disperse Red 1	C.I. 11110
C.I. Disperse Brown 1			C.I. Disperse Red 11	C.I. 62015
C.I. Disperse Yellow 1		C.I. 10345	C.I. Disperse Red 17	C.I. 11210
C.I. Disperse Yellow 3		C.I. 11855		

1) also classified as carcinogenic

Carcinogenic Colourants			
Colourant	**C.I.-no.**	**Colourant**	**C.I.-no.**
C.I. Acid Red 26	C.I. 16150	C.I. Direct Red 28	C.I. 22120
C.I. Basic Red 9	C.I. 42500	C.I. Disperse Blue 1	C.I. 64500
C.I. Basic Violet 14	C.I. 42510	C.I. Disperse Orange 11	C.I. 60700
C.I. Direct Black 38	C.I. 30235	C.I. Disperse Yellow 3	C.I. 11855
C.I. Direct Blue 6	C.I. 22610	C.I. Solvent Yellow 1	C.I. 11000
C.I. Solvent Yellow 2	C.I. 11020	C.I. Solvent Yellow 3	C.I. 11160
C.I. Solvent Yellow 14	C.I. 12055	C.I. Basic Violet 1	C.I. 42535
C.I. Direct Brown 95	C.I. 30145	C.I. Direct Blue 15	C.I. 24400
C.I. Direct Blue 218	C.I. 24401	C.I. Acid Red 114	C.I. 23635
C.I. Acid Violet 49	C.I. 42640	C.I. Basic Blue 26	
C.I. Basic Green 4		C.I. Basic Violet 3	

In the test were included **additional** the following reglemented colourants:

Regulated Colourants			
Colourant	**C.I.-no.**	**Colourant**	**C.I.-no.**
C.I. Disperse Orange 149		C.I. Disperse Yellow 23	C.I. 26070

Test result:

Sample		**Detected Colourants in mg/l**
1	Lace Pink	n.d.
2	Lace Black	n.d.

Limit value: 5 mg/l in extract

Note:

n.d. = None of the colourants in question were detected.
0 = Test not necessary.

Determination of polycyclic aromatic hydrocarbons (PAH)[A]

An aliquot part of the sample was extracted with a suitable organic solvent. After a properly work up the separation and quantitative determination was carried out by means of gas chromatography with mass selective detector (GC/MS) or high performance liquid chromatography using a diode array detector (LC/DAD).

The following polycyclic aromatic hydrocarbons were included in the test:

"EPA-PAH's":

Substance	Substance
Naphthalene	Benzo(a)anthracene
Acenaphthylene	Chrysene
Acenaphthene	Benzo(b)fluoranthene
Fluorene	Benzo(a)pyrene
Phenanthrene	Dibenzo(a,h)anthracene
Anthracene	Benzo(g,h,i)-perylene
Fluoranthene	Indeno(1,2,3-c,d)pyrene
Pyrene	Benzo(k)fluoranthene

Additional were tested:

Substance	Substance
Benzo(j)fluoranthene	Dibenzo(a,i)pyrene
Cyclopenta(c,d)pyrene	Dibenzo(a,l)pyrene
Dibenzo(a,e)pyrene	Benzo(e)pyrene
Dibenzo(a,h)pyrene	1-Methylpyrene

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Test result:

Sample	Detected PAH-substances in mg/kg	Sum in mg/kg
composite sample 1 Lace Pink 2 Lace Black	n.d.	n.d.

Note:

Detection limit: < 0,2 mg/kg (ppm) = not detectable (n.d.)

Requirement: Sum: ≤ 10,0 mg/kg (ppm) for the PAH-substances

≤ 1,0 mg/kg (ppm) for Benzo(a)pyren, Benzo(e)pyrene, Benzo(a)anthracen, Chrysene, Benzo(b)fluoranthene, Benzo(j)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene

Determination of chlorinated benzenes and toluenes

(According to list in OEKO-TEX® Standard 100)

The determiniatiom occured on a random basis.

The determination was carried out by extraction of the sample with a suitable organic solvent. The quantitative determination was carried out by means of gas chromatography with mass selective detector (GC/MS).

Test result:

Sample		Chlorinated benzenes and toluenes in mg/kg (ppm)	Sum in mg/kg (ppm)
1	Lace Pink	n.d.	n.d.
2	Lace Black	3-Chlorotoluene 0,11	0,11

Note:

Requirement: Sum ≤ 1,00 mg/kg (ppm)

n.d. = chlorinated benzenes and toluenes (chloroaromates) not detectable.

CONCLUSION

The material passes all tested requirements

Managing Director

Dr. Christopher Au

Operations Manager

Helen Chu