Warum verwendet ausgerechnet ein Unternehmen, was so sehr Nachhaltigkeit lebt, Kunststoff für seine Fahrradgriffe?

Das ist bei Fans von Velospring Holzgriffen oft das große Fragezeichen im Gesicht.

Das wollen wir gerne erläutern:

Erst mal aufräumen:

- Kunststoff ist unendlich vielseitiges Material, er ist dauerhaft, haptisch angenehm, sehr gut formbar und in beliebigen Härten zu bekommen.

Kunststoff wird dann problematisch, wenn er, bspw. als Verpackung nur kurz genutzt, danach in die Umwelt gelangt und Jahrzehnte oder gar Jahrhunderte stabil bleibt, nur in immer kleinere Teile zerfällt, aber nicht von Bodenorganismen abgebaut werden kann. Dann taucht er als Mikroplastik überall auf, wo er nicht sein soll.

Produkte, die eine lange Haltbarkeit haben sollen, können anders betrachtet werden:

1. Sind sie nützlich für die Welt?
2. Sind sie aus einem Material, was die Nutzungsdauer überlebt und danach gut zu entsorgen ist?
3. Können sie auch aus einem anderen Material gefertigt sein, was besser für die Menschen und die Umwelt ist?
4. Sind die Bestandteile gut zu trennen und gut dokumentiert, für ein Recyclen oder Entsorgen?

Insofern spricht nichts dagegen, Kunststoff für die Velospring Fahrradgriffe zu verwenden:

Zu 1.

Fahrradfahren an sich ist unbestritten nützlich für Mensch und gering belastend für die Umwelt.

Hierzu tragen die Art Comfort Fahrradgriffe von Velospring bei, die sehr lange unverändert gut ihre Arbeit machen:

Stöße der Fahrbahn abdämpfen und so Schmerzen an Händen, Gelenken und Schultern verringern. Ein sicheres und angenehmes Gefühl an den Händen hinterlassen.

Optisch erfreuen

Viele Jahre nutzbar sind, ohne Veränderungen an Oberfläche und Struktur.

Zu 2.

Der Kunststoff, der verwendet wird, ist TPU. Das steht für **t**hermo**p**lastisches Poly**u**rethan. TPU ist ein Polymermaterial mit einer Kombination von Eigenschaften, die es zu einer guten Wahl für

Fahrradgriffe machen. TPU ist robust, elastisch und beständig gegen Witterungseinflüsse wie UV-Strahlung und Feuchtigkeit. Es ist auch beständig gegen Öle, Fette und viele Chemikalien. Fahrradgriffe aus TPU können daher eine gute Haltbarkeit aufweisen und bieten einen angenehmen Griff und eine rutschfeste Oberfläche, die den Komfort und die Kontrolle über das Fahrrad verbessert.

Nach Ende der Nutzungsdauer können 30% des Materials direkt wieder in den Produktionsprozess rückgeführt werden. Wir planen ein solches Rücklaufsystem zu etablieren, da sich die Griffe gut sammeln lassen.

Das Material selbst ist inert, also Umweltneutral, ohne Wirkstoffe.

Die Bioabbaubarkeit ist in der Literatur kontrovers diskutiert, theoretisch ja, kein Mikroplastik aber eine sehr lange Abbauzeit (siehe weiterführende Links)

Die Fahrradgriffe aus Kunststoff haben einen CO2 Abdruck- ohne Zweifel. Diesen gilt es zeitlich so zu strecken, dass man deutlich von einer Langlebigkeit sprechen kann. Das tun wir durch die Auswahl der Materialien und die Nachkaufbarkeit von Teilen.

Zu 3.

Es gibt TPU, welches aus bis zu 60% aus nachwachsenden Rohstoffen besteht und den CO2-Fußabdruck um etwa 20% verringern kann. Interessant ist, ob die Kunden bereit sind, den höheren Preis des Rohstoffes zu tragen, in dem Wissen, damit nachhaltiger zu sein. Wir werden das in einer offenen Diskussion anregen und anlegen.

Die Velospringgriffe aus Holz sind, was den CO2- Fußabdruck anbetrifft sicher besser. Zur Wahrheit gehört aber auch, dass große Mengen an Nussbaumholz benötigt werden, um diese leichten Griffe herzustellen, weil vom Baum bis zum gefrästen Teil eben viel Holz verloren geht, durch die Auswahl geeigneter Stücke, durch Sägen, Hobeln und Fräsen.

Zum Anderen ist die Verwendung von Aluminium an sich kritisch, weil dieses bei der Herstellung Unmengen an Energie verbraucht und in den meisten Fällen eine erhebliche Umweltbelastung darstellt. Alle meine Forschungen nach besseren- nachhaltigeren- Lieferanten in der **Aluminium Stewardship Initiative** sind im Sand verlaufen, weil kaum ein Lieferant Zugriff auf einzelne Hersteller hat. Das wird in Zukunft zunehmend relevant und sicherlich einfacher werden. Der Druck auf die Industrie wächst stetig.

Der Vorteil von Aluminium, neben seiner Leichtigkeit und Haltbarkeit ist die hohe Recyclingquote. Das dann wiedergewonnene Aluminium ist mit sehr viel weniger Energie zu erzeugen.

Kurzfassung: Nach unserer Einschätzung haben wir bei der Materialauswahl große Sorgfalt aufgewandt, um bei guter Performance wenig Abdruck zu erzeugen.

Zu 4.

Sowohl die Holzgriffe, als auch die Kunststoffgriffe sind vollständig in nachbestellbare Einzelteile zu zerlegen, um bei Schaden eines einzelnen Teiles nicht das ganze Produkt ersetzen zu müssen. Wir verzichten auf Kompositmaterialien.

HUNTSMAN
Enriching lives through innovation

PRODUCT STEWARDSHIP IN ACTION

To : Jill Chuang – For further distribution to customer

Ref : Xin Yu Applied Materials Co.,Ltd – REACH Candidate List of SVHC (ECHA Last update: 17 Jan 2023)

17 February 2023

Herewith we confirm that in the products mentioned overleaf ("Huntsman Products") we do not intentionally introduce any substance listed on the REACH Candidate List of Substances of Very High Concern (SVHC) for authorisation (ECHA Website - Candidate list - http://echa.europa.eu/candidate-list-table) as published by the European Chemicals Agency (ECHA) pursuant to Article 59 REACH as of the date of this letter.
(http://www.echa.europa.eu/web/guest/proposals-to-identify-substances-of-very-high-concern)

Various environmental protection and product safety regulations, directives, standards and initiatives, define "intentionally introduced" to mean "deliberately utilised during the manufacture of the components and/or for the formulation of a material or component where its continued presence is desired in the final product to provide a specific property, appearance or quality". REACH guidance defines "impurity" as "an unintended constituent present in a substance as produced. It may originate from the starting materials or be the result of secondary or incomplete reactions during the production process. While it is present in the final substance it was not intentionally added". "Guidance for identification and naming of substances under REACH" (2.2 Definitions). SVHC substances may only be present in the final Huntsman Products as adventitious trace impurities (not intentionally added to the products).

Please do not hesitate to contact your Huntsman representative, if you have any further questions.

Yours sincerely,

Global Product Safety and Regulatory Compliance Management

HUNTSMAN PRODUCTS

- AVALON® 65 DB TPU
- IROGRAN ® PS 455-218 TPU
- IROGRAN A 85 C 4957 TPU
- IROGRAN® A 60 E 4902 TPU
- IROGRAN® A 60 E 4902N TPU
- IROGRAN® A 60 E 6038 TPU
- IROGRAN® A 70 P 6039 DP TPU
- IROGRAN® A 75 E 5040
- IROGRAN® A 78 P 4766
- IROGRAN® A 85 P 4394 TPU
- IROGRAN® A 85 P 4441 TPU
- IROGRAN® A 85 P 4854
- IROGRAN® A 92 C 4959 TPU
- IROGRAN® A 92 E 4860
- IROGRAN® A 98 E 6045UV DP TPU

Test Report

No.: ETR22300079 Date: 08-Mar-2022

GREAT EASTERN RESINS INDUSTRIAL CO., LTD.
NO.12, JINGKE 2ND. RD., NANTUN DISTRICT TAICHUNG, TAIWAN 40852 R.O.C.

The following sample(s) was/were submitted and identified by the applicant as:

Sample Submitted By : GREAT EASTERN RESINS INDUSTRIAL CO., LTD.
Sample Name : ISOTHANE 8000 series

==========

Sample Receiving Date : 01-Mar-2022
Testing Period : 01-Mar-2022 to 08-Mar-2022

Test Requested : As specified by client, the sample(s) was/were tested with reference to Regulation (EC) No 1907/2006 concerning the REACH for:
223 Substances of Very High Concern (SVHC) candidate list according to the press release of ECHA on January 17, 2022

Test Results : Please refer to following pages.

Summary : According to the ruling of the Court of Justice of the European Union on the definition of an article under REACH, and the specified scope as well as analytical technique, the test results of the selected component article are ≤ 0.1% (w/w) in the submitted sample(s).

Troy Chang / Department Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei

PIN CODE: E73207CE

GREAT EASTERN RESINS INDUSTRIAL CO., LTD.
NO.12, JINGKE 2ND. RD., NANTUN DISTRICT TAICHUNG, TAIWAN 40852 R.O.C.

Test Part Description

No.1 : TRANSPARENT-YELLOW PLASTIC PELLETS

Test Method

With reference to RSTS-EE-SVHC-007, analysis was performed by ICP-OES, UV-VIS, GC/MS, LC/MS, GC/FPD, LC/DAD, LC/MS/MS.

Test Result(s) **Unit: %**

Candidate List of SVHC (2022/01/17)

Substance Name	RL	Concentration	Limit
		No.1	
All tested SVHC in candidate list	-	n.d.	0.1

Remark :

1. Candidate List of SVHC (2022/01/17)
   https://echa.europa.eu/web/guest/candidate-list-table
2. In accordance with Regulation (EC) No 1907/2006, any producer or importer of articles shall notify ECHA, in accordance with paragraph 2 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation,

   if (a) the substance is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance is present in those articles above a concentration of 0.1% weight by weight (w/w).
3. Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance.
4. If a SVHC is found over 0.1% (w/w) and/or the specific concentration limit which is set in Regulation (EC) No 1272/2008 and its amendments, client is suggested to prepare a Safety Data Sheet (SDS) against the SVHC to comply with the supply chain communication obligation under Regulation (EC) No 1907/2006, in which:

(I) a substance that is classified as hazardous under the CLP Regulation (EC) No 1272/2008.
(II) mixture that is classified as hazardous under the CLP Regulation (EC) No 1272/2008, when it contains a substance with concentration equal to, or greater than the classification limit as set in Regulation (EC) No. 1272/2008; or
(III) a mixture is not classified as hazardous under the CLP Regulation (EC) No 1272/2008, but contains either:
(a) a substance posing human health or environmental hazards in an individual concentration of ≥ 1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures) or ≥ 0.2 % by volume for gaseous mixtures; or

(b) a substance that is PBT, or vPvB in an individual concentration of ≥ 0.1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures); or
(c) a substance on the SVHC candidate list (for reasons other than those listed above), in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures; or
(d) a substance for which there are Europe-wide workplace exposure limits

5. If a SVHC is found over the reporting limit, client is suggested to identify the component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

Note :

1. mg/kg = ppm ; 0.1wt% = 0.1% = 1000ppm
2. RL = Reporting Limit
3. n.d. = Not Detected (Less than RL)
4. "-" = Not Regulated
5. (*): conc. of Sodium dichromate dihydrate (CAS No.: 7789-12-0) = conc. of sodium dichromate x 1.1375
6. (**): The concentrations of above-mentioned mixtures are evaluated per the gained composition rate between the selected marks and the mixtures.
7. F Parameter Conversion Table/Classification: https://eecloud.sgs.com/Region_TW/DocDownload.aspx#otherDoc
8. (※ P): Regarding the compound containing Cr(VI) and lead, lead and Cr(VI) are tested and respectively used for the calculation of the independent concentration of the compound containing Cr(VI) and lead. The minimum value of the two independently calculated concentrations is used as the final concentration for the report.
9. (※ C): Oligomers of chromic acid and dichromic acid : since the oligomers are made of the unknown amount of chromic acid or dichromic acid that results in no fixed molecular weight, therefore the monomer of chromic acid or dichromic acid is relevant and considered.
10. (※ H): Tetraboron disodium heptaoxide, hydrate: Only anhydrous form of disodium tetraborate is relevant and considered according to ECHA explanation (Ref no.: INC 000000032519).

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11. ***: The substance was calculated by the test results of Monooctyl Tin, Dioctyl Tin, Tributyl Tin, Dibutyl Tin, PFOA or element (Ex. Arsenic, Lead, Cr(VI), Boron, Cobalt, Barium, Cadmium respectively).

The test result is given as: **Unit:** %

Substance Name	RL	Concentration
		No.1
Tributyl Tin (TBT)	0.05	n.d.
Arsenic (As) (※ E)	0.005	n.d.
Hexavalent chromium Cr(VI)	0.005	n.d.
Boron (B) (※ E)	0.005	n.d.
Cobalt (Co)	0.005	n.d.
Dibutyl Tin (DBT)	0.035	n.d.
Barium (Ba)	0.005	n.d.
Dioctyl Tin (DOT)	0.0225	n.d.
Monooctyl Tin (MOT)	0.0140	n.d.
Lead (Pb)	0.005	n.d.
Cadmium (Cd)	0.005	n.d.

12. (※ S): Regarding the compound containing arsenic and lead, lead and arsenic are tested and respectively used for the calculation of the independent concentration of the compound containing arsenic and lead. The minimum value of the two independently calculated concentrations is used as the final concentration for the report.
13. (※ T): TGIC is a mixture and also contains β-TGIC. According to the ECHA's technical dossier the ratio of β-TGIC to TGIC is around 1 to 10. Therefore β-TGIC is issued based on the above-mentioned ratio.
14. (※ B): Only if both qualitative results of lead and silicon are positive, the test result of the compound will be calculated based on the concentration of barium.
15. (※ R): RP-HP can't be identified directly and test result can't be calculated based on specific element(s) or compound. RP-HP is identified as SVHC because of 4-HPbl, therefore 4-HPbl is analysed instead of RP-HP.
16. (●) : Since lead has a wide application, it is unlikely to determine if the detected lead comes from the lead ion, lead element or/ and lead compounds. Therefore the detected total lead is used on behalf of lead.
17. (※ U): Boric acid (H3BO3), sodium salt, hydrate; Boric acid (H3BO3), disodium salt; Trisodium orthoborate; Boric acid, sodium salt; Orthoboric acid, sodium salt; Boric acid (H3BO3), sodium salt (1:1) (CAS No.: 25747-83-5; 22454-04-2; 14312-40-4; 1333-73-9; 13840-56-7; 14890-53-0). The calculation is based on the largest molecular weight of Orthoboric acid, sodium salt (CAS No.: 13840-56-7). The F Parameter is 11.8215.
18. (※ D): Regarding the compound containing Boron and lead, lead and Boron are tested and respectively used for the calculation of the independent concentration of the compound containing Boron and lead. The minimum value of the two independently calculated concentrations is used as the final concentration for the report.

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19. (※ G): The compound is qualitatively screened first. When there is a signal of the compound, specific elements Sulfur and Phosphorus are used to calculate the concentration of compound.
20. (※ E): The extracted soluble Boron / Arsenic are detected by ICP-OES.
21. The statement of compliance conformity is based on comparison of testing results and limits.

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【Appendix 1】

Candidate List of SVHC (2022/01/17) : **Unit: %**

No.	Substance Name	RL
1.	4,4'- Diaminodiphenylmethane (MDA) (CAS No.: 101-77-9)	0.05
2.	5-tert-butyl-2,4,6-trinitro-m-xylene (Musk Xylene) (CAS No.: 81-15-2)	0.05
3.	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	0.05
4.	Anthracene (CAS No.: 120-12-7)	0.05
5.	Benzyl butyl phthalate (BBP) (CAS No.: 85-68-7)	0.05
6.	Bis(tributyltin) oxide (TBTO)*** (CAS No.: 56-35-9)	-
7.	Diarsenic pentaoxide*** (CAS No.: 1303-28-2)	-
8.	Diarsenic trioxide*** (CAS No.: 1327-53-3)	-
9.	Dibutyl phthalate (DBP) (CAS No.: 84-74-2)	0.05
10.	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	0.05
11.	Lead hydrogen arsenate*** (CAS No.: 7784-40-9) (※ S)	-
12.	Sodium dichromate*** (CAS No.: 10588-01-9, 7789-12-0) (*)	-
13.	Triethyl arsenate*** (CAS No.: 15606-95-8)	-
14.	Bis (2-ethylhexyl)phthalate (DEHP) (CAS No.: 117-81-7)	0.05
15.	2,4-Dinitrotoluene (CAS No.: 121-14-2)	0.05
16.	Anthracene oil (CAS No.: 90640-80-5) (**)	0.05
17.	Anthracene oil, anthracene paste (CAS No.: 90640-81-6) (**)	0.05
18.	Anthracene oil, anthracene paste, anthracene fraction (CAS No.: 91995-15-2) (**)	0.05
19.	Anthracene oil, anthracene paste, distn. Lights (CAS No.: 91995-17-4) (**)	0.05
20.	Anthracene oil, anthracene-low (CAS No.: 90640-82-7) (**)	0.05
21.	Diisobutyl phthalate (CAS No.: 84-69-5)	0.05
22.	Lead chromate*** (CAS No.: 7758-97-6) (※ P)	-
23.	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*** (CAS No.: 12656-85-8) (※ P)	-
24.	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*** (CAS No.: 1344-37-2) (※ P)	-
25.	Pitch, coal tar, high-temp. (CAS No.: 65996-93-2) (**)	0.05
26.	Tris(2-chloroethyl) phosphate (TCEP) (CAS No.: 115-96-8)	0.05
27.	Acrylamide (CAS No.: 79-06-1)	0.05
28.	Ammonium dichromate*** (CAS No.: 7789-09-5)	-
29.	Boric acid*** (CAS No.: 10043-35-3, 11113-50-1)	-
30.	Disodium tetraborate, anhydrous*** (CAS No.: 1303-96-4, 1330-43-4, 12179-04-3)	-
31.	Potassium chromate*** (CAS No.: 7789-00-6)	-
32.	Potassium dichromate*** (CAS No.: 7778-50-9)	-
33.	Sodium chromate*** (CAS No.: 7775-11-3)	-
34.	Tetraboron disodium heptaoxide, hydrate (CAS No.: 12267-73-1) (※ H)	-

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No.	Substance Name	RL
35.	Trichloroethylene (CAS No.: 79-01-6)	0.05
36.	2-Ethoxyethanol (CAS No.: 110-80-5)	0.05
37.	2-Methoxyethanol (CAS No.: 109-86-4)	0.05
38.	Acids generated from chromium trioxide and their oligomers: Chromic acid*** (CAS No.: 7738-94-5)	-
	Acids generated from chromium trioxide and their oligomers: Dichromic acid*** (CAS No.: 13530-68-2)	-
	Acids generated from chromium trioxide and their oligomers: Oligomers of chromic acid and dichromic acid (※ C)	-
39.	Chromium trioxide ***(CAS No.: 1333-82-0)	-
40.	Cobalt(II) carbonate*** (CAS No.: 513-79-1)	-
41.	Cobalt(II) diacetate*** (CAS No.: 71-48-7)	-
42.	Cobalt(II) dinitrate*** (CAS No.: 10141-05-6)	-
43.	Cobalt(II) sulphate*** (CAS No.: 10124-43-3)	-
44.	1,2,3-trichloropropane (CAS No.: 96-18-4)	0.05
45.	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich (DIHP) (CAS No.: 71888-89-6)	0.05
46.	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP) (CAS No.: 68515-42-4)	0.05
47.	1-Methyl-2-pyrrolidone (NMP) (CAS No.: 872-50-4)	0.05
48.	2-ethoxyethyl acetate (CAS No.: 111-15-9)	0.05
49.	Hydrazine (CAS No.: 7803-57-8, 302-01-2)	0.05
50.	Strontium chromate*** (CAS No.: 7789-06-2)	-
51.	Cobalt dichloride (CAS No.: 7646-79-9)	0.005
52.	1,2-Dichloroethane (CAS No.: 107-06-2)	0.05
53.	2,2'-dichloro-4,4'-methylenedianiline (CAS No.: 101-14-4)	0.05
54.	2-Methoxyaniline, o-Anisidine (CAS No.: 90-04-0)	0.05
55.	4-(1,1,3,3-tetramethylbutyl)phenol (CAS No.: 140-66-9)	0.05
56.	Aluminosilicate Refractory Ceramic Fibres【oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges】	0.05
57.	Arsenic acid*** (CAS No.: 7778-39-4)	-
58.	Bis(2-methoxyethyl) ether (CAS No.: 111-96-6)	0.05
59.	Bis(2-methoxyethyl) phthalate (CAS No.: 117-82-8)	0.05
60.	Calcium arsenate*** (CAS No.: 7778-44-1)	-
61.	Dichromium tris(chromate)*** (CAS No.: 24613-89-6)	-
62.	Formaldehyde, oligomeric reaction products with aniline (technical MDA) (CAS No.: 25214-70-4)	0.05
63.	Lead diazide, Lead azide*** (CAS No.: 13424-46-9)	-
64.	Lead dipicrate*** (CAS No.: 6477-64-1)	-
65.	Lead styphnate*** (CAS No.: 15245-44-0)	-
66.	N,N-dimethylacetamide (DMAC) (CAS No.: 127-19-5)	0.05
67.	Pentazinc chromate octahydroxide*** (CAS No.: 49663-84-5)	-

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No.	Substance Name	RL
68.	Phenolphthalein (CAS No.: 77-09-8)	0.05
69.	Potassium hydroxyoctaoxodizincatedichromate*** (CAS No.: 11103-86-9)	-
70.	Trilead diarsenate*** (CAS No.: 3687-31-8) (※ S)	-
71.	Zirconia Aluminosilicate Refractory Ceramic Fibres【oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges】	0.05
72.	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone or Michler's base] (CAS No.: 2580-56-5)	0.05
73.	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone or Michler's base] (CAS No.: 548-62-9)	0.05
74.	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme) (CAS No.: 112-49-2)	0.05
75.	1, 2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME) (CAS No.: 110-71-4)	0.05
76.	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC) (CAS No.: 2451-62-9)	0.05
77.	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC) (CAS No.: 59653-74-6) (※ T)	0.05
78.	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone or Michler's base] (CAS No.: 561-41-1)	0.05
79.	4,4'-bis(dimethylamino)benzophenone (Michler’ s ketone) (CAS No.: 90-94-8)	0.05
80.	Diboron trioxide*** (CAS No.: 1303-86-2)	-
81.	Formamide (CAS No.: 75-12-7)	0.05
82.	Lead(II) bis(methanesulfonate)*** (CAS No.: 17570-76-2)	-
83.	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base) (CAS No.: 101-61-1)	0.05
84.	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone or Michler's base] (CAS No.: 6786-83-0)	0.05
85.	[Phthalato(2-)]dioxotrilead*** (CAS No.: 69011-06-9)	-
86.	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (CAS No.: 84777-06-0)	0.05
87.	1,2-Diethoxyethane (CAS No.: 629-14-1)	0.05
88.	1-bromopropane (n-propyl bromide) (CAS No.: 106-94-5)	0.05
89.	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine (CAS No.: 143860-04-2)	0.05
90.	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	0.05
91.	4,4'-Methylenedi-o-toluidine (CAS No.: 838-88-0)	0.05
92.	4,4'-Oxydianiline and its salts (CAS No.: 101-80-4)	0.05
93.	4-Aminoazobenzene (CAS No.: 60-09-3)	0.05
94.	2,4-Diaminotoluene (CAS No.: 95-80-7)	0.05

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No.	Substance Name	RL
95.	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]	0.05
96.	6-methoxy-m-toluidine (p-cresidine) (CAS No.: 120-71-8)	0.05
97.	Acetic acid, lead salt, basic*** (CAS No.: 51404-69-4)	-
98.	Biphenyl-4-ylamine (CAS No.: 92-67-1)	0.05
99.	Bis(pentabromophenyl) ether (decabromodiphenyl ether) (DecaBDE) (CAS No.: 1163-19-5)	0.05
100.	Cyclohexane-1,2-dicarboxylic anhydride (HHPA), cis-cyclohexane-1,2- dicarboxylic anhydride, trans-cyclohexane-1,2- dicarboxylic anhydride (Hexahydrophthalic anhydride - HHPA) (CAS No.: 85-42-7, 13149-00-3, 14166-21-3)	0.05
101.	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide)) (ADCA) (CAS No.: 123-77-3)	0.05
102.	Dibutyltin dichloride (DBTC)*** (CAS No.: 683-18-1)	-
103.	Diethyl sulphate (CAS No.: 64-67-5)	0.05
104.	Diisopentyl phthalate (CAS No.: 605-50-5)	0.05
105.	Dimethyl sulphate (CAS No.: 77-78-1)	0.05
106.	Dinoseb (6-sec-butyl-2,4-dinitrophenol) (CAS No.: 88-85-7)	0.05
107.	Dioxobis(stearato)trilead*** (CAS No.: 12578-12-0)	-
108.	Fatty acids, C16-18, lead salts*** (CAS No.: 91031-62-8)	-
109.	Furan (CAS No.: 110-00-9)	0.05
110.	Henicosafluoroundecanoic acid (CAS No.: 2058-94-8)	0.05
111.	Heptacosafluorotetradecanoic acid (CAS No.: 376-06-7)	0.05
112.	Hexahydromethylphthalic anhydride (CAS No.: 25550-51-0) Hexahydro-4-methylphthalic anhydride (CAS No.: 19438-60-9) Hexahydro-3-methylphthalic anhydride (CAS No.: 57110-29-9) Hexahydro-1-methylphthalic anhydride (CAS No.: 48122-14-1)	0.05
113.	Lead bis(tetrafluoroborate)*** (CAS No.: 13814-96-5) (※ D)	-
114.	Lead cyanamidate*** (CAS No.: 20837-86-9)	-
115.	Lead dinitrate*** (CAS No.: 10099-74-8)	-
116.	Lead monoxide (lead oxide)*** (CAS No.: 1317-36-8)	-
117.	Lead oxide sulfate*** (CAS No.: 12036-76-9)	-
118.	Lead titanium trioxide*** (CAS No.: 12060-00-3)	-
119.	Lead Titanium Zirconium Oxide*** (CAS No.: 12626-81-2)	-
120.	Methoxyacetic acid (CAS No.: 625-45-6)	0.05
121.	Methyloxirane (Propylene oxide) (CAS No.: 75-56-9)	0.05
122.	N,N-dimethylformamide; dimethyl formamide (CAS No.: 68-12-2)	0.05
123.	N-methylacetamide (CAS No.: 79-16-3)	0.05
124.	n-pentyl-isopentylphthalate (CAS No.: 776297-69-9)	0.05

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No.	Substance Name	RL
125.	o-aminoazotoluene (CAS No.: 97-56-3)	0.05
126.	Orange lead (lead tetroxide)*** (CAS No.: 1314-41-6)	-
127.	o-Toluidine (CAS No.: 95-53-4)	0.05
128.	Pentacosafluorotridecanoic acid (CAS No.: 72629-94-8)	0.05
129.	Pentalead tetraoxide sulphate*** (CAS No.: 12065-90-6)	-
130.	Pyrochlore, antimony lead yellow*** (CAS No.: 8012-00-8)	-
131.	Silicic acid (H2Si2O5), barium salt (1:1), lead-doped (※ B) (CAS No.: 68784-75-8)	0.05
132.	Silicic acid, lead salt*** (CAS No.: 11120-22-2)	-
133.	Sulfurous acid, lead salt, dibasic*** (CAS No.: 62229-08-7)	-
134.	Tetraethyllead*** (CAS No.: 78-00-2)	-
135.	Tetralead trioxide sulphate*** (CAS No.: 12202-17-4)	-
136.	Tricosafluorododecanoic acid (CAS No.: 307-55-1)	0.05
137.	Trilead bis(carbonate) dihydroxide (basic lead carbonate)*** (CAS No.: 1319-46-6)	-
138.	Trilead dioxide phosphonate*** (CAS No.: 12141-20-7)	-
139.	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]	0.05
140.	Ammonium pentadecafluorooctanoate (APFO)*** (CAS No.: 3825-26-1)	-
141.	Cadmium (Cd) (CAS No.: 7440-43-9)	0.005
142.	Cadmium oxide*** (CAS No.: 1306-19-0)	-
143.	Dipentyl phthalate (DPP) (CAS No.: 131-18-0)	0.05
144.	Pentadecafluorooctanoic acid (PFOA) (CAS No.: 335-67-1)	0.05
145.	Cadmium sulphide*** (CAS No.: 1306-23-6)	-
146.	Dihexyl phthalate (CAS No.: 84-75-3)	0.05
147.	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28) (CAS No.: 573-58-0)	0.05
148.	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) (CAS No.: 1937-37-7)	0.05
149.	Imidazolidine-2-thione (2-imidazoline-2-thiol) (CAS No.: 96-45-7)	0.05
150.	Lead di(acetate)*** (CAS No.: 301-04-2)	-
151.	Trixylyl phosphate (CAS No.: 25155-23-1)	0.05
152.	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear (CAS No.: 68515-50-4)	0.05
153.	Cadmium chloride*** (CAS No.: 10108-64-2)	-
154.	Sodium perborate; perboric acid, sodium salt***	-
155.	Sodium peroxometaborate*** (CAS No.: 7632-04-4)	-
156.	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328) (CAS No.: 25973-55-1)	0.05

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No.	Substance Name	RL
157.	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320) (CAS No.: 3846-71-7)	0.05
158.	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)*** (CAS No.: 15571-58-1)	-
159.	Cadmium fluoride*** (CAS No.: 7790-79-6)	-
160.	Cadmium sulphate*** (CAS No.: 10124-36-4, 31119-53-6)	-
161.	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)***	-
162.	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters with ≧ 0.3% of dihexyl phthalate (CAS No.: 68515-51-5, 68648-93-1)	0.05
163.	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]	0.05
164.	1,3-propanesultone (CAS No.: 1120-71-4)	0.05
165.	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327) (CAS No.: 3864-99-1)	0.05
166.	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350) (CAS No.: 36437-37-3)	0.05
167.	Nitrobenzene (CAS No.: 98-95-3)	0.05
168.	Perfluorononan-1-oic-acid and its sodium and ammonium salts (CAS No.: 375-95-1, 21049-39-8, 4149-60-4)	0.05
169.	Benzo[def]chrysene (Benzo[a]pyrene) (CAS No.: 50-32-8)	0.05
170.	4,4'-isopropylidenediphenol (Bisphenol A) (CAS No.: 80-05-7)	0.05
171.	4-Heptylphenol, branched and linear (4-HPbl) [substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	0.05
172.	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts (CAS No.: 3108-42-7, 335-76-2, 3830-45-3)	0.05
173.	p-(1,1-dimethylpropyl)phenol (CAS No.: 80-46-6)	0.05
174.	Perfluorohexane-1-sulphonic acid and its salts (PFHxS) (CAS No.: 355-46-4)	0.05
175.	1,6,7,8,9,14,15,16,17, 17,18,18- Dodecachloropentacyclo [12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"TM) [covering any of its individual anti- and syn-isomers or any combination thereof]	0.05
176.	Benz[a]anthracene (CAS No.: 56-55-3)	0.05
177.	Cadmium nitrate*** (CAS No.: 10325-94-7)	-
178.	Cadmium carbonate*** (CAS No.: 513-78-0)	-
179.	Cadmium hydroxide*** (CAS No.: 21041-95-2)	-
180.	Chrysene (CAS No.: 218-01-9)	0.05
181.	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear] (※ R)	-

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No.	Substance Name	RL
182.	Dicyclohexyl phthalate (DCHP) (CAS No.: 84-61-7)	0.05
183.	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride; TMA) (CAS No.: 552-30-7)	0.05
184.	Benzo[ghi]perylene (CAS No.: 191-24-2)	0.05
185.	Octamethylcyclotetrasiloxane (D4) (CAS No.: 556-67-2)	0.05
186.	Decamethylcyclopentasiloxane (D5) (CAS No.: 541-02-6)	0.05
187.	Dodecamethylcyclohexasiloxane (D6) (CAS No.: 540-97-6)	0.05
188.	Disodium octaborate*** (CAS No.: 12008-41-2)	-
189.	Ethylenediamine (CAS No.: 107-15-3)	0.05
190.	Lead (Pb) (CAS No.: 7439-92-1) (●)	0.005
191.	Terphenyl, hydrogenated (CAS No.: 61788-32-7)	0.05
192.	2,2-bis(4'-hydroxyphenyl)-4-methylpentane (CAS No.: 6807-17-6)	0.05
193.	Benzo[k]fluoranthene (CAS No.: 207-08-9)	0.05
194.	Fluoranthene (CAS No.: 206-44-0)	0.05
195.	Phenanthrene (CAS No.: 85-01-8)	0.05
196.	Pyrene (CAS No.: 129-00-0)	0.05
197.	1,7,7-trimethyl-3-(phenylmethylene) bicyclo[2.2.1]heptan-2-one (3-benzylidene camphor) (CAS No.: 15087-24-8)	0.05
198.	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof)	0.05
199.	2-methoxyethyl acetate (CAS No.: 110-49-6)	0.05
200.	4-tert-butylphenol (CAS No.: 98-54-4)	0.05
201.	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	0.05
202.	Diisohexyl phthalate (CAS No.: 71850-09-4)	0.05
203.	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone (CAS No.: 119313-12-1)	0.05
204.	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one (CAS No.: 71868-10-5)	0.05
205.	Perfluorobutane sulfonic acid (PFBS) and its salts	0.05
206.	1-vinylimidazole (CAS No.: 1072-63-5)	0.05
207.	2-methylimidazole (CAS No.: 693-98-1)	0.05
208.	Butyl 4-hydroxybenzoate (CAS No.: 94-26-8)	0.05
209.	Dibutylbis(pentane-2,4-dionato-O,O')tin*** (CAS No.: 22673-19-4)	-
210.	Bis(2-(2-methoxyethoxy)ethyl) ether (CAS No.: 143-24-8)	0.05
211.	Dioctyltin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety***	-
212.	1,4-dioxane (CAS No.: 123-91-1)	0.05

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No.	Substance Name	RL
213.	2,2-bis(bromomethyl)propane1,3-diol (BMP) (CAS No.: 3296-90-0)	0.05
	2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA) (CAS No.: 36483-57-5, 1522-92-5)	0.05
	2,3-dibromo-1-propanol (2,3-DBPA) (CAS No.: 96-13-9)	0.05
214.	2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers ((2R)-3-(4-tert-butylphenyl)-2-methylpropanal; 2-(4-tert-butylbenzyl)propionaldehyde; (2S)-3-(4-tert-butylphenyl)-2-methylpropanal) (CAS No.: 75166-31-3; 80-54-6; 75166-30-2)	0.05
215.	4,4'-(1-methylpropylidene)bisphenol; (bisphenol B) (CAS No.: 77-40-7)	0.05
216.	Glutaral (CAS No.: 111-30-8)	0.05
217.	Alkanes, C14-16, chloro; Alkanes, C14-17, chloro; di-, tri- and tetrachlorotetradecane; Tetradecane, chloro derivs. (CAS No.: 1372804-76-6; 85535-85-9; 198840-65-2)	0.05
218.	Orthoboric acid, sodium salt*** (CAS No.: 13840-56-7) · boric acid (H3BO3), sodium salt, hydrate; Boric acid (H3BO3), disodium salt; Trisodium orthoborate; Boric acid, sodium salt; Boric acid (H3BO3), sodium salt (1:1) (CAS No.: 25747-83-5; 22454-04-2; 14312-40-4; 1333-73-9; 14890-53-0) (※ U)	-
219.	Phenol, alkylation products (mainly in para position) with C12-rich branched or linear alkyl chains from oligomerisation, covering any individual isomers and/ or combinations thereof (PDDP) (Phenol, 4-dodecyl, branched; 4-isododecylphenol; Phenol, 4-isododecyl-; Phenol, dodecyl-, branched; Phenol, (tetrapropenyl) derivatives; Phenol, tetrapropylene-) (CAS No.: 210555-94-5; 27459-10-5; 27147-75-7; 121158-58-5; 74499-35-7; 57427-55-1)	0.05
220.	(±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one covering any of the individual isomers and/or combinations thereof (4-MBC)	0.05
221.	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol (DBMC) (CAS No.: 119-47-1)	0.05
222.	S-(tricyclo[5.2.1.0'2,6]deca-3-en-8(or 9)-yl) O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate (CAS No.: 255881-94-8) (※ G)	0.05
223.	Tris(2-methoxyethoxy)vinylsilane (CAS No.: 1067-53-4)	0.05

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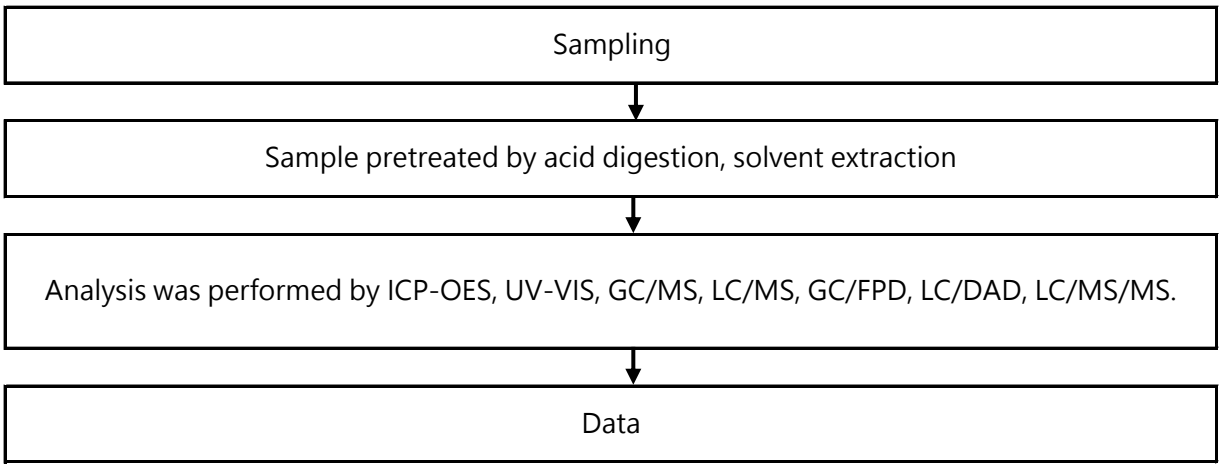
Analytical flow chart of SVHC



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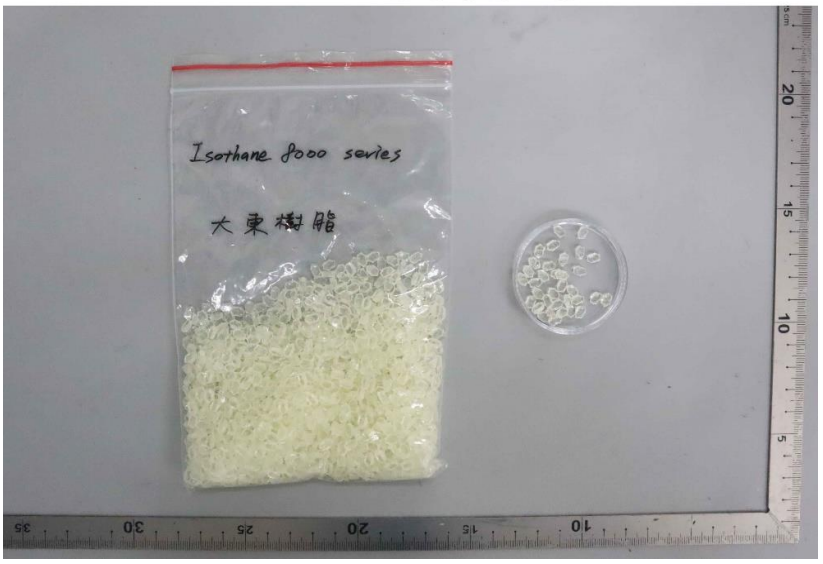
*** The tested sample / part is marked by an arrow if it's shown on the photo. ***

ETR22300079



** End of Report **