

Test Report

Report No.: 190823021GZU-050

Date: Sep 19, 2019

Applicant: AILUN ELECTRONIC TECHNOLOGY (H.K) LIMITED

Room 01, 21/F Prosper Commercial Building 9 Yin Chong
Street, Kowloom, H.K

Sample Description:

The following submitted sample(s) said to be:

Item Name : **Shunt resistors**
Model No. : NA
Date of Sample Received : Aug 26, 2019
Testing Period : Aug 26, 2019 to Sep 05, 2019

Tests conducted:

As requested by the applicant, refer to following page(s) for details.

Summary:

According to the EU REACH Regulation No 1907/2006 Article 33(1) Obligation to provide information of safe use (see REACH requirement in report for details) and analytical techniques, the concentration of each of 201 Substances of very high concern (SVHCs) is <0.1%(w/w) in the test groups (1) of submitted sample.

Authorized by:

For Intertek Testing Services Shenzhen Ltd. Guangzhou Branch:

Martin He
Senior Project Engineer



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(I) SVHC Testing Results:

By Inductively Coupled Plasma Optical Emission Spectrometry, Ion Chromatography, UV-Visible Spectrophotometry, Gas Chromatographic - Mass Spectrometry, Liquid Chromatographic - Mass Spectrometry and High Performance Liquid Chromatography analysis.

<u>Batch</u>	<u>Chemical Substance</u>	<u>CAS No.</u>	<u>Results % (w/w)</u>
-	Tested SVHCs in Chemical list	-	(1) ND

SVHC = Substance of very high concern

ND = Not detected

Reporting limit = 0.010%

As applicant's requirement, materials were screened in composite testing.

(II) Tested group:

(1) Electronic elements



(III) Tested SVHC Chemical list:

Tested SVHC Chemical candidate list:

Items	batch	Chemical Substance	CAS No.
1	I	Cobalt Dichloride Δ	7646-79-9
2	I	Diarsenic Pentaoxide Δ	1303-28-2
3	I	Diarsenic Trioxide Δ	1327-53-3
4	I	Lead Hydrogen Arsenate Δ	7784-40-9
5	I	Triethyl Arsenate Δ	15606-95-8
6	I	Sodium Dichromate Δ	7789-12-0, 10588-01-9
7	I	Bis (Tributyltin) Oxide (TBTO) Δ	56-35-9
8	I	Anthracene	120-12-7
9	I	4,4'-Diaminodiphenylmethane (MDA)	101-77-9
10	I	Hexabromocyclododecane (HBCDD) and All Major Diastereoisomers Identified (α -HBCDD, β -HBCDD, γ -HBCDD)	25637-99-4 and 3194-55-6 (134237-50-6, 134237-51-7, 134237-52-8)
11	I	5-Tert-Butyl-2,4,6-Trinitro-m-Xylene (Musk Xylene)	81-15-2
12	I	Bis (2-Ethylhexyl) Phthalate (DEHP)	117-81-7
13	I	Dibutyl Phthalate (DBP)	84-74-2
14	I	Benzyl Butyl Phthalate (BBP)	85-68-7
15	I	Short Chain Chlorinated Paraffins (C ₁₀₋₁₃)	85535-84-8
16	II	Lead Chromate Δ	7758-97-6
17	II	Lead Chromate Molybdate Sulphate Red (C.I. Pigment Red 104) Δ	12656-85-8
18	II	Lead Sulfochromate Yellow (C.I. Pigment Yellow 34) Δ	1344-37-2
19	II	Tris (2-Chloroethyl) Phosphate	115-96-8
20	II	2,4-Dinitrotoluene	121-14-2
21	II	Diisobutyl Phthalate (DIBP)	84-69-5
22	II	Coal Tar Pitch, High Temperature	65996-93-2
23	II	Anthracene Oil	90640-80-5
24	II	Anthracene Oil, Anthracene Paste, Distr. Lights	91995-17-4
25	II	Anthracene Oil, Anthracene Paste, Anthracene Fraction	91995-15-2
26	II	Anthracene Oil, Anthracene-low	90640-82-7
27	II	Anthracene Oil, Anthracene Paste	90640-81-6
28	II	Acrylamide	79-06-1
29	III	Boric Acid Δ	10043-35-3, 11113-50-1
30	III	Disodium Tetraborate, Anhydrous Δ	1330-43-4, 12179-04-3, 1303-96-4
31	III	Tetraboron Disodium Heptaoxide, Hydrate Δ	12267-73-1
32	III	Sodium Chromate Δ	7775-11-3
33	III	Potassium Chromate Δ	7789-00-6
34	III	Ammonium Dichromate Δ	7789-09-5
35	III	Potassium Dichromate Δ	7778-50-9
36	III	Trichloroethylene	79-01-6
37	IV	2-Methoxyethanol	109-86-4
38	IV	2-Ethoxyethanol	110-80-5



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39	IV	Cobalt Sulphate Δ	10124-43-3
40	IV	Cobalt Dinitrate Δ	10141-05-6
41	IV	Cobalt Carbonate Δ	513-79-1
42	IV	Cobalt Diacetate Δ	71-48-7
43	IV	Chromium Trioxide Δ	1333-82-0
44	IV	Chromic Acid Δ Dichromic Acid Δ Oligomers of Chromic Acid and Dichromic Acid Δ	7738-94-5 13530-68-2 --
45	V	Strontium ChromateΔ	7789-06-2
46	V	2-ethoxyethyl acetate (2-EEA)	111-15-9
47	V	1,2-Benzenedicarboxylic acid, di-C ₇₋₁₁ - branched and linear alkyl esters (DHNUP)	68515-42-4
48	V	Hydrazine	7803-57-8 302-01-2
49	V	1-methyl-2-pyrrolidone	872-50-4
50	V	1,2,3-trichloropropane	96-18-4
51	V	1,2-Benzenedicarboxylic acid, di-C ₆₋₈ - branched alkyl esters, C ₇ -rich (DIHP)	71888-89-6
52	VI	Lead dipicrateΔ	6477-64-1
53	VI	Lead styphnateΔ	15245-44-0
54	VI	Lead azide; Lead diazideΔ	13424-46-9
55	VI	Phenolphthalein	77-09-8
56	VI	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4
57	VI	N,N-dimethylacetamide (DMAC)	127-19-5
58	VI	Trilead diarsenateΔ	3687-31-8
59	VI	Calcium arsenateΔ	7778-44-1
60	VI	Arsenic acidΔ	7778-39-4
61	VI	Bis(2-methoxyethyl) ether	111-96-6
62	VI	1,2-Dichloroethane	107-06-2
63	VI	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert- Octylphenol)	140-66-9
64	VI	2-Methoxyaniline; o-Anisidine	90-04-0
65	VI	Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8
66	VI	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4
67	VI	Pentazinc chromate octahydroxideΔ	49663-84-5
68	VI	Potassium hydroxyoctaoxodizincate di- chromateΔ	11103-86-9
69	VI	Dichromium tris(chromate)Δ	24613-89-6
70	VI	Aluminosilicate Refractory Ceramic Fibres Δ	(Index No. 650-017-00-8)
71	VI	Zirconia Aluminosilicate Refractory Ceramic Fibres Δ	(Index No. 650-017-00-8)
72	VII	1,2-bis(2-methoxyethoxy) ethane (TEGDME; triglyme)	112-49-2
73	VII	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4
74	VII	Diboron trioxideΔ	1303-86-2
75	VII	Formamide	75-12-7
76	VII	Lead(II) bis(methanesulfonate) Δ	17570-76-2
77	VII	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5- triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9



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78	VII	β -TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	59653-74-6
79	VII	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8
80	VII	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1
81	VII	[4-[4,4'-bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (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)]	548-62-9
82	VII	[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)]	2580-56-5
83	VII	α,α -Bis[4-(dimethylamino)phenyl]-4-(phenylamino)naphthalene-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)]	6786-83-0
84	VII	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)]	561-41-1
85	VIII	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5
86	VIII	Pentacosafuorotridecanoic acid	72629-94-8
87	VIII	Tricosafuorododecanoic acid	307-55-1
88	VIII	Henicosafuoroundecanoic acid	2058-94-8
89	VIII	Heptacosafuorotetradecanoic acid	376-06-7
90	VIII	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3
91	VIII	Cyclohexane-1,2-dicarboxylic anhydride [1] cis-cyclohexane-1,2-dicarboxylic anhydride [2] trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry].	85-42-7 13149-00-3 14166-21-3



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92	VIII	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	25550-51-0 19438-60-9 48122-14-1 57110-29-9
93	VIII	4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	--
94	VIII	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	--
95	VIII	Methoxyacetic acid	625-45-6
96	VIII	N,N-dimethylformamide	68-12-2
97	VIII	Dibutyltin dichloride (DBTC) Δ	683-18-1
98	VIII	Lead monoxide (Lead oxide) Δ	1317-36-8
99	VIII	Orange lead (Lead tetroxide) Δ	1314-41-6
100	VIII	Lead bis(tetrafluoroborate) Δ	13814-96-5
101	VIII	Trilead bis(carbonate)dihydroxide Δ	1319-46-6
102	VIII	Lead titanium trioxideΔ	12060-00-3
103	VIII	Lead titanium zirconium oxideΔ	12626-81-2
104	VIII	Silicic acid, lead salt Δ	11120-22-2
105	VIII	Silicic acid (H ₂ Si ₂ O ₅), barium salt (1:1), lead-dopedΔ [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]	68784-75-8
106	VIII	1-bromopropane (n-propyl bromide)	106-94-5



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107	VIII	Methyloxirane (Propylene oxide)	75-56-9
108	VIII	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0
109	VIII	Diisopentylphthalate (DIPP)	605-50-5
110	VIII	N-pentyl-isopentylphthalate	776297-69-9
111	VIII	1,2-diethoxyethane	629-14-1
112	VIII	Acetic acid, lead salt, basic Δ	51404-69-4
113	VIII	Lead oxide sulfate Δ	12036-76-9
114	VIII	[Phthalato(2-)]dioxotrilead Δ	69011-06-9
115	VIII	Dioxobis(stearato)trilead Δ	12578-12-0
116	VIII	Fatty acids, C16-18, lead salts Δ	91031-62-8
117	VIII	Lead cyanamate Δ	20837-86-9
118	VIII	Lead dinitrate Δ	10099-74-8
119	VIII	Pentalead tetraoxide sulphate Δ	12065-90-6
120	VIII	Pyrochlore, antimony lead yellow Δ	8012-00-8
121	VIII	Sulfurous acid, lead salt, dibasic Δ	62229-08-7
122	VIII	Tetraethyllead Δ	78-00-2
123	VIII	Tetralead trioxide sulphate Δ	12202-17-4
124	VIII	Trilead dioxide phosphonate Δ	12141-20-7
125	VIII	Furan	110-00-9
126	VIII	Diethyl sulphate	64-67-5
127	VIII	Dimethyl sulphate	77-78-1
128	VIII	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2
129	VIII	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7
130	VIII	4,4'-methylenedi-o-toluidine	838-88-0
131	VIII	4,4'-oxydianiline and its salts	101-80-4
132	VIII	4-aminoazobenzene	60-09-3
133	VIII	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7
134	VIII	6-methoxy-m-toluidine (p-cresidine)	120-71-8
135	VIII	Biphenyl-4-ylamine	92-67-1
136	VIII	o-aminoazotoluene [(4-o-tolylazo-o-toluidine)]	97-56-3
137	VIII	o-toluidine	95-53-4
138	VIII	N-methylacetamide	79-16-3
139	IX	Cadmium Δ	7440-43-9
140	IX	Cadmium oxide Δ	1306-19-0
141	IX	Dipentyl phthalate (DPP)	131-18-0



142	IX	4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	--
143	IX	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1
144	IX	Pentadecafluorooctanoic acid (PFOA)	335-67-1
145	X	Cadmium sulphide Δ	1306-23-6
146	X	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0
147	X	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7
148	X	Dihexyl phthalate (DnHP)	84-75-3
149	X	Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7
150	X	Lead di(acetate) Δ	301-04-2
151	X	Trixylyl phosphate	25155-23-1
152	XI	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear (Diisohexyl phthalate(DIHP))	68515-50-4
153	XI	Cadmium chloride Δ	10108-64-2
154	XI	Sodium perborate; perboric acid, sodium salt Δ	--
155	XI	Sodium peroxometaborate Δ	7632-04-4
156	XII	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1
157	XII	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7
158	XII	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1
159	XII	Cadmium fluoride Δ	7790-79-6
160	XII	Cadmium sulphate Δ	10124-36-4; 31119-53-6
161	XII	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)	15571-58-1; 27107-89-7
162	XIII	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with \geq 0.3% of dihexyl phthalate (EC No. 201-559-5)	68515-51-5 68648-93-1



163	XIII	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 isomers of [1] and [2] or any combination thereof]	117933-89-8
164	XIV	1,3-propanesultone	1120-71-4
165	XIV	Perfluorononanoic acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4
166	XIV	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1
167	XIV	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3
168	XIV	Nitrobenzene	98-95-3
169	XV	Benzo[a]pyrene	50-32-8
170	XVI	4, 4'-isopropylidenediphenol (bisphenol A)	80-05-7
171	XVI	4-Heptylphenol, branched and linear	---
172	XVI	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3108-42-7 335-76-2 3830-45-3
173	XVI	4-tert-pentylphenol (PTAP)	80-46-6
174	XVII	Perfluorohexane-1-sulphonic acid and its salts(PFHxS)	355-46-4
175	XVIII	Chrysene	218-01-9
176	XVIII	Benz[a]anthracene	56-55-3
177	XVIII	Cadmium nitrate Δ	10325-94-7
178	XVIII	Cadmium hydroxide Δ	21041-95-2
179	XVIII	Cadmium carbonate Δ	513-78-0
180	XVIII	Dechlorane plus (including any of its individual anti- and syn-isomers or any combination thereof)	13560-89-9; 135821-74-8; 135821-03-3-
181	XVIII	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with $\geq 0.1\%$ w/w 4-heptylphenol, branched and linear]	-
182	XIX	benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride) (TMA)	552-30-7
183	XIX	Dicyclohexyl phthalate(DCHP)	84-61-7
184	XIX	Benzo[ghi]perylene	191-24-2
185	XIX	Decamethylcyclopentasiloxane (D5)	541-02-6
186	XIX	Disodium octaborate Δ	12008-41-2
187	XIX	Dodecamethylcyclohexasiloxane (D6)	540-97-6
188	XIX	Ethylenediamine	107-15-3
189	XIX	Lead	7439-92-1
190	XIX	Octamethylcyclotetrasiloxane (D4)	556-67-2
191	XIX	Terphenyl hydrogenated	61788-32-7
192	XX	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6
193	XX	Benzo[k]fluoranthene	207-08-9
194	XX	Fluoranthene	206-44-0
195	XX	Phenanthrene	85-01-8
196	XX	Pyrene	129-00-0



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197	XX	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one(3-benzylidene camphor; 3-BC)	15087-24-8
198	XXI	4-tert-butylphenol (PTBP)	98-54-4
199	XXI	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof)	-
200	XXI	2-methoxyethyl acetate	110-49-6
201	XXI	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with $\geq 0.1\%$ w/w of 4-nonylphenol, branched and linear (4-NP)	-

Δ = Determination was based on elemental analysis. The content was calculated based on assumption of worst-case.

Notes:

Substances of very high concern (SVHC) are classified as:

Carcinogenic, mutagenic or toxic to reproduction category 1 (proven on humans) and category 2 (proven on animals)

Persistent, bioaccumulative and toxic chemicals (PBT)

Very persistent and very bioaccumulative chemicals (vPvB)

Other similar substances such as endocrine disrupters

If the imported or manufactured volume of each individual SVHC in article is more than 0.1% (w/w) and if it exceeds 1 tonne per year across all product ranges, then importer or manufacturer require notification to the European Chemical Agency (ECHA). For substances included in the Candidate List on or after 1 December 2010, the notifications have to be submitted no later than 6 months after the inclusion. The following information has to be submitted for notification:

Identification of the registrant and the substance

Classification and labelling of the substance

Description of use of the substance and the article

Registration number, if available

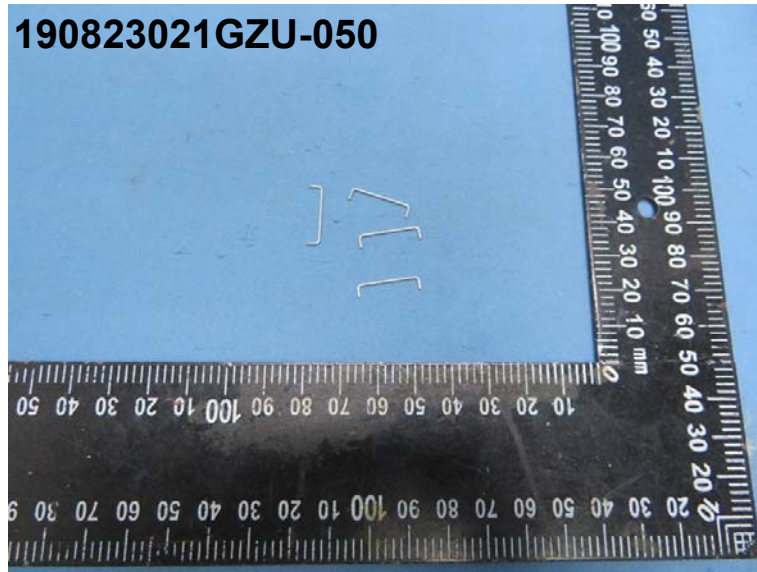
Tonnage range

REACH requirement:

As per article 33(1) of regulation (EC) No. 1907/2006 (REACH), recipients of product must be provided with information of safe use if any of the tested substances (SVHC) exceeded 0.1% (w/w). A product meets the requirement of article 33(1) by default when no SVHC exceeds 0.1% (w/w).



Sample photo



End of report

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