

SesnL

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Fürth, 12.04.2017

Test report No. FUHLCP2017-02573

Arrival in lab: 06.03.2017; subsequent delivery: 16.03.2017
Period of analysis: 06./16./03. – 12.04.2017
Lab Director: Kerstin Scharrer

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Sample description: MicroFC Silicon Photomultiplier – PO-No.: PF74



Abbreviations:

LOQ = Limit of quantification
n.d. = not determinable
CS = Combined sample
* = Test method is not part of the accreditation scope
** = Outsourcing
= Subsequent delivery
n.a. = not applicable

No.	Tested components
1	MicroFC Silicon Photomultiplier (Micro FC-60035-SMT-TA)
2	Packaging: plastic black of Micro FC-60035-SMT-TA
3	Packaging: plastic transparent of Micro FC-60035-SMT-TA
4	Packaging: plastic black of MicroFC-30035-SMT-TA
5	Packaging: plastic transparent MicroFC-30035-SMT-TA
6	Packaging: plastic black of MicroFC-10035-SMT-TA
7	Packaging: plastic transparent of MicroFC-10035-SMT-TA

Testing of material samples for SVHC- candidate list of 12th of January 2017

1.1 Metals after total digestion in %

Test method: ICP OES according to DIN EN ISO 11885 (2009-09) / ICP MS DIN EN ISO 17294-2 (2005-02)
 Non-Metals and Metals: two stage microwave digestion: conc. HNO₃ / H₂O₂, inverse aqua regia solution
 Non-Metals: microwave digestion: conc. HNO₃ / H₂O₂
 Metals: microwave digestion with aqua regia solution according to DIN ISO 11466 (1997-06) complies with ISO 11466 (1995-03)

Limit of quantification (LOQ): see table

Substance name	LOQ	No. 1
Arsenic (As)	0.01 %	0.03
Lead (Pb)	0.01 %	n.d.
Boron (B)	0.005 %	n.d.
Cadmium (Cd)	0.01 %	n.d.
Calcium (Ca)	0.01 %	n.d.
Chromium (Cr)	0.005 %	n.d.
Cobalt (Co)	0.01 %	n.d.
Potassium (K)	0.005 %	n.d.
Molybdenum (Mo)	0.01 %	n.d.
Sodium (Na)	0.008 %	n.d.
Strontium (Sr)	0.01 %	n.d.
Zinc (Zn)	0.01 %	0.07

Test method: ICP OES according to DIN EN ISO 11885 (2009-09) / ICP MS DIN EN ISO 17294-2 (2005-02)
 Non-Metals: microwave digestion with inverse aqua regia solution
 Metals: microwave digestion with aqua regia solution according to DIN ISO 11466 (1997-06) complies with ISO 11466 (1995-03)

Limit of quantification (LOQ): see table

Substance name	LOQ	No. 1
Tin (Sn)	0.01 %	0.04

1.2 Chromium VI in %

Test method: Plastics: alkaline Extraction according to IEC 62321:2008* / Detection with IC-UV/VIS resp. Photometer
 Metals: Boiling water extraction according to IEC 62321:2008* / Detection with IC-UV/VIS resp. Photometer
 Textiles: Extraction with acid sweat solution according to DIN EN ISO 105-E04 (2013-08) / Detection with IC-UV/VIS resp. Photometer
 Leather: §64 LFGB B 82.02-11 resp. DIN EN ISO 17075 (2008-02) / Detection with IC-UV/VIS resp. Photometer

Limit of quantification: Plastics / Textiles / Leather: 0.001%
 Metals: negative (<0.02 mg/kg with 50 cm²)

No. 1	n.d.
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Regarding point 1.1 and 1.2 the following concentrations result for the listed SVHCs

Substance name	CAS-No.	Calculated concentration of no. 1 (assuming the worst-case)	
Ammonium dichromate	7789-09-5	< 0.1%	
Boric acid	10043-35-3 11113-50-1	< 0.1%	
Lead chromate	7758-97-6	< 0.1%	
Sodium chromate	7775-11-3 10588-01-09	< 0.1%	
C.I. Pigment Red 104	12656-85-8	< 0.1%	
C.I. Pigment Yellow 34	1344-37-2	< 0.1%	
Potassium chromate	7789-00-6	< 0.1%	
Potassium dichromate	7778-50-9	< 0.1%	
Sodium dichromate	7789-12-0 10588-01-9	< 0.1%	
Dichromium tris(chromate)	24613-89-6	< 0.1%	
Acids generated from Chromium trioxide	Chromic acid	7738-94-5	< 0.1%
	Dichromic acid	13530-68-2	< 0.1%
	Oligomers of chromic acid and dichromic acid	–	< 0.1%
Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3	< 0.1%	
Tetraboron disodium heptaoxide, hydrate	12267-73-1	< 0.1%	
Lead hydrogen arsenate	7784-40-9	< 0.1%	
Diarsenic pentaoxide	1303-28-2	< 0.1%	
Diarsenic trioxide	1327-53-3	< 0.1%	
Triethyl arsenate	15606-95-8	< 0.1%	
Calcium arsenate	7778-44-1	< 0.1%	
Arsenic acid	7778-39-4	< 0.1%	
Trilead diarsenate	3687-31-8	< 0.1%	
Lead dipicrate	6477-64-1	< 0.1%	
Cobalt dichloride	7646-79-9	< 0.1%	
Cobalt(II)sulphate	10124-43-3	< 0.1%	
Cobalt(II)dinitrate	10141-05-6	< 0.1%	
Cobalt(II)carbonate	513-79-1	< 0.1%	
Cobalt(II)diacetate	71-48-7	< 0.1%	
Chromium trioxide	1333-82-0	< 0.1%	
Strontium chromate	7789-06-2	< 0.1%	
Potassium hydroxyoctaoxodizincatedichromate	11103-86-9	< 0.1%	
Pentazinc chromate octahydroxide	49663-84-5	< 0.1%	
Lead azide, Lead diazide	13424-46-9	< 0.1%	
Lead styphnate	15245-44-0	< 0.1%	
Diboron trioxide	1303-86-2	< 0.1%	
Lead(II) bis(methanesulfonate)	17570-76-2	< 0.1%	
Fatty acids, C16-18, lead salts	91031-62-8	< 0.1%	
Acetic acid, lead salt, basic	51404-69-4	< 0.1%	
Trilead bis(carbonate)dihydroxide	1319-46-6	< 0.1%	
Lead oxide sulfate	12036-76-9	< 0.1%	
[Phthalato(2-)]dioxotrilead	69011-06-9	< 0.1%	
Dioxobis(stearato)trilead	12578-12-0	< 0.1%	
Lead bis(tetrafluoroborate)	13814-96-5	< 0.1%	
Lead cyanamidate	20837-86-9	< 0.1%	
Lead dinitrate	10099-74-8	< 0.1%	
Lead monoxide (lead oxide)	1317-36-8	< 0.1%	
Orange lead (lead tetroxide)	1314-41-6	< 0.1%	
Lead titanium trioxide	12060-00-3	< 0.1%	
Lead titanium zirconium oxide	12626-81-2	< 0.1%	
Pentalead tetraoxide sulphate	12065-90-6	< 0.1%	
Pyrochlore, antimony lead yellow	8012-00-8	< 0.1%	
Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), lead-doped	68784-75-8	< 0.1%	
Silicic acid, lead salt	11120-22-2	< 0.1%	
Sulfurous acid, lead salt, dibasic	62229-08-7	< 0.1%	
Tetraethyllead	78-00-2	< 0.1%	
Tetralead trioxide sulphate	12202-17-4	< 0.1%	
Trilead dioxide phosphonate	12141-20-7	< 0.1%	
Cadmium oxide	1306-19-0	< 0.1%	
Cadmium	7440-43-9	< 0.1%	
Cadmium sulphide	1306-23-6	< 0.1%	
Lead diacetate	301-04-2	< 0.1%	

Sodium perborate; perboric acid, sodium salt	--	< 0.1%
Sodium peroxometaborate	7632-04-4	< 0.1%
Cadmium chloride	10108-64-2	< 0.1%
Cadmium fluoride	7790-79-6	< 0.1%
Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[[2-ethylhexyl]oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	-	> 0.2%
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	> 0.2%
Cadmium sulphate	10124-36-4 31119-53-6	< 0.1%

Calculated for the whole product the detected amount in % is:

Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[[2-ethylhexyl]oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE)	-	> 0.2%
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	> 0.2%

2. Organic substances in %

Test method: Phthalates acc. to 12.01.02.04 (2016-07); SCCP: 12.01.03.01 (2016-07); AP+APEO: 12.01.13.01 (2016-12);
Formamide, Dimethylformamide: 12.05.01 (2016-07);
Other parameters: extraction with organic solvent, measurement: GC/MS*
see table

Limit of quantification (LOQ):

Substance name	LOQ	CAS-No.	No. 1
Diisobutylphthalate (DIBP)	0.05%	84-69-5	n.d.
Dibutylphthalate (DBP)	0.05%	84-74-2	n.d.
Benzylbutylphthalate (BBP)	0.05%	85-68-7	n.d.
Bis(2-ethylhexyl)phthalate (DEHP)	0.05%	117-81-7	n.d.
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (corresponds to di-iso-heptylphthalate (DIHP))	0.05%	71888-89-6	n.d.
Bis(2-methoxyethyl)phthalate (DMEP)	0.05%	117-82-8	n.d.
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (Dipentylphthalates) <i>(Analytically determined via the concentration of N-pentyl-isopentylphthalate, Diisopentylphthalate and Dipentylphthalate)</i>	0.05%	84777-06-0	n.d.
N-pentyl-isopentylphthalate	0.05%	776297-69-9	n.d.
Diisopentylphthalate	0.05%	605-50-5	n.d.
Dipentylphthalate (DPP)	0.05%	131-18-0	n.d.
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUF) <i>(Analytically determined via the concentrations of diheptyl- and diundecylphthalate)</i>	0.05%	68515-42-4	n.d.
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear <i>(Analytically determined via the concentrations of diisohexylphthalate and di-n-hexylphthalate)</i>	0.05%	68515-50-4	n.d.
Di-n-hexylphthalate (DnHP)	0.05%	84-75-3	n.d.
1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters <i>(Analytically determined via the concentrations of Dihexyl-, Dioctyl-, Dedecylphthalat; contains > 0.3% Dihexylphthalate)</i>	0.05%	68515-51-5 68648-93-1	n.d.

N,N,N',N'-Tetramethyl-4,4'-methylenedianiline (Michler's base)	0.05%	101-61-1	n.d.
4,4'-Bis(dimethylamino)benzophenone (Michler's Ketone)	0.05%	90-94-8	n.d.
α,α -Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalin-1-methanol (C.I. Solvent Blue 4) [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] <i>(Analytically determined via the concentration of Michler's Ketone or Michler's Base)</i>		6786-83-0	n.d.
[4-[4,4'-Bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chlorid (C.I. Basic Violet 3) [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] <i>(Analytically determined via the concentration of Michler's Ketone or Michler's Base)</i>		548-62-9	n.d.

[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] (Analytically determined via the concentration of Michler's Ketone or Michler's Base)	2580-56-5	n.d.	
4,4'-Bis(dimethylamino)-4''-(methylamino)trityl alcohol [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)] (Analytically determined via the concentration of Michler's Ketone or Michler's Base)	561-41-1	n.d.	
4,4'- Diaminodiphenylmethane (DADPM)	0.05%	101-77-9	n.d.
Formaldehyde, oligomeric reaction products with aniline (technical MDA) (Analytically determined via the concentrations of 4,4'- Diaminodiphenylmethane (DADPM))	25214-70-4	n.d.	
Anthracene	0.05%	120-12-7	n.d.
Anthracene oils and anthracene pastes (Analytically determined via the concentration of anthracene)	90640-80-5 91995-17-4 91995-15-2 90640-82-7 90640-81-6	n.d.	
Coal tar (Analytically determined via the concentration of the sum of the 12 polycyclic aromatic hydrocarbons)	0.05%	65996-93-2	n.d.
Pentadecafluorooctanoic acid (PFOA)	0.05%	335-67-1	n.d.
Ammonium pentadecafluorooctanoate (APFO) (Analytically determined via the concentration of Pentadecafluorooctanoic acid (PFOA))	3825-26-1	n.d.	
2,4-Dinitrotoluene	0.05%	121-14-2	n.d.
Tris(2-chloroethyl)phosphate (TCEP)	0.05%	115-96-8	n.d.
Trixylyl phosphate	0.05%	25155-23-1	n.d.
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	0.05%	81-15-2	n.d.
2,2'-dichloro-4,4'-methylenedianiline (MOCA)	0.05%	101-14-4	n.d.
o-Anisidine ; 2-Methoxyaniline;	0.05%	90-04-0	n.d.
Tributyl tin oxide (TBTO)	0.05%	56-35-9	n.d.
Dibutyltin dichloride (DBTC)	0.05%	683-18-1	n.d.
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	0.05%	2451-62-9	n.d.
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazin-2,4,6-(1H,3H,5H)-trione (β -TGIC)	0.05%	59653-74-6	n.d.
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	0.05%	1163-19-5	n.d.
6-methoxy-m-toluidine (p-cresidine)	0.05%	120-71-8	n.d.
Nitrobenzene	0.05%	98-95-3	n.d.
Direct Red 28	0.05%	573-58-0	n.d.
Direct Black 38	0.05%	1937-37-7	n.d.
4-Aminoazobenzene	0.05%	60-09-3	n.d.
o-Toluidine	0.05%	95-53-4	n.d.
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	0.05%	95-80-7	n.d.
o-aminoazotoluene	0.05%	97-56-3	n.d.
4,4'-oxydianiline and its salts	0.05%	101-80-4	n.d.
Biphenyl-4-ylamine	0.05%	92-67-1	n.d.
4,4'-methylenedi-o-toluidine	0.05%	838-88-0	n.d.
Short chain chloroparaffins C ₁₀ -C ₁₃ (SCCP)	0.05%	85535-84-8	n.d.
Hexabromocyclododecane (HBCDD)	0.05%	25637-99-4 3194-55-6	n.d.
Phenolphthaleine	0.05%	77-09-8	n.d.
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	0.05%	88-85-7	n.d.
Perfluorononan-1-oic-acid and its sodium and ammonium salts (PFNA)	0.05%	375-95-1 21049-39-8 4149-60-4	n.d.
1,3-propanesultone	0.05%	1120-71-4	n.d.
Hexahydromethylphthalic anhydride, Hexahydro-4-methylphthalic anhydride, Hexahydro-1-methylphthalic anhydride, Hexahydro-3-methylphthalic anhydride	0.05%	25550-51-0 19438-60-9 48122-14-1 57110-29-9	n.d.

Cyclohexane-1,2-dicarboxylic anhydride, cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	0.05%	85-42-7 13149-00-3 14166-21-3	n.d.
4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	0.05%	140-66-9	n.d.
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (OPEO)	0.05%	–	n.d.
4-Nonylphenol, branched and linear	0.05%	–	n.d.
Heneicosfluoroundecanoic acid	0.05%	2058-94-8	n.d.
Pentacosfluorotridecanoic acid	0.05%	72629-94-8	n.d.
Tricosfluorododecanoic acid	0.05%	307-55-1	n.d.
Heptacosfluorotetradecanoic acid	0.05%	376-06-7	n.d.
Methoxyacetic acid	0.05%	625-45-6	n.d.
Diazeno-1,2-dicarboxamide (C,C'-azodi(formamide))	0.05%	123-77-3	n.d.
Bis(2-methoxyethyl) ether	0.05%	111-96-6	n.d.
1,2-Bis(2-methoxyethoxy)ethan (TEGDME; triglyme)	0.05%	112-49-2	n.d.
1,2-Dimethoxyethane Ethylene glycoldimethylether (EGDME)	0.05%	110-71-4	n.d.
Trichloroethen	0.05%	79-01-6	n.d.
Acrylamide	0.05%	79-06-1	n.d.
2-Methoxyethanol	0.05%	109-86-4	n.d.
2-Ethoxyethanol	0.05%	110-80-5	n.d.
1,2,3-Trichloropropane	0.05%	96-18-4	n.d.
1-Methyl-2-pyrrolidone	0.05%	872-50-4	n.d.
Hydrazine	0.05%	302-01-2 7803-57-8	n.d.
2-Ethoxyethyl acetate	0.05%	111-15-9	n.d.
N,N-dimethylacetamide (DMAC)	0.05%	127-19-5	n.d.
1,2-Dichloroethane	0.05%	107-06-2	n.d.
Furan	0.05%	110-00-9	n.d.
Diethyl sulphate	0.05%	64-67-5	n.d.
Dimethyl sulphate	0.05%	77-78-1	n.d.
N-methylacetamide	0.05%	79-16-3	n.d.
Methyloxirane (Propylene oxide)	0.05%	75-56-9	n.d.
1,2-Diethoxyethane	0.05%	629-14-1	n.d.
1-bromopropane (n-propyl bromide)	0.05%	106-94-5	n.d.
N,N-dimethylformamide	0.05%	68-12-2	n.d.
Formamide	0.05%	75-12-7	n.d.
4-Nonylphenoethoxylate, branched and linear (NPEO)	0.05%	–	n.d.
Imidazolidine-2-thione	0.05%	96-45-7	n.d.
2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	0.05%	3846-71-7	n.d.
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	0.05%	25973-55-1	n.d.
2,4-Di-tert-butyl-6-(5-Chlor-2H-benzotriazol-2-yl) phenol (UV-327)	0.05%	3864-99-1	n.d.
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	0.05%	36437-37-3	n.d.
5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	0.05%	-	n.d.
Benzo(def)chrysene (= Benzo(a)pyrene)	0.05%	50-32-8	n.d.
Bisphenol A	0.05%	80-05-7	n.d.
Nonadecafluorodecanoic acid	0.05%	335-76-2	n.d.
Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts <i>(Analytically determined via the concentrations of Nonadecafluorodecanoic acid)</i>		0.05%	n.d.
Ammonium nonadecafluorodecanoate <i>(Analytically determined via the concentrations of Nonadecafluorodecanoic acid)</i>		0.05%	n.d.
4-Heptylphenol, branched and linear	0.05%	–	n.d.
p-(1,1-Dimethylpropyl)phenol	0.05%	80-46-6	n.d.
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine <i>(Analytically determined via the concentrations of 2-(Ethylamino)ethanole)</i>		143860-04-2	n.d.

No analysis necessary for the following substances

Substance name	
Aluminosilicate	Ceramic fibres
Zirconia aluminosilicate	

Polycyclic aromatic hydrocarbons according to US-EPA + 2 EFSA PAH in mg/kg

Test method: AfPS GS 2014:01 (2014-08)

Limit of quantification: 0.2 mg/kg

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

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	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	Materials not covered by category 1 or 2 with foreseeable skin contact up to 30 seconds (short term skin contact)
	Valid from 27th December 2015	Valid from 1st July 2015	Valid from 1st July 2015 ¹⁾	Valid from 1st July 2015 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	< 1 mg/kg	< 0.2 mg/kg	< 0.5 mg/kg	< 1 mg/kg
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; for toys in the scope of 2009/48/EC other limits apply

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

Test method: 12.01.03.01 (2016-07)

Limit of quantification: 100 mg/kg

Substance name	CAS-No.	CS 2-4	CS 5-7
C ₁₀ -C ₁₃ (SCCP)	85535-84-8	n.d.	n.d.

Lead and Cadmium after total digestion in mg/kg

Test method:

Digestion: Microwave HNO₃/H₂O₂

Measurement: ICP-OES: DIN EN ISO 11885 (E22) 2009-09

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

Substance name	CAS No.	CS 2-4	CS 5-7
Cadmium	7440-43-9	n.d.	n.d.
Lead	7439-92-1	n.d.	n.d.

Tin Organic Compounds in µg/kg

Test method: DIN EN ISO 17353 (2005-11) mod.

LOQ = Limit of quantification in µg/kg

Substance name	Abbrev.	CAS-No.	LOQ	CS 2-4
Monobutyl tin	MBT	various	20	n.d.
Dibutyl tin	DBT	various	20	n.d.
Tributyl tin	TBT	various	20	n.d.
Tetrabutyl tin	TeBT	1461-25-2	20	n.d.
Mono-octyl tin	MOT	various	20	n.d.
Di-octyl tin	DOT	various	20	n.d.
Tri-cyclohexyl tin	TCHT	various	100	n.d.

Substance name	Abbrev.	CAS-No.	LOQ	CS 5-7
Monobutyl tin	MBT	various	10	n.d.
Dibutyl tin	DBT	various	10	n.d.
Tributyl tin	TBT	various	10	n.d.
Tetrabutyl tin	TeBT	1461-25-2	10	n.d.
Mono-octyl tin	MOT	various	10	n.d.
Di-octyl tin	DOT	various	100	n.d.
Tri-cyclohexyl tin	TCHT	various	50	n.d.

Conclusion:

In the sample a concentration over 0.1 % of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE) and Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE) were detected. 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE) and Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE and MOTE) are listed as SVHCs. So there are obligations to art. 33 of the REACH regulation. The tested sample is classified as marketable with regard to the examined parameters. For PAH conclusion see schedule above.

Intertek Consumer Goods GmbH



Sachverständige / Technical Expert
Nathalie Schmidt