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Fürth, November 4/2020

TEST REPORT No. FUHLCP2020-07904

Date sample received: October 06/ 13/2020
Period of testing: October 06/ 13/2020 - November 4/2020
Technical Director: Kerstin Scharrer

Abbreviations:

- * = Test method is not part of the accreditation scope
- ** = Outsourcing
- n.a. = not applicable
- n.t. = not tested
- n.d. = not determinable (< LoQ)
- LoQ = limit of quantification
- CS = Combined sample
- P = passed
- F = failed
- # = Subsequent delivery

Sample description: Lederschlüsselanhänger Audi



No.	Tested components
1	Key ring, metal silver
2	Metal silver on pendant
3	Leather black
4	Plastic coating, black with leather residues, border
5	Black plastic inside the pendant

Selected risk substances according to SVHC Candidate list dated 25th of June 2020

Test results in %

Test method: Phthalate: 12.01.02.04_Phthalate (2019-12); SCCP: 12.01.03.01_SCCP in materials (2019-12); NP+APEO: 12.01.13.01_AP+APEO in materials (2019-12)
Other parameters: Extraction with organic solvent, measurement GC/MS*

Substance name	LOQ	CAS-No.	CS 4+5
Diisobutylphthalate (DIBP)	0.02%	84-69-5	n.d.
Dibutylphthalate (DBP)	0.02%	84-74-2	n.d.
Benzylbutylphthalate (BBP)	0.02%	85-68-7	n.d.
Bis(2-ethylhexyl)phthalate (DEHP)	0.02%	117-81-7	n.d.
4-Nonylphenol, branched and linear	0.02%	various	n.d.
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	0.02%	25973-55-1	n.d.
2-benzotriazol-2-yl-4,6-di-tertbutylphenol (UV-320)	0.02%	3846-71-7	n.d.
2,4-di-tert-butyl-6-(5-chloro benzotriazol-2-yl) phenol (UV-327)	0.02%	3864-99-1	n.d.
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	0.02%	36437-37-3	n.d.
2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	0.02%	119313-12-1	n.d.
2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	0.02%	71868-10-5	n.d.
Short chain chloroparaffins C ₁₀ -C ₁₃ (SCCP)	0.02%	various	n.d.
Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	0.02%	-	n.d.
Tert-butylphenol	0.02%	98-54-4	n.d.
Bisphenol A	0.02%	80-05-7	n.d.
2,2-bis(4'-hydroxyphenyl)-4-methylpentane	0.02%	6807-17-6	n.d.

Selected risk substances according to SVHC Candidate list dated 25th of June 2020

Test results in %

Test method: 12.01.13.01_AP + APEO in materials_(2019-12)

Substance name	LOQ	CAS-No.	No. 3
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (OPEO)	0.05%	various	n.d.
4-Nonylphenolethoxylate, branched and linear (NPEO)	0.05%	various	n.d.

Lead after total digestion in mg/kg

Test method:
Digestion: Aqua regia HCl/HNO₃ acc.to ISO 11466:1995-03
Measurement: ICP-MS: DIN EN ISO 17294-2:2017-01
Limit of quantification: 10 mg/kg

Substance name	CAS No.	CS 1+2
Lead	7439-92-1	n.d.

Lead and Cadmium after total digestion in mg/kg

Test method:

Digestion: Microwave HNO₃/H₂O₂

Measurement: ICP-OES: DIN EN ISO 11885:2009-09

Limit of quantification: Lead 10 mg/kg, Cadmium 5 mg/kg

Substance name	CAS No.	No. 4
Cadmium	7440-43-9	n.d.
Lead	7439-92-1	n.d.

Cadmium after total digestion in mg/kg

Test method:

Digestion: Microwave HNO₃/H₂O₂

Measurement: ICP-OES: DIN EN ISO 11885:2009-09

Limit of quantification: 5 mg/kg

Substance name	CAS No.	No. 5
Cadmium	7440-43-9	n.d.

Short chain chloroparaffins (C₁₀-C₁₃) in mg/kg

Test method: DIN EN ISO 18219 (2015-09)

Limit of quantification: 100 mg/kg

Substance name	CAS-No.	No. 3
C ₁₀ -C ₁₃ (SCCP)	85535-84-8	n.d.

Pentachlorophenol (PCP) in mg/kg

Test method: 12.01.10.01_Chlorophenols (2019-10)

Substance name	CAS-No.	LOQ	No. 3
PCP	87-86-5	0.1	n.d.

Dimethylfumarate in mg/kg

Test method: ISO/TS 16186 (2012-08)

Limit of quantification: 0.1 mg/kg

Substance name	CAS-No.	No. 3
Dimethylfumarate	624-49-7	n.d.

Analysis of amines as cleavage products of azo colourants acc. to REACH annex XVII No. 43, results in mg/kg

Test method: DIN EN ISO 14362-1 (2017-05) resp. DIN EN ISO 17234-1 (2015-07),
resp. 4-AAB DIN EN 14362-3 (2017-05) resp. DIN EN ISO 17234-2 (2011-06)
Limit of quantification: 10 mg/kg (10 - 100 mg/kg quantitative, >100 mg/kg semi quantitative)

Substance name	CAS-No.	No. 3
4-Aminobiphenyl	92-67-1	n.d.
Benzidine	92-87-5	n.d.
4-Chloro-o-toluidine	95-69-2	n.d.
2-Naphthylamine	91-59-8	n.d.
4-Chloroaniline	106-47-8	n.d.
4-Methoxy-m-phenylenediamine	615-05-4	n.d.
4,4'-Diaminodiphenylmethane	101-77-9	n.d.
3,3'-Dichlorobenzidine	91-94-1	n.d.
3,3'-Dimethoxybenzidine	119-90-4	n.d.
3,3'-Dimethylbenzidine	119-93-7	n.d.
4,4'-Methylenedi-o-toluidine	838-88-0	n.d.
p-Cresidine	120-71-8	n.d.
4,4'-Methylene-bis-(2-chloraniline)	101-14-4	n.d.
4,4'-Oxydianiline	101-80-4	n.d.
4,4'-Thiodianiline	139-65-1	n.d.
o-Toluidine	95-53-4	n.d.
4-Methyl-m-phenylenediamine	95-80-7	n.d.
2,4,5-Trimethylaniline	137-17-7	n.d.
o-Anisidine	90-04-0	n.d.
o-Aminoazotoluene (as o-toluidine)	97-56-3	Result refer to o-toluidine
2-Amino-4-nitrotoluene (as 4-Methyl-m-phenylenediamine)	99-55-8	Result refer to 4-methyl-m-phenylenediamine
Aniline ¹ (as an indicator of 4-aminoazobenzene)	62-53-3	n.d.
2,4-Xylidine ¹	95-68-1	n.d.
2,6-Xylidine ¹	87-62-7	n.d.
4-Aminoazobenzene	60-09-3	n.d.

¹Further arylamines, which are not listed in Annex XVII of REACH

Chromium VI in mg/kg DS

Test method: DIN EN ISO 17075-2:2017-05 / IC/UV-VIS
Limit of quantification: 3.0 mg/kg DS

Substance name	Dry substance (DS) in %	Recovery in %	CAS-No	No. 3
Chromium VI	87.5	90	18540-29-9	n.d.

Polycyclic aromatic hydrocarbons (PAH) in mg/kg

Test method: AfPS GS 2019:01 PAK (2019-05)

Limit of quantification: 0.15 mg/kg

Please note: Only contents of ≥ 0.2 mg/kg were used for summation.

Substance name	CAS-No	No. 4
1 Naphthalene	91-20-3	n.d.
2 Acenaphthylene	208-96-8	n.d.
3 Acenaphthen	83-32-9	n.d.
4 Fluorene	86-73-7	n.d.
5 Phenanthrene	85-01-8	0.16
6 Anthracene	120-12-7	n.d.
7 Fluoranthene	206-44-0	0.26
8 Pyrene	129-00-0	0.61
9 Benzo(a)anthracene ²	56-55-3	n.d.
10 Chrysene ²	218-01-9	n.d.
11 Benzo(b)fluoranthene ² + 12 Benzo(j)fluoranthene ²	205-99-2 + 205-82-3	n.d.
13 Benzo(k)fluoranthene ²	207-08-9	n.d.
14 Benzo(e)pyrene ²	192-97-2	n.d.
15 Benzo(a)pyrene ²	50-32-8	n.d.
16 Indeno(1,2,3-cd)pyrene	193-39-5	n.d.
17 Dibenzo(a,h)anthracene ²	53-70-3	n.d.
18 Benzo(ghi)perylene	191-24-2	0.25
Sum PAH		1.12

Assessment criteria

Parameter	Legal Limit	GS-symbol-concession according to AfPS GS 2014:01 PAH		
		category 1	category 2	category 3
	Materials which come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use ¹⁾	Materials intended to be put in the mouth, or materials of toys with intended long-term skin contact (longer than 30 seconds)	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 ¹⁾	Materials not covered by category 1 or 2 with foreseeable skin contact up to 30 seconds (short term skin contact) ¹⁾
Naphthalene	-	< 1 mg/kg	< 2 mg/kg	< 10 mg/kg
Acenaphthylene Acenaphthene Fluorene Phenanthrene Pyrene Anthracene Fluoranthene	-	< 1 mg/kg Sum	< 10 mg/kg Sum	< 50 mg/kg Sum
Benzo (a) pyrene Benzo (e) pyrene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (j) fluoranthene Benzo (k) fluoranthene Chrysene Dibenzo (a,h) anthracene	1 mg/kg each	< 0.2 mg/kg each	< 0.5 mg/kg each	< 1 mg/kg each
Benzo (g,h,i) perylene Indeno (1,2,3-cd) pyrene	-			
sum 18 PAH (EPA) mg/kg	-	< 1 mg/kg	< 10 mg/kg	< 50 mg/kg
Conclusion	pass	--	pass	--

¹⁾ Only for products in the scope of ProdSG read in conjunction with regulation (EG) Nr. 1907/2006 annex XVII Nr. 50 (5), whereas the private use represents the placing on the market for the customer (B2C); for toys in the scope of 2009/48/EC and baby articles other limits apply

²⁾ Limit for textile/shoe articles: 1mg/kg - valid from 1. November 2020

Tin Organic Compounds in mg/kg

Test method: Materials acc. to DIN CEN ISO/TS 16179 (2012-12)

Substance name	Abbrev.	CAS-No.	LOQ	CS 4+5
Dibutyl tin	DBT	various	1.00	n.d.
Tributyl tin	TBT	various	1.00	n.d.
Di-octyl tin	DOT	various	1.00	n.d.
Triphenyl tin	TPhT	various	1.00	n.d.
Trimethyl tin	TMT	various	1.00	n.d.
Tributylphenyl tin	TBPhT	960-16-7	1.00	n.d.
Trioctyl tin	TOT	various	1.00	n.d.
Tri-cyclohexyl tin	TCHT	various	1.00	n.d.

Nickel release according to Regulation (EC) No. 552/2009 amending entry 27 of Annex XVII of REACH Regulation (EC) No. 1907/2006

Test method:

Simulated abrasion and corrosion test according to DIN EN 12472: 2009-09

Reference test method for determination of nickel release according to DIN EN 1811:2011 + A1:2015-10

Quantitative measurement via ICP-OES acc. to DIN EN ISO 11885:2009-09

Limit of quantification for the migration solution: 0.005 mg/l (migration solution) resp. 0,1 µg/cm²/week

Test with abrasion

Sample	Test surface [cm ²]	Volume/ Surface [ml/cm ²]	Test result [µg/cm ² /week]	Compliance Assessment: Conclusion according to DIN EN 1811:2011 + A1:2015-10
No. 1	12.6	1.0	<0.1	pass ¹⁾
No. 2	22.0	1.0	<0.1	pass ¹⁾

Test without abrasion

Sample	Test surface [cm ²]	Volume/ Surface [ml/cm ²]	Test result [µg/cm ² /week]	Compliance Assessment: Conclusion according to DIN EN 1811:2011 + A1:2015-10
No. 1	12.6	1.0	<0.1	pass ¹⁾
No. 2	22.0	1.0	<0.1	pass ¹⁾

Limit value nickel release

Type of sample	Nickel Release [$\mu\text{g}/\text{cm}^2/\text{week}$]	
	pass	fail
Articles indented to come into direct and prolonged contact with the skin Limit value of 0.5 [$\mu\text{g}/\text{cm}^2/\text{week}$] ¹⁾	< 0.88	≥ 0.88
Post assemblies which are inserted into parts of the human body Limit value of 0.2 [$\mu\text{g}/\text{cm}^2/\text{week}$] ¹⁾	< 0.35	≥ 0.35

¹⁾: For the calculation of the range for compliance assessment, the resulting expanded measurement uncertainty according to DIN EN 1811:2011+A1:2015-10 is used.

The sample meets the requirement according to EU-Directive 1907/2006/EC (REACH) annex XVII No. 27.

Conclusion:

The sample was tested for the most likely expectable SVHC only. None of the analysed SVHC were detected in a concentration $>0.1\%$. In all probability the item contains no SVHC $>0.1\%$ and thus no obligations according to article 33 of the REACH-regulation would arise.

The sample is considered as marketable regarding the tested parameters (based on Regulation (EC) 1907/2006 / Regulation (EU) 2019/1021 / Chemikalienverbotsverordnung).

For PAH conclusion see schedule above.

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