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GREEN PROCUREMENT GUIDELINE

4TH EDITION



1. Purpose

We, Star Micronics Co., Ltd. (hereinafter referred to as “Star”) are pleased to notify you of concrete requirements, and procedures based on Star’s principles toward the “Green Procurement”.

The Green procurement is to affirmatively procure products, parts, assembled units, components and so forth, which are environment-friendly designed, manufactured and supplied to us, by those who seriously struggle with the environment protection activity.

2. Scope

This document applies to all the following procured parts, that is, products to be delivered to Star.

| | |
|---------------------|--|
| Raw Material: | Material which is to be processed for the purpose to be a major part of a product. |
| Purchased Part: | Part which is to be assembled as a major part into a product, without any process |
| Process Part: | Part which is processed as designed by Star for the purpose to be a part of a product |
| Auxiliary Part: | Part which is to be assembled as an auxiliary part into a product, without any process |
| Purchased Product: | Product which is purchased from other company for the purpose to be sold as itself |
| Packing Material: | Materials which is required to pack a product |
| Auxiliary Material: | Materials which is required additionally to pack a product |

Please indicate whether any environment loading substances are contained in deliverables, whether prohibited substances (ozone layer depleting substances) are being used in production processes, and also to describe the constituent substances in terms of content amount, contained locations, and purpose for their inclusions, by filling out “Environment Loading Substance Survey” and “**Survey for SVHC/PFOS**”.

Please notify the Star section in charge if any prohibited substance is contained in deliverables or is being used, and whenever a change in the submitted survey data occurs.

3. Definition of terms

1) Inclusion

The term means a substance is added, mixed, adhered to a material that is used for procured parts either on purpose or accidentally. It may occur in manufacturing process.

2) Intentional Addition

The term means that a substance is used to get better performance or change the characteristic of the procured parts.

3) Inclusion except Intentional Addition

The term means that a substance is already included in natural material, and unable to get removed completely, otherwise, mixed or adhered at manufacturing process not on purpose.

4) Inclusion Tolerance

The term means the value of substance inclusion or the maximum tolerance. When the procured parts include more than two materials, the denominator is not to be the whole part, but to be mixed material that contains defined substance.

4. Control Standard for Chemical Substance

Star has self standard to control the substance included in procured parts, such as plastic, rubber, plating/coat/conversion treatment of metal material, paper, printing ink, etc.), by dividing into the **following three criteria**.

1) Criteria 1 – R (Regulated)

Substances that are subject to enacted legislation that (a) prohibits their use; or (b) restricts their use; or (c) requires reporting or results in other regulatory effects (e.g. labeling) and where the substance-specific effective date is currently in effect or scheduled to go into effect within the next 24 months.

2) Criteria 2 – A (For Assessment Only)

Substances that are likely to be subject to enacted legislation where the substance-specific effective dates of the regulatory requirements are uncertain.

3) Criteria 3 – I (For Information Only)

Substances that are not regulated but where there is a recognized market requirement for reporting their content in electrotechnical products. Reporting is used to facilitate company assessment regarding widely adopted industry environmental agreements or standards.

Table 1. Environment Loading Substances List

| | Substance Group | Control classification | | | Tolerance | |
|---------------------------|-----------------------------------|--|-----------------------------|----------------------|----------------|--|
| | | Regulated | For Assessment Only | For Information Only | | |
| Metal compounds | A01 | Antimony and Antimony Compounds | | | | |
| | A02 | Arsenic and Arsenic Compounds (other than Diarsenic pentaoxide and Diarsenic trioxide) | | | | |
| | A03 | Beryllium and Beryllium Compounds (other than Beryllium Oxide) | | | | |
| | A04 | Bismuth and Bismuth Compounds | | | | |
| | A05 | Cadmium and Cadmium Compounds 2 | | 3 | 75ppm | |
| | A07 | Hexavalent Chromium Compounds | | | 1000ppm | |
| | A09 | Lead and Lead Compounds 4 | | 5 | 1000ppm | |
| | A10 | Mercury and Mercury Compounds | | | 1000ppm | |
| | A11 | Nickel 6 | | | Intentional | |
| | A13 | Selenium and Selenium Compounds | | | | |
| | A18 | Tri-substituted organostannic compounds | | | 1000ppm of tin | |
| | A19 | Beryllium Oxide (BeO) | | | 1000ppm | |
| | A23 | Dibutyltin (DBT) compounds | | | 1000ppm of tin | |
| | A24 | Diocetyl tin (DOT) compounds | | | 1000ppm of tin | |
| Halogen-organic compounds | B02 | Polybrominated Biphenyls (PBBs) | | | 1000ppm | |
| | B03 | Polybrominated Diphenyl ethers (PBDEs) | | | 1000ppm | |
| | B05 | Polychlorinated Biphenyls (PCBs) | | | Intentional | |
| | B06 | Polychloronaphthalenes (Cl=>3) | | | Intentional | |
| | B07 | Vinyl Chloride Polymer (PVC) | | | | |
| | B08 | Brominated Flame Retardants (other than PBBs, PBDEs, or HBCCD) | | | | |
| | B10 | Fluorinated greenhouse gases (PFC, SF6, HFC) | | | Intentional | |
| | B12 | Perchlorates | | | 0.006ppm | |
| B15 | Polychlorinated Terphenyls (PCTs) | | | Intentional | | |
| Others | C01 | Asbestos | | | Intentional | |
| | C02 | Azocolorants and azodyes which form certain aromatic amines 8 | | | Intentional | |
| | C04 | Ozone Depleting Substances/Isomers 9 | | | Intentional | |
| | C06 | Radioactive Substances | | | Intentional | |
| | C07 | Formaldehyde | | | Intentional | |
| | C08 | Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl) | | | Intentional | |
| | C09 | Selected Phthalates Group 1 (DEHP, DBP, BBP) 10 | | | 1000ppm | |
| | C10 | Selected Phthalates Group 2 (DINP, DIDP, DNOP) 11 | | | 1000ppm | |
| | C11 | Dimethyl Fumarate | | | 0.1ppm | |
| | Noble metals | D01 | Copper and Copper Compounds | | | |
| | | D02 | Gold and Gold Compounds | | | |
| D03 | | Palladium and Palladium Compounds | | | | |
| D04 | | Silver and Silver Compounds | | | | |
| PFOS SVHC | S01 ~ S39 | Substance of Very High Concern (SVHC) 12 | | | 1000ppm | |
| | P01 | Perfluoro-octyl sulphonates (PFOS) 13 | | | Intentional | |

- 1 Including alloyed metal.
- 2 Since free-cutting brass bar contains cadmium as its impure substance, please specify material manufacturer to use the material that is certified to contain less than 100ppm of its content.
- 3 Following conditions of “Cadmium and Cadmium Compounds” are categorized into “**For Information Only**” substances:
 - The plating of electrical contacts, for which high reliability is required and which has no substitute materials.
- 4 Electroless nickel plating uses lead compounds intentionally in order to control leaching reaction of nickel. When electroless nickel plating is chosen, please use lead-free liquid for electroless nickel plating.
- 5 Following conditions of “Lead and Lead Compounds” are categorized into “**For Information Only**” substances:
 - High-melting point solder for internal connections used for parts and devices (the leaded solder whose lead content is at least 85 wt%.
 - Electronic ceramic parts (e.g. piezoelectric elements, ceramic dielectric materials).
 - Glass materials used for electrical parts, cathode-ray tubes, or vacuum fluorescent displays.
Glass materials used for electrical parts include sealing materials, resistor elements, conductive pastes, adhesives, and glass frit.
 - The following alloys that contain lead as an additive

| Type of alloy | Allowable content of lead |
|----------------|---------------------------|
| Steel | Less than 0.35 wt% |
| Aluminum alloy | Less than 0.4 wt% |
| Copper alloy | Less than 4 wt% |
| Solder | Less than 1000 ppm |
- 6 **Where prolonged skin contact is expected**
- 7 Short Chain Chlorinated Paraffines (C10-13).
- 8 Azo dyes pigment forming certain amines. The subjected applications are limited to parts that may come into direct contact with human skin for a long time. (Certain amines are the substances listed 76/769/EEC, the 19th Amendment, refer to Table 2 below.)
- 9 Regarding the Class II substances, although they are not prohibited substances, the survey for them should be carried out.
- 10 **Children’s toy or child care article**
- 11 **Children’s toy or child care article that can be placed in a child’s mouth**
- 12 The Substances of Very High Concern (SVHC) includes substances which are defined by REACH regulation, and Cyclododecane is added since it was once a candidate of SVHC at the early stage. Please refer to Table 4 to 6 for the SVHC list.
- 13 Please refer to the Table 7 for the list of Perfluoro-octyl sulphonates(PFOS).

5. Method of filling in submitted documents

Please input data to the electronic file presented from Star, and submit the electronic file and the original copy with the company seal or the signature by person who is responsible to our charge section.

(Please consult our person in charge about a difficult customer to submit with the electronic file.)

Please fill in each parts for the investigation, and submit it according to electronic data.

There is an obstacle in the taking summary in our company when the batch description of two or more parts is done, and we appreciate your cooperation.

1. Please fill in the blank including Star part number, etc.
2. Please fill in the all up weights of parts with the unit of *g*.
3. Please fill in a heatproof temperature for electronic parts.
4. Please fill it in on the investigation vote including content information on the material fee when the material fee is arranged and bought in your company when the material fee is being provided by the processing parts by Star Micronics though the description of the material fee is unnecessary.
5. Please fill the contained chemical by a total content with the unit of *mg*. and by two significant digit digits with the treble is rounded off.
6. Please fill in the intention to use the chemical easily on the use usage and the purpose.
7. The content part means the part that contains the chemical for the investigation in the composition parts. Please fill in how in the name and procurement destinations of the description to call and general names on specifications and the drawing about the name of the content part. Moreover, please add the line when the same chemical is contained in two or more parts and describe by one part a line.
8. The weight of the content part is not the weights of parts described in 2.
9. Please fill in the content rate to a homogeneous material of the content part of the content chemical with *ppm*.
10. Please fill in the content prohibition exclusion reason etc. on supplements concerning the content chemical.

Table 2. Typical Examples of Substances List

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|-----------------|-------------------------------|------------|---|-------------------------|--------------|
| Metal compounds | | | | | |
| A01 | Antimony and its Compounds | A01001 | Antimony | 1.000 | 7440 -36 -0 |
| | | A01002 | Antimony trichloride | 0.534 | 10025 -91 -9 |
| | | A01003 | Antimony trioxide | 0.835 | 1309 -64 -4 |
| | | A01004 | Antimony pentoxide | 0.753 | 1314 -60 -9 |
| | | A01005 | Sodium antimonate | 0.632 | 15432 -85 -6 |
| | | A01997 ~ 9 | Other antimony compounds | - | - |
| A02 | Arsenic and its Compounds | A02001 | Arsenic | 1.000 | 7440 -38 -2 |
| | | A02002 | Gallium arsenide | 0.518 | 1303 -00 -0 |
| | | A02997 ~ 9 | Other arsenic compounds | - | - |
| A03 | Beryllium and its Compounds | A03001 | Beryllium | 1.000 | 7440 -41 -7 |
| | | A03997 ~ 9 | Other beryllium compounds | - | - |
| A04 | Bismuth and its Compounds | A04001 | Bismuth | 1.000 | 7440 -69 -9 |
| | | A04002 | Bismuth trioxide | 0.897 | 1304 -76 -3 |
| | | A04003 | Bismuth nitrate | 0.529 | 10361 -44 -1 |
| | | A04997 ~ 9 | Other bismuth compounds | - | - |
| A05 | Cadmium and its compounds | A05001 | Cadmium | 1.000 | 7440 -43 -9 |
| | | A05002 | Cadmium oxide | 0.875 | 1306 -19 -0 |
| | | A05003 | Cadmium sulfide | 0.778 | 1306 -23 -6 |
| | | A05004 | Cadmium chloride | 0.613 | 10108 -64 -2 |
| | | A05005 | Cadmium sulfate | 0.539 | 10124 -36 -4 |
| | | A05990 ~ 9 | Other cadmium compounds | - | - |
| A07 | Hexavalent Chromium compounds | A07001 | Sodium dichromate | 0.397 | 10588 -01 -9 |
| | | A07002 | Chromium (VI) oxide | 0.520 | 1333 -82 -0 |
| | | A07002 | Chromium trioxide | 0.520 | 1333 -82 -0 |
| | | A07003 | Calcium chromate | 0.333 | 13765 -19 -0 |
| | | A07004 | Lead (II) chromate | 0.161 | 7758 -97 -6 |
| | | A07005 | Potassium dichromate | 0.353 | 7778 -50 -9 |
| | | A07007 | Barium chromate | 0.205 | 10294 -40 -3 |
| | | A07009 | Strontium chromate | 0.255 | 7789 -06 -2 |
| | | A07010 | Zinc chromate | 0.287 | 13530 -65 -9 |
| | | A07990 ~ 9 | Other hexavalent chromium compounds | - | - |
| A09 | Lead and its Compounds | A09001 | Lead | 1.000 | 7439 -92 -1 |
| | | A09002 | Lead (II) carbonate | 0.775 | 598 -63 -0 |
| | | A09003 | Lead (IV) oxide | 0.866 | 1309 -60 -0 |
| | | A09004 | Lead (II,IV) oxide | 0.907 | 1314 -41 -6 |
| | | A09005 | Lead (II) sulfide | 0.866 | 1314 -87 -0 |
| | | A09006 | Lead (II) oxide | 0.928 | 1317 -36 -8 |
| | | A09007 | Lead (II) carbonate basic | 0.801 | 1319 -46 -6 |
| | | A09008 | Lead hydroxidcarbonate | 0.801 | 1344 -36 -1 |
| | | A09009 | Lead (II) sulfate | 0.683 | 7446 -14 -2 |
| | | A09010 | Lead (II) phosphate | 0.766 | 7446 -27 -7 |
| | | A09011 | Lead (II) chromate | 0.641 | 7758 -97 -6 |
| | | A09012 | Lead (II) titanate | 0.686 | 12060 -00 -3 |
| | | A09013 | Lead sulfate, sulphuric acid, lead salt | 1.000 | 15739 -80 -7 |
| | | A09014 | Lead sulphate, tribasic | 0.850 | 12202 -17 -4 |
| | | A09015 | Lead stearate | 0.268 | 1072 -35 -1 |
| | | A09016 | Lead stearate, dibasic | 0.410 | 56189 -09 -4 |
| | | A09017 | Lead acetate | 0.637 | 301 -04 -2 |
| | | A09018 | Lead (II) acetate, trihydrate | 0.546 | 6080 -56 -4 |
| | | A09019 | Lead selenide | 0.724 | 12069 -00 -0 |
| | | A09990 ~ 9 | Other lead compounds | - | - |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|-----|---|------------|--|-------------------------|---|
| A10 | Mercury and its Compounds | A10001 | Mercury | 1.000 | 7439 -97 -6 |
| | | A10002 | Mercury (II) chloride | 0.739 | 7487 -94 -7 |
| | | A10003 | Mercury (II) oxide | 0.926 | 21908 -53 -2 |
| | | A10004 | Mercuric chloride | - | 33631 -63 -9 |
| | | A10005 | Mercuric sulfate | 0.676 | 7783 -35 -9 |
| | | A10006 | Mercuric nitrate | 0.618 | 10045 -94 -0 |
| | | A10007 | Mercuric sulfide | 0.862 | 1344 -48 -5 |
| | | A10990 ~ 9 | Other mercury compounds | - | - |
| A11 | Nickel | A11004 | Nickel | 1.000 | 7440 -02 -0 |
| A13 | Selenium and its Compounds | A13001 | Selenium | 1.000 | 7782 -49 -2 |
| | | A13002 | Selenous acid | 0.612 | 7783 -00 -8 |
| | | A13997 ~ 9 | Other selenium compounds | - | - |
| A18 | Tri - substituted organostannic compounds | A18001 | Triphenyltin N,N' - dimethyldithiocarbamate | - | 1803 -12 -9 |
| | | A18002 | Triphenyltin fluoride | - | 379 -52 -2 |
| | | A18003 | Triphenyltin acetate | - | 900 -95 -8 |
| | | A18004 | Triphenyltin chloride | - | 639 -58 -7 |
| | | A18005 | Triphenyltin hydroxide | - | 76 -87 -9 |
| | | A18006 | Triphenyltin fatty acid salts (C=9 -11) | - | 18380 -71 -7 18380 -72 -8 47672 -31 -1 94850 -90 -5 |
| | | A18007 | Triphenyltin chloroacetate | - | 7094 -94 -2 |
| | | A18008 | Tributyltin methacrylate | - | 2155 -70 -6 |
| | | A18009 | Bis (tributyltin) fumarate | - | 6454 -35 -9 |
| | | A18010 | Tributyltin fluoride | - | 1983 -10 -4 |
| | | A18011 | Bis (tributyltin) 2,3 - dibromosuccinate | - | 31732 -71 -5 |
| | | A18012 | Tributyltin acetate | - | 56 -36 -0 |
| | | A18013 | Tributyltin laurate | - | 3090 -36 -6 |
| | | A18014 | Bis (tributyltin) | - | 4782 -29 -0 |
| | | A18015 | Copolymer of alkyl(c=8) acrylate, methyl methacrylate and tributyltin methacrylate | - | 67772 -01 -4 |
| | | A18016 | Tributyltin sulfamate | - | 6517 -25 -5 |
| | | A18017 | Bis (tributyltin) maleate | - | 14275 -57 -1 |
| | | A18018 | Tributyltin chloride | - | 1461 -22 -9 |
| | | A18019 | Tributyltin cyclopentane carbonate=mixture - | - | 85409 -17 -2 |
| | | | | A18020 | Tributyltin - 1,2,3,4,4a,4b,5,6,10,10a - decahydro -7 -isopropyl - 1,4a -dimethyl -1 - phenanthrenecarboxylatemix |
| | | | Other tri - substituted organostannic compounds | - | - |
| A19 | Beryllium Oxide (BeO) | A03002 | Beryllium oxide | - | 1304 -56 -9 |
| A23 | Dibutyltin (DBT) compounds | | Dibutyltin oxide | - | 818 -08 -6 |
| | | | Dibutyltin diacetate | - | 1067 -33 -0 |
| | | | Dibutyltin dilaurate | - | 77 -58 -7 |
| | | | Dibutyltin maleate | - | 78 -04 -6 |
| | | | Other dibutyltin compounds | - | - |
| A24 | Diocetyl tin (DOT) compounds | | Diocetyl tin oxide | - | 870 -08 -6 |
| | | | Diocetyl tin dilaurate | - | 3648 -18 -8 |
| | | | Other diocetyl tin compounds | - | - |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|---------------------------|--|----------|---|-------------------------|--|
| Halogen-organic compounds | | | | | |
| B02 | Polybrominated Biphenyls (PBBs) | B02001 | Polybrominated biphenyls | - | 59536-65-1 |
| | | B02002 | Dibromobiphenyl | - | 92-86-4 |
| | | B02003 | 2-Bromobiphenyl | - | 2052-07-5 |
| | | B02004 | 3-Bromobiphenyl | - | 2113-57-7 |
| | | B02005 | 4-Bromobiphenyl | - | 92-66-0 |
| | | B02006 | Tribromobiphenyl | - | 59080-34-1 |
| | | B02007 | Tetrabromobiphenyl | - | 40088-45-7 |
| | | B02008 | Pentabromobiphenyl | - | 56307-79-0 |
| | | B02009 | Hexabromobiphenyl | - | 59080-40-9 |
| | | B02010 | hexabromo-1,1-biphenyl | - | 36355-01-8 |
| | | B02011 | Firemaster FF-1 | - | 67774-32-7 |
| | | B02012 | Heptabromobiphenyl | - | 35194-78-6 |
| | | B02013 | Octabromobiphenyl | - | 61288-13-9 |
| | | B02014 | Nonabiphenyl | - | 27753-52-2 |
| | | B02015 | Decabromobiphenyl | - | 13654-09-6 |
| B03 | Polybrominated Diphenyl ethers (PBDEs) | B03001 | Bromodiphenyl ether | - | 101-55-3 |
| | | B03002 | Dibromodiphenyl ethers | - | 2050-47-7 |
| | | B03003 | Tribromodiphenyl ether | - | 49690-94-0 |
| | | B03004 | Tetrabromodiphenyl ethers | - | 40088-47-9 |
| | | B03005 | Pentabromodiphenyl ether (note: Commercially available PeBDPO is a complex reaction mixture containing a variety of brominated | - | 32534-81-9 (商用銘柄のPeBDPOに使用されるCAS No.) |
| | | B03006 | Hexabromodiphenyl ether | - | 36483-60-0 |
| | | B03007 | Heptabromodiphenylether | - | 68928-80-3 |
| | | B03008 | Octabromodiphenyl ether | - | 32536-52-0 |
| | | B03009 | Nonabromodiphenylether | - | 63936-56-1 |
| | | B03010 | Decabromodiphenyl ether | - | 1163-19-5 |
| B05 | Polychlorinated Biphenyls (PCBs) | B05001 | Polychlorinated biphenyls | - | 1336-36-3 |
| | | B05008 | Monomethyl-tetrachloro-diphenyl methane (Ugilec 141) | - | 76253-60-6 |
| | | B05009 | Monomethyl-dichloro-diphenyl methane (Ugilec 121, Ugilec 21) | - | 81161-70-8 |
| | | B05010 | Monomethyl-dibromo-diphenyl | - | 99688-47-8 |
| B06 | Polychlorinated naphthalenes (Cl 3) | B06001 | Polychlorinated naphthalenes | - | 70776-03-3 |
| | | B06997~9 | Other polychlorinated naphthalenes | - | - |
| B07 | Vinyl Chloride Polymer (PVC) | B07001 | Poly vinyl chloride (PVC) | - | 9002-86-2 |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|-----|--|--------|---|-------------------------|-------------|
| B08 | Brominated Flame Retardants (other than PBBs, PBDEs, or HBCCD) | B80001 | Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(14)[Aliphatic/alicyclic brominated compounds] | - | - |
| | | B80002 | Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(15)[Aliphatic/alicyclic brominated compounds in combination with antimony compounds] | - | - |
| | | B80003 | Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(16)[Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls] | - | - |
| | | B80004 | Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(17)[Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls] in combination with antimony compounds] | - | - |
| | | B80005 | Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(22)[Aliphatic/alicyclic chlorinated and brominated compounds] | - | - |
| | | B80006 | Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(42)[Brominated organic phosphorus compounds] | - | - |
| | | B80007 | Poly (2,6-dibromo-phenylene oxide) | - | 69882-11-7 |
| | | B80008 | Tetra-decabromo-diphenoxy-benzene | - | 58965-66-5 |
| | | B80009 | 1,2-Bis (2,4,6-tribromophenoxy) ethane | - | 37853-59-1 |
| | | B80010 | 3,5,3',5'-Tetrabromo-bisphenol A (TBBA) | - | 79-94-7 |
| | | B80011 | TBBA, unspecified | - | 30496-13-0 |
| | | B80012 | TBBA-epichlorhydrin oligomer | - | 40039-93-8 |
| | | B80013 | TBBA-TBBA-diglycidyl-ether oligomer | - | 70682-74-5 |
| | | B80014 | TBBA carbonate oligomer | - | 28906-13-0 |
| | | B80015 | TBBA carbonate oligomer, phenoxy end capped | - | 94334-64-2 |
| | | B80016 | TBBA carbonate oligomer, 2,4,6-tribromo phenol terminated | - | 71342-77-3 |
| | | B80017 | TBBA-bisphenol A-phosgene polymer | - | 32844-27-2 |
| | | B80018 | Brominated epoxy resin end-capped with tribromophenol | - | 139638-58-7 |
| | | B80019 | Brominated epoxy resin end-capped with tribromophenol | - | 135229-48-0 |
| | | B80020 | TBBA-(2,3-dibromo-propyl-ether) | - | 21850-44-2 |
| | | B80021 | TBBA-bis-(2-hydroxy-ethyl-ether) | - | 4162-45-2 |
| | | B80022 | TBBA-bis-(allyl-ether) | - | 25327-89-3 |
| | | B80023 | TBBA-dimethyl-ether | - | 37853-61-5 |
| | | B80024 | Tetrabromo-bisphenol S | - | 39635-79-5 |
| | | B80025 | TBBS-bis-(2,3-dibromo-propyl-ether) | - | 42757-55-1 |
| | | B80026 | 2,4-dibromo-phenol | - | 615-58-7 |
| | | B80027 | 2,4,6-tribromo-phenol | - | 118-79-6 |
| | | B80028 | Pentabromo-phenol | - | 608-71-9 |
| | | B80029 | 2,4,6-tribromo-phenyl-allyl-ether | - | 3278-89-5 |
| | | B80030 | Tribromo-phenyl-allyl-ether, unspecified | - | 26762-91-4 |
| | | B80032 | Tetrabromo-cyclo-octane | - | 31454-48-5 |
| | | B80033 | 1,2-Dibromo-4-(1,2-dibromo-methyl)-cyclo- | - | 3322-93-8 |
| | | B80034 | TBPA Na salt | - | 25357-79-3 |
| | | B80035 | Tetrabromo-phthalic anhydride | - | 632-79-1 |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|-----|--|----------|--|-------------------------|---------------|
| B08 | Brominated Flame Retardants (other than PBBs, PBDEs, or HBCDD) | B08036 | Bis(methyl)tetrabromo - phthalate | - | 55481 -60 -2 |
| | | B08037 | Bis(2 - ethylhexyl)tetrabromo - | - | 26040 -51 -7 |
| | | B08038 | 2 -hydroxy -propyl -2 -(2 - hydroxy -ethoxy) -ethyl -TBP | - | 20566 -35 -2 |
| | | B08039 | TBPA, glycol and propylene oxide esters | - | 75790 -69 -1 |
| | | B08040 | N,N' -ethylene bis - (tetrabromo phthalimide) | - | 32588 -76 -4 |
| | | B08041 | Ethylene bis(5,6 -dibromo - norbornane -2,3 - dicarboximide) | - | 52907 -07 -0 |
| | | B08042 | 2,3 -dibromo -2 -butene -1,4 - diol | - | 3234/2/4 |
| | | B08043 | Dibromo -neopentyl glycol | - | 3296 -90 -0 |
| | | B08044 | Dibromo -propanol | - | 96 -13 -9 |
| | | B08045 | Tribromo -neopentyl alcohol | - | 36483 -57 -5 |
| | | B08046 | Poly tribromo -styrene | - | 57137 -10 -7 |
| | | B08047 | Tribromo -styrene | - | 61368 -34 -1 |
| | | B08048 | Dibromo -styrene grafted PP | - | 171091 -06 -8 |
| | | B08049 | Poly -dibromo -styrene | - | 31780 -26 -4 |
| | | B08050 | Bromo -/Chloro -paraffins | - | 68955 -41 -9 |
| | | B08051 | Bromo -/Chloro -alpha -olefin | - | 82600 -56 -4 |
| | | B08052 | Vinylbromide | - | 593 -60 -2 |
| | | B08053 | Tris -(2,3 -dibromo -propyl) - isocyanurate | - | 52434 -90 -9 |
| | | B08054 | Tris (2,4 -Dibromo -phenyl) phosphate | - | 49690 -63 -3 |
| | | B08055 | Tris (tribromo -neopentyl) phosphate | - | 19186 -97 -1 |
| | | B08056 | Chlorinated and brominated phosphate ester | - | 125997 -20 -8 |
| | | B08057 | Pentabromo -toluene | - | 87 -83 -2 |
| | | B08058 | Pentabromo -benzyl bromide | - | 38521 -51 -6 |
| | | B08059 | 1,3 -Butadiene homopolymer, brominated | - | 68441 -46 -3 |
| | | B08060 | Pentabromo -benzyl - acrylate, monomer | - | 59447 -55 -1 |
| | | B08061 | Pentabromo -benzyl - acrylate, polymer | - | 59447 -57 -3 |
| | | B08062 | Decabromo -diphenyl -ethane | - | 61262 -53 -1 |
| | | B08063 | Tribromo -bisphenyl - maleinimide | - | 59789 -51 -4 |
| | | B08064 | Brominated trimethylphenyl - lindane | - | 59789 -51 -4 |
| | | B08997 ~ | Other Brominated Flame Retardants | - | - |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|-----|--|------------|--|-------------------------|---------------|
| B10 | Fluorinated greenhouse gases (PFC, SF6, HFC) | B10001 | Carbon tetrafluoride (Perfluoromethane) | - | 75 -73 -0 |
| | | B10002 | Perfluoroethane (Hexafluoroethane) | - | 76 -16 -4 |
| | | B10003 | Perfluoropropane (Octafluoropropane) | - | 76 -19 -7 |
| | | B10004 | Perfluorobutane (Decafluorobutane) | - | 355 -25 -9 |
| | | B10005 | Perfluoropentane (Dodecafluoropentane) | - | 678 -26 -2 |
| | | B10006 | Perfluorohexane (Tetradecafluorohexane) | - | 355 -42 -0 |
| | | B10007 | Perfluorocyclobutane | - | 115 -25 -3 |
| | | B10008 | Sulfur Hexafluoride (SF6) | - | 2551 -62 -4 |
| | | B10009 | Trifluoromethane - (HFC) | - | 75 -46 -7 |
| | | B10010 | Difluoromethane - (HFC -32) | - | 75 -10 -5 |
| | | B10011 | Methyl fluoride - (HFC -41) | - | 593 -53 -3 |
| | | B10012 | 2H,3H-Decafluoropentane - (HFC -43 -10mee) | - | 138495 -42 -8 |
| | | B10013 | Pentafluoroethane (HFC) | - | 354 -33 -6 |
| | | B10014 | 1,1,2,2-Tetrafluoroethane - (HFC -134) | - | 359 -35 -3 |
| | | B10015 | 1,1,1,2-Tetrafluoroethane - (HFC -134a) | - | 811 -97 -2 |
| | | B10016 | 1,1-Difluoroethane - (HFC -152a) | - | 75 -37 -6 |
| | | B10017 | 1,1,2-Trifluoroethane-(HFC -143) | - | 430 -66 -0 |
| | | B10018 | 1,1,1-Trifluoroethane (HFC -143a) | - | 420 -46 -2 |
| | | B10019 | 2H-Heptafluoropropane-(HFC -227ea) | - | 431 -89 -0 |
| | | B10020 | 1,1,1,2,2,3-hexafluoropropane (HFC -236cb) | - | 677 -56 -5 |
| | | B10021 | 1,1,1,2,3,3-Hexafluoropropane - (HFC -236ea) | - | 431 -63 -0 |
| | | B10022 | HFC -1,1,1,3,3,3 - Hexafluoropropane - (HFC 236fa) | - | 690 -39 -1 |
| | | B10023 | 1,1,2,2,3-Pentafluoropropane - (HFC -245ca) | - | 679 -86 -7 |
| | | B10024 | 1,1,1,3,3-Pentafluoropropane - (HFC -245fa) | - | 460 -73 -1 |
| | | B10025 | 1,1,1,3,3-Pentafluorobutane - (HFC) | - | 406 -58 -6 |
| B12 | Perchlorates | B12001 | Lithium perchlorate | - | 7791 -03 -9 |
| | | B12997 ~ 9 | Other perchlorate compounds | - | - |
| B15 | Polychlorinated Terphenyls (PCTs) | B05002 | Polychlorinated terphenyls | - | 61788 -33 -8 |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|--------|--|--------|---|-------------------------|------------|
| Others | | | | | |
| C01 | Asbestos | C01001 | Actinolite | - | 77536-66-4 |
| | | C01002 | Amosite (Grunerite) | - | 12172-73-5 |
| | | C01003 | Anthophyllite | - | 77536-67-5 |
| | | C01004 | Chrysotile | - | 12001-29-5 |
| | | C01005 | Crocidolite | - | 12001-28-4 |
| | | C01006 | Tremolite | - | 77536-68-6 |
| | | C01007 | Asbestos | - | 1332-21-4 |
| C02 | Azocolorants and azodyes which form certain aromatic amines (Indicated 22 substances are certain aromatic amines) | - | biphenyl-4-ylamine | - | 92-67-1 |
| | | - | Benzidine | - | 92-87-5 |
| | | - | 4-chloro-o-toluidine | - | 95-69-2 |
| | | - | 2-naphthylamine | - | 91-59-8 |
| | | - | o-aminoazotoluene | - | 97-56-3 |
| | | - | 5-nitro-o-toluidine | - | 99-55-8 |
| | | - | 4-chloroaniline | - | 106-47-8 |
| | | - | 4-methoxy-m-phenylenediamine | - | 615-05-4 |
| | | - | 4,4'-methylenedianiline | - | 101-77-9 |
| | | - | 3,3'-dichlorobenzidine | - | 91-94-1 |
| | | - | 3,3'-dimethoxybenzidine | - | 119-90-4 |
| | | - | 3,3'-dimethylbenzidine | - | 119-93-7 |
| | | - | 4,4'-methylenedi-o-toluidine | - | 838-88-0 |
| | | - | 6-methoxy-m-toluidine | - | 120-71-8 |
| | | - | 4,4'-methylene-bis(2-chloroaniline) | - | 101-14-4 |
| | | - | 4,4'-oxydianiline | - | 101-80-4 |
| | | - | 4,4'-thiodianiline | - | 139-65-1 |
| | | - | o-toluidine | - | 95-53-4 |
| | | - | 4-methyl-m- | - | 95-80-7 |
| | | - | 2,4,5-trimethylaniline | - | 137-17-7 |
| | | - | o-anisidine | - | 90-04-0 |
| | | - | 4-amino azobenzene | - | 60-09-3 |
| C04 | Ozone Depleting Substances/Isomers | C04097 | CFCs (Annex A Group I substances in the Montreal Protocol) | - | - |
| | | C04098 | Halons (Annex A Group II substances in the Montreal Protocol) | - | - |
| | | C04099 | CFCs (Annex B Group I substances in the Montreal Protocol) | - | - |
| | | C04100 | Carbon tetrachloride (Annex B Group II substances in the Montreal Protocol) | - | - |
| | | C04101 | 1,1,1-trichloroethane (Annex B Group III substances in the Montreal Protocol) | - | - |
| | | C04102 | Bromochloromethane (Annex C Group III substances in the Montreal Protocol) | - | - |
| | | C04103 | Methyl bromide (Annex E substances in the Montreal Protocol) | - | - |
| | | C04104 | HBFCs (Annex C Group II substances in the Montreal Protocol) | - | - |
| C04105 | HCFCs (Annex C Group I substances in the Montreal Protocol) | - | - | | |

| No. | Substance Group | No. | Substance name | Metal Conversion Factor | CAS No. |
|-----|--|------------|--|-------------------------|---|
| C06 | Radioactive Substances | C06001 | Uranium -238 | - | 7440 -61 -1 |
| | | C06002 | Plutonium | - | - |
| | | C06003 | Radon | - | 10043 -92 -2 |
| | | C06004 | Americium -241 | - | 14596 -10 -2 |
| | | C06005 | Thorium -232 | - | 7440 -29 -1 |
| | | C06006 | Cesium (Radioactive Isotopes only) | - | 7440 -46 -2 (Cs -137 010045 -97 -3) |
| | | C06007 | Strontium (Radioactive Isotopes only) | - | (elemental 7440 -24 -6) (Sr -90 10098 -97 -2) |
| | | C06997 ~ 9 | Other radioactive substances | - | - |
| C07 | Formaldehyde | C07001 | Formaldehyhde | - | 50 -00 -0 |
| C08 | Phenol,2 -(2H - benzotriazol - 2 -yl) 4,6 - bis(1,1 - dimethylethyl) | C08001 | Phenol,2 -(2H - benzotriazol - 2 -yl) 4,6 - bis(1,1 - dimethylethyl) | - | 3846 -71 -7 |
| C09 | Selected Phthalates Group 1 (DEHP, DBP, BBP) | C05001 | Dibutylphthalate(DBP) | - | 84 -74 -2 |
| | | C05002 | Di(2 -ethylhexyl) phthalate (DEHP) | - | 117 -81 -7 |
| | | C05005 | Butyl benzyl | - | 85 -68 -7 |
| C10 | Selected Phthalates Group 2 (DINP, DIDP, DNOP) | C05007 | Diisononyl phthalate(DINP) | - | 28553 -12 -0 |
| | | C05008 | 1,2 -Benzenedicarboxylic acid diisodecyl ester(DIDP) | - | 26761 -40 -0 68515 -49 -1 |
| | | C05010 | Di -n -octyl phthalate | - | 117 -84 -0 |
| C11 | Dimethyl fumarate | | Dimethyl fumarate | - | 624 -49 -7 |
| D01 | Copper and its Compounds | D01001 | Copper | 1.000 | 7440 -50 -8 |
| | | D01997 ~ 9 | Other copper compounds | - | - |
| D02 | Gold and its Compounds | D02001 | Gold | 1.000 | 7440 -57 -5 |
| | | D02997 ~ 9 | Other gold compounds | - | - |
| D03 | Palladium and its Compounds | D03001 | Palladium | 1.000 | 7440/5/3 |
| | | D03997 ~ 9 | Other palladium compounds | - | - |
| D04 | Silver and its Compounds | D04001 | Silver | 1.000 | 7440 -22 -4 |
| | | D04997 ~ 9 | Other silver compounds | - | - |

Table 4 Substances of Very High Concern (SVHC) Ver.1: S01 to S16 (15 + 1 substances)

| No. | Substances | EC number | CAS number | その他英名(other name) | 和名(Japanese) | 用途(The purpose) | 用途(日本語) | 備考 |
|-------|--|------------------------|---|--|--|---|---|--|
| S 0 1 | Anthracene | 204-371-4 | 120-42-7 | | ・アントラセン | Corrosion inhibitors: Intermediates for the productions of anthraquinone, blackcarbon and dyes | 腐食抑制剤、アンスラキノン原料、(粗製)カーボンブラック原料、染料原料 | |
| S 0 2 | 4,4'-Diaminodiphenylmethane | 202-974-4 | 101-77-9 | 4,4'-Diaminodiphenyl-methane Salts 4,4'-methylenedianiline | ・4,4'-メチレンジアニンリン ・4,4'-ジアミノジフェニルメタン ・ベンジジン ・4,4'-ジアミノビフェニル | processed to methylenediphenyl diisocyanate (MDI); hardener for epoxy resins, high performance polymers, and polyurethane: Paints, laquers and varnishes: Adhesives, binding agents: Construction materials: Vulcanizing agents | 塗料・ラッカー・ニス、粘着剤、建築資材添加物、加硬剤、硬化剤; エポキシ樹脂硬化剤; 4,4'-メチレンビス(フェニルイソシアネート)(MDI)・ポリメリックMDIの合成原料、エポキシ樹脂・ポリウレタン樹脂の硬化剤 | 金属組立、輸送機器・電気機器製造 |
| S 0 3 | Dibutyl phthalate | 201-657-4 | 84-74-2 | Dibutylphthalate | ・フタル酸ジ-n-ブチル ・フタル酸ジブチル | Softener(plasticizer in PVC); Softeners: Adhesives, binding agents: Paints, laquers and varnishes: Colouring agents: Construction materials: Solvents(Odour agents): Drying agents: Polishing agents | 合成レザー・塩化ビニル樹脂可塑剤、柔軟剤、粘着剤、接着剤、塗料・ラッカー、着色剤、塗料・ラッカー添加物、塗料の溶剤、乾燥剤、研磨剤、ゴムの練り加工剤、農業の補助剤 | 輸送機器・プラスチック・家具・化学など各種製造業、燃料 |
| S 0 4 | Cobalt dichloride | 231-689-4 | 7646-79-9 | | ・塩化コバルト | Colouring agents: Surface treatment: Process regulators: chemical removing of oxygen(metal industry, rubber manufacturing) | 着色剤、表面処理剤、プロセス制御剤、還元剤(金属工業・ゴム工業) | 化学・プラスチック製造 |
| S 0 5 | Diarsenic pentaoxide | 215-416-9 | 1303-28-2 | | ・五酸化二ヒ素 ・五酸化二砒素 ・五酸化砒素 ・酸化ヒ素 | Impregnation materials: Wood preservative coatings: Fillers: harden copper, lead or gold in alloys: special glass | 飽和剤、木材処理剤、フィラー、銅・鉛・合金金、特殊ガラス | |
| S 0 6 | Diarsenic trioxide | 215-481-4 | 1327-53-3 | | ・三酸化二ヒ素(亜ヒ酸) ・三酸化砒素 ・三酸化ヒ素 | Intermediates(catalytic agents, pigments, agricultural chemicals): Flame retardants and extinguishing agents: wood preservative | 離燃剤・防火剤、中間体(触媒原料、農業原料、顔料原料、ヒ素化合物原料)、殺菌剤、木材防腐剤 | 化学・プラスチック・ガラス・非金属材料 |
| S 0 7 | Sodium dichromate, dihydrate | 234-490-3 | 7789-42-0 | | ・ニクロム酸二ナトリウム二水和物 ・重クロム酸ナトリウム二水和物 ・ナトリウムジクロモート | Surface treatment: Oxidizing agents: Electroplating agents: Metal surface coating agents: Inorganic chromate pigments | 表面処理剤、酸化剤、電気メッキ添加剤、金属表面コーティング剤、クロム顔料 | 化学・金属製品組立・機械製造 |
| S 0 8 | 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene) | 201-329-4 | 81-45-2 | | ・2,4,6-トリニトロ-5-tert-ブチル-4,3-キシレン ・ムスクキシレン | Cleaning/washing agents: Absorbents and Adsorbents: Surface treatment: Odour agents | 洗浄剤、吸収剤・吸着材、表面処理剤、芳香剤・防臭剤 | 輸送機器販売・修理、水テル、健康・社会福祉関連 |
| S 0 9 | Bis(2-ethyl(hexyl)phthalate) (DEHP) | 204-211-0 | 117-81-7 | | ・ベンゼン-1,2-ジカルボン酸ジ-n-ブチル ・フタル酸ジ(2-エチルヘキシル) ・フタル酸ビス(2-エチルヘキシル) ・フタル酸ジ-2-エチルヘキシル ・フタル酸ジアルキル | Plasticiser in polymers, mainly flexible PVC; Softeners: Construction materials: Fillers: Paints, laquers and varnishes: Colouring agents: Adhesives, binding agents | 塩化ビニル樹脂可塑剤、柔軟剤、塗料・ラッカー・ニス、着色剤、フィラー、粘着剤、接着剤、建築資材添加物、 | 化学・プラスチック・木材加工、金属加工・機械組立・印刷・製本、輸送機器販売・修理 |
| S 1 0 | Hexabromocyclododecane (HBCDD) and all major diastereoisomers | 247-448-4 221-695-9 | 25637-99-4 3194-65-6 | Cyclododecane, hexabromo- | ・ヘキサブロモシクロドデカンおよびすべての主要ジアステレオ異性体 | Flame retardant(electronic and electrical equipment, textiles): Stabilizer | 離燃剤(電子・電気機器、繊維)、安定剤 | |
| | Hexabromocyclododecane Hexabromocyclododecane Hexabromocyclododecane | | 134237-50-6 134237-51-7 134237-52-8 | | ・ヘキサブロモシクロドデカン ・ヘキサブロモシクロドデカン ・ヘキサブロモシクロドデカン | | | |
| S 1 1 | Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) | 287-476-6 | 85535-84-8 | | ・クロロパラフィン(C10-13) ・塩素化パラフィン(短鎖) ・クロロアルカン類 または短鎖塩素化パラフィン | Cooling agents for metal processing; Sealants: Paints, laquers and varnishes: Fillers: Softeners: Fixing agents: Cutting fluids | プロセス制御剤(金属加工冷却)、シーラント、塗料・ラッカー・ニス、フィラー、柔軟剤、定着剤、切削油剤 | 化学・プラスチック・金属製品組立・機械製造、輸送機器販売・修理 |
| S 1 2 | Bis(tributyltin)oxide | 200-288-0 | 56-35-9 | Hexa-n-butylidistannoxan Bis(tri-n-butylzinn)oxid Tri-nbutylzinnoxid | ・ビス(トリブチルスズ)オキシド ・トリブチルスズオキシド | Paints, laquers and varnishes: Impregnation materials: biocides(ship craft, cages, floats, fishing nets); Non-agricultural pesticides and preservatives | 塗料・ラッカー・ニス、飽和剤、船底塗料、漁船用防汚剤、殺菌剤・防カビ剤、非農業用農薬、木材防腐剤 | 輸送機器・プラスチック・木工・化学 |
| S 1 3 | Lead hydrogen arsenate | 232-064-2 | 7784-40-9 | Lead arsenate lead hydrogen arsenate | ・ヒ酸鉛 ・ヒ酸水素鉛 | Insecticide: Herbicide: Wood preservative | 殺虫剤、除草剤、木材処理剤 | |
| S 1 4 | Triethyl arsenate | 427-700-2 | 15606-95-8 | | ・ヒ酸トリエチル | Insecticide: Wood preservative | 殺虫剤、木材処理剤 | |
| S 1 5 | Benzyl butyl phthalate (BBP) | 201-622-7 | 85-68-7 | | ・フタル酸-n-ブチルベンジル ・フタル酸ブチルベンジル ・ブチルベンジルフタレート ・フタル酸アルキル(C=4~8)ベンジル | Motor vehicle painters: Paints, laquers and varnishes: Fillers: Adhesives, binding agents: Construction materials: Softeners: plasticizer (softener) of PVC; Construction materials: Sealants(polysulfide based, polyurethane based, acrylic based) | 自動車用塗料、柔軟剤、塗料・ラッカー・ニス、フィラー、粘着剤・接着剤、可塑剤(塩化ビ)、建築資材添加物、ポリサルファイド、ポリウレタン、アクリル用可塑剤(熱硬化性リソリング剤)、窓枠シーリング剤)、塗料用可塑剤、 | 自動車販売・修理、プラスチック・木工 |
| S 1 6 | Cyclododecane | 206-33-9 | 294-62-2 | | ・シクロドデカン | Intermediate(production of hexabromo-isomers of cyclododecane, polyamides, polyesters, synthetic lubricating oils, nylon and high purity solvents, 1-ethoxy-methoxy-cyclododecane, methoxy-cyclododecane) | 中間体(離燃剤・ポリアミド・ポリエステル・ナイロン等) | 化学法1種監視製造届出無し |

Table 5. Substances of Very High Concern (SVHC) Ver.2: S17 to S31 (15 substances)

| No. | Substances | EC number | CAS number | その他英名(Other name) | 和名(Japanese) | 用途(The purpose) | 用途(日本語) | 備考 |
|------|--|-----------|------------|-------------------|--|---|------------------------------------|----|
| S 17 | Anthracene oil | 292-602-7 | 90640-80-5 | | ・アントラセンオイル | The substances are mainly used in the manufacture of other substances such as anthracene and carbon black. They may also be used as reducing agents in blast furnaces, as components in boiler fuel, for impregnating, sealing and corrosion protection. | タールオイルの精製物、化学物質生成物、含炭素、タール特殊塗料の精製物 | |
| S 18 | Anthracene oil, anthracene paste, distn. Lights | 295-278-6 | 91995-17-4 | | ・アントラセンオイル、アントラセンペースト、軽質炭 | | | |
| S 19 | Anthracene oil, anthracene paste, anthracene fraction | 296-275-8 | 91995-15-2 | | ・アントラセンオイル、アントラセンペースト、アントラセン画分 | | | |
| S 20 | Anthracene oil, anthracene-low | 292-604-8 | 90640-82-7 | | ・アントラセンオイル、低濃画分 | | | |
| S 21 | Anthracene oil, anthracene paste | 292-603-2 | 90640-81-6 | | ・アントラセンオイル、アントラセンペースト | | | |
| S 22 | Coal tar pitch, high temperature | 286-028-2 | 85998-93-2 | | ・高温コールタルピッチ | Pitch, coal tar, high temp. is mainly used in the production of electrodes for industrial applications. Smaller volumes are dedicated to specific uses such as heavy duty corrosion protection, special purpose paving, manufacture of other substances and the | 電極、炭素、その他黒鉛製品、塗料やコーティング剤 | |
| S 23 | Aluminosilicate, Refractory Ceramic Fibres | - | - | | ・アルミノケイ酸、耐火性セラミック繊維 ・アルミノシリケート、耐火性セラミック繊維 | Refractory ceramic fibres are used for high-temperature insulation, almost exclusively in industrial applications (insulation of industrial furnaces and equipment, equipment for the automotive and aircraft/aerospace industry) and in fire protection (build | 絶縁材 | |
| S 24 | Zirconia Aluminosilicate, Refractory Ceramic Fibres | - | - | | ・ジルコニアアルミノケイ酸、耐火性セラミック繊維 ・ジルコニアアルミノシリケート、耐火性セラミック繊維 | Refractory ceramic fibres are used for high-temperature insulation, almost exclusively in industrial applications (insulation of industrial furnaces and equipment, equipment for the automotive and aircraft/aerospace industry) and in fire protection (build | 絶縁材 | |
| S 25 | 2,4-Dinitrotoluene | 204-460-0 | 121-14-2 | | ・2,4-ジニトロトルエン | 2,4 dinitrotoluene is used in the production of toluene diisocyanate, which is used for the manufacture of flexible polyurethane foams. The substance is also used as gelatinizing plasticizing agent for the manufacture of explosives. | 化学中間産物 | |
| S 26 | Dibutyl phthalate [DIBP] | 201-653-2 | 84-69-5 | | ・フタル酸ジイソブチル ・ジイソブチルフタレート | Dibutyl phthalate is used as plasticizer for nitrocellulose, cellulose ether, polyacrylate and polyester dispersions, and as a gelling aid in combination with other plasticizers, which are widely used for plastics, lacquers, adhesives, explosive mats | 可塑剤 | |
| S 27 | Lead chromate | 231-846-0 | 7758-97-6 | | ・クロム酸鉛 | Lead chromate is used for manufacturing pigments and dyes, and as a pigment or coating agent in industrial and maritime paint products or varnishes. Further potential uses may be associated with the formulation of detergents and bleaches, photosensitive a | 染料・顔料、塗料・ワニス顔料 | |
| S 28 | Lead chromate molybdate sulfate red (C.I. Pigment Red 104) | 236-759-9 | 12856-85-8 | | ・硫酸モリブデン酸クロム酸鉛、モリブデン酸、C.I. ピグメントレッド104 | Lead chromate molybdate sulfate red (C.I. Pigment Red 104) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equip | 塗料・コーティング剤の顔料、プラスチックの着色剤、印刷 | |
| S 29 | Lead sulfochromate yellow (C.I. Pigment Yellow 34) | 215-693-7 | 1344-87-2 | | ・黄鉛、C.I. ピグメントイエロー34 | Lead sulfochromate yellow (C.I. Pigment Yellow 34) is used as a colouring, painting and coating agent in sectors such as the rubber, plastic and paints, coatings and varnishes industries. Applications comprise the production of agricultural equipment. | 塗料・コーティング剤の顔料、プラスチックの着色剤、印刷 | |
| S 30 | Tris(2-chloroethyl)phosphate | 204-118-5 | 115-98-8 | | ・リン酸トリス(2-クロロエチル) ・トリス(2クロロエチル)ホスフェート | Tris(2-chloroethyl)phosphate is mainly used as an additive plasticizer and viscosity regulator with flame-retarding properties for acrylic resins, polyurethane, polyvinyl chloride and other polymers. Other fields of application are adhesives, coatings, fi | 可塑剤、粘結剤 | |
| S 31 | Acrylamide | 201-473-7 | 79-06-4 | | ・アクリルアミド | Acrylamide is almost exclusively used for the synthesis of polyacrylamides, which are used in various applications. In particular in waste water treatment and paper processing. Minor uses of acrylamide comprise the preparation of polyacrylamide gels for r | ポリアクリルアミドゲル、化粧品のポリアクリルアミド | |

Table 6. Substances of Very High Concern (SVHC) Ver.3: S32 to S39 (8 substances)

| No. | Substances | EC number | CAS number | その他英名(Other name) | 和名(Japanese) | 用途(The purpose) | 用途(日本語) | 備考 |
|-------|---|------------------------|--------------------------------------|-------------------|---|---|--|----|
| S 3 2 | Trichloroethylene | 201-167-4 | 79-01-6 | | ・トリクロロエチレン ・トリクレン | Cleaning and degreasing of metal parts. Solvent in adhesives. Intermediate in the manufacture of chlorinated and fluorinated organic compounds | ・金属部品の洗浄と脱脂 ・接着剤溶剤 ・塩素・フッ素有機化合物製品の中間体 | |
| S 3 3 | Boric acid | 233-139-2 234-343-4 | 10043-35-3 11113-50-1 | | ・ホウ酸 | Uses include a multitude of applications, e.g. in biocides and preservatives, personal care products, food additives, glass, ceramics, rubber, fertilisers, flame retardants, paints, industrial fluids, brake fluids, soldering products, film developers. | ・様々な利用方法を含む用途(例:殺生物剤および防菌剤、パーソナルケア製品、食品添加剤、ガラス、セラミック、ゴム、化学肥料、難燃剤、塗料、工業用流体、ブレーキ液、はんだ付け製品、フィルム現像機) | |
| S 3 4 | Disodium tetraborate, anhydrous | 215-640-4 | 1330-43-4 12179-04-3 1303-96-4 | | ・ホウ砂 ・四水ウ酸ナトリウム(無水物) ・無水ホウ砂 ・四水ウ酸ナトリウム五水和物 ・四水ウ酸ナトリウム十水和物 | Uses include a multitude of applications, e.g. in glass and glass fibres, ceramics, detergents and cleaners, personal care products, industrial fluids, metallurgy, adhesives, flame retardants, biocides, fertilizers. | ・様々な利用方法を含む用途(例:ガラスおよびガラス繊維、セラミック、洗剤および洗浄剤、パーソナルケア製品、工業用流体、冶金、接着剤、難燃剤、殺生物剤、化学肥料) | |
| S 3 5 | Tetraboron disodium heptaoxide, hydrate | 235-641-3 | 12267-73-1 | | ・四水ウ酸二ナトリウム、水和物 | Uses include a multitude of applications, e.g. in glass and glass fibres, ceramics, detergents and cleaners, personal care products, industrial fluids, metallurgy, adhesives, flame retardants, biocides, fertilizers. | ・様々な利用方法を含む用途(例:ガラスおよびガラス繊維、セラミック、洗剤および洗浄剤、パーソナルケア製品、工業用流体、冶金、接着剤、難燃剤、殺生物剤、化学肥料) | |
| S 3 6 | Sodium chromate | 231-889-5 | 7775-41-3 | | ・クロム酸ナトリウム | Laboratory (analytical agent) Manufacture of other chromium compounds | ・研究所(分析機関) ・その他クロム化合物の製造 | |
| S 3 7 | Potassium chromate | 232-140-5 | 7789-00-6 | | ・クロム酸カリウム | Treatment and coating of metals Manufacture of reagents and chemicals Manufacture of textiles Colouring agent in ceramics Tanning and dressing of leather Manufacture of pigments/inks Laboratory (analytical) | ・金属の処理およびコーティング ・試薬および化学物質の製造 ・繊維の製造 ・セラミックの着色剤 ・皮革のなめしおよび手入れ ・顔料・インクの製造 ・研究所(分析機関) ・花火製造 | |
| S 3 8 | Ammonium dichromate | 232-143-1 | 7789-09-6 | | ・ニクロム酸アンモニウム ・重クロム酸アンモニウム | Oxidising agent Laboratory (analytical agent) Tanning of leather Manufacture of textiles Manufacture of photosensitive screens (cathode ray tubes) Metal treatment | ・酸化剤 ・研究所(分析機関) ・皮革のなめし ・繊維の製造 ・感光性スクリーンの製造(陰極線管) ・金属の処理 | |
| S 3 9 | Potassium dichromate | 231-906-6 | 7778-50-9 | | ・ニクロム酸カリウム ・重クロム酸カリウム | Chrome metal manufacturing Treatment and coating of metals Manufacture of reagents and chemicals Laboratory (analytical agent) Cleaning of laboratory glassware Tanning of leather Manufacture of textiles Photolithography Wood treatment Corrosion inhibitor | ・クロム金属の製造 ・金属の処理およびコーティング ・試薬および化学物質の製造 ・研究所(分析機関) ・実験用ガラス器具の洗浄 ・皮革のなめし ・繊維の製造 ・フォトリソグラフィ ・木材処理 ・冷却装置の防錆材 | |

Table 7. Perfluoro-octyl sulphonates (PFOS) 75 + 13 substances

| | PFOS Perfluoro-octyl sulphonates (C8 chain) | |
|--------------------|--|--|
| | PFOA Perfluoro-octanoic acid | |
| | PFAS Perfluoro-alkyl sulphonates (C4-Cn chain), in case of C4 chain:PFBS (Perfluoro-butyl sulphonate) | |
| PFOS 75 Substances | | |
| CAS Number | Molecular Formula | Name |
| 307-35-7 | C16H14F17NO4S | 2-[ethyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl methacrylate |
| 307-51-7 | C10F22O2S | perfluorodecanesulphonyl fluoride |
| 376-14-7 | C16H14F17NO4S | 2-[ethyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl methacrylate |
| 383-07-3 | C17H16F17NO4S | 2-[butyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl acrylate |
| 423-50-7 | C6F14O2S | perfluorohexanesulphonyl fluoride |
| 423-82-5 | C15H12F17NO4S | 2-[ethyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl acrylate |
| 754-91-6 | C8H2F17NO2S | heptadecafluorooctanesulphonamide |
| 1652-63-7 | C14H16F17N2O2S.I | [3-[[[heptadecafluorooctyl)sulphonyl]amino]propyl]trimethylammonium iodide |
| 1691-99-2 | C12H10F17NO3S | N-ethylheptadecafluoro-N-(2-hydroxyethyl)octanesulphonamide |
| 1763-23-1 | C8HF17O3S | heptadecafluorooctane-1-sulphonic acid |
| 2795-39-3 | C8HF17O3S.K | potassium heptadecafluorooctane-1-sulphonate |
| 2991-51-7 | C12H8F17NO4S.K | potassium N-ethyl-N-[[heptadecafluorooctyl)sulphonyl]glycinate |
| 4151-50-2 | C10H6F17NO2S | N-ethylheptadecafluorooctanesulphonamide |
| 14650-24-9 | C15H12F17NO4S | 2-[[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl methacrylate |
| 17202-41-4 | C9HF19O3S.H3N | ammonium nonadecafluorononanesulphonate |
| 24448-09-7 | C11H8F17NO3S | heptadecafluoro-N-(2-hydroxyethyl)-N-methyloctanesulphonamide |
| 25268-77-3 | C14H10F17NO4S | 2-[[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl acrylate |
| 29081-56-9 | C8HF17O3S.H3N | ammonium heptadecafluorooctanesulphonate |
| 29117-08-6 | (C2H4O) _n C12H10F17NO3S | Poly(oxy-1,2-ethanediyl), alpha-[2-[ethyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl]-omega-hydroxy- |
| 29457-72-5 | C8HF17O3S.Li | lithium heptadecafluorooctanesulphonate |
| 31506-32-8 | C9H4F17NO2S | heptadecafluoro-N-methyloctanesulphonamide |
| 38006-74-5 | C14H16F17N2O2S.Cl | [3-[[[heptadecafluorooctyl)sulphonyl]amino]propyl]trimethylammonium chloride |
| 38850-58-7 | C16H23F13N2O6S2 | (2-hydroxyethyl)dimethyl[3-[[[3-sulphopropyl]([tridecafluorohexyl)sulphonyl]amino]propyl]ammonium hydroxide |
| 55120-77-9 | C6HF13O3S.Li | 1-Hexanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluoro-, lithium salt |
| 67584-42-3 | C8HF15O3S.K | potassium decafluoro(pentafluoroethyl)cyclohexanesulphonate |
| 67906-42-7 | C10HF21O3S.H3N | ammonium hencosafluorodecanesulphonate |
| 68156-01-4 | C8HF15O3S.K | potassium nonafluorobis(trifluoromethyl)cyclohexanesulphonate |
| 68298-62-4 | (C17H16F17NO4S.C16H16F15NO4S.(C3H6O.C2H4O) _x .(C3H6O.C2H4O) _x .2C3H4O2.C3H4O2) _x .C8H18S | 2-Propenoic acid, 2-[butyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl ester, telomer with 2-[butyl]([pentafluoroheptyl)sulphonyl]amino]ethyl 2-propenoate, methyloxirane polymer with oxirane di-2-propenoate, methyloxirane polymer with oxirane mono-2-prop |
| 68329-56-6 | (C23H44O2.C21H40O2.C19H36O2.C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S) _x | 2-Propenoic acid, eicosyl ester, polymer with 2-[[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl 2-propenoate, hexadecyl 2-propenoate, 2-[methyl]([nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2-[methyl]([pentafluoroheptyl)sulphonyl]amino]ethyl 2- |
| 68541-80-0 | (C21H40O2.C16H14F17NO4S.C3H4O2) _x | 2-Propenoic acid, polymer with 2-[ethyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate and octadecyl 2-propenoate |
| 68555-90-8 | (C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S.C7H12O2) _x | 2-Propenoic acid, butyl ester, polymer with 2-[[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl 2-propenoate, 2-[methyl]([nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, 2-[methyl]([pentafluoroheptyl)sulphonyl]amino]ethyl 2-propenoate, 2-[methyl]([tri |
| 68555-91-9 | (C22H42O2.C16H14F17NO4S.C15H14F15NO4S.C14H14F13NO4S.C13H14F11NO4S.C12H14F9NO4S) _x | 2-Propenoic acid, 2-methyl-, 2-[ethyl]([heptadecafluorooctyl)sulphonyl]amino]ethyl ester, polymer with 2-[ethyl]([nonafluorobutyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate, 2-[ethyl]([pentafluoroheptyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate, 2-[ethyl] |
| 68555-92-0 | (C22H42O2.C15H12F17NO4S.C14H12F15NO4S.C13H12F13NO4S.C12H12F11NO4S.C11H12F9NO4S) _x | 2-Propenoic acid, 2-methyl-, 2-[[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl ester, polymer with 2-[methyl]([nonafluorobutyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate, 2-[methyl]([pentafluoroheptyl)sulphonyl]amino]ethyl 2-methyl-2-propenoate, 2-[me |
| 68586-14-1 | (C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S.(C2H4O) _n C8H10O3.(C2H4O) _n C4H6O2) _x .C8H18S | 2-Propenoic acid, 2-[[[heptadecafluorooctyl)sulphonyl]methylamino]ethyl ester, telomer with 2-[methyl]([nonafluorobutyl)sulphonyl]amino]ethyl 2-propenoate, alpha-(2-methyl-1-oxo-2-propenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl), alpha-(2-methyl-1-oxo-2-prope |

| | | |
|-------------|--|---|
| 68649-26-3 | (C18H38O.C12H10F17NO3S.C11H10F15NO3S.C10H10F13NO3S.C9H10F11NO3S.C8H10F9NO3S.Unspecified) | 1-Octanesulfonamide, N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-, reaction products with N-ethyl-1,1,2,2,3,3,4,4,4-nonafluoro-N-(2-hydroxyethyl)-1-butanefluoro-N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoro-N |
| 68891-96-3 | C18H28Cl4Cr2F17NO9S | diaquatetrachloro[μ-[N-ethyl-N-[(heptadecafluorooctyl)sulfonyl]glycinato-O1:O1']]-μ-hydroxybis(2- |
| 68867-60-7 | (C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S.(C2H4O)nC4H6O2 | 2-Propenoic acid, 2-[[[(heptadecafluorooctyl)sulfonyl]methylamino]ethyl ester, polymer with 2-[methyl[(nonafluorobutyl)sulfonyl]amino]ethyl 2-propenoate, 2-[methyl[(pentadecafluoroheptyl)sulfonyl]amino]ethyl 2-propenoate, 2-[methyl[(tridecafluoroheptyl)sulf |
| 68867-62-9 | (C16H14F17NO4S.C15H14F15NO4S.C14H14F13NO4S.C13H14F11NO4S.C12H14F9NO4S.(C2H4O)nC4H6O2)x.C8H18S | 2-Propenoic acid, 2-methyl-, 2-[ethyl[(heptadecafluorooctyl)sulfonyl]amino]ethyl ester, telomer with 2-[ethyl[(nonafluorobutyl)sulfonyl]amino]ethyl 2-methyl-2-propenoate, 2-[ethyl[(pentadecafluoroheptyl)sulfonyl]amino]ethyl 2-methyl-2-propenoate, 2-[ethyl |
| 68909-15-9 | (C23H44O2.C21H40O2.C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S.(C2H4O)nC4H6O2.Unspecified)x | 2-Propenoic acid, eicosyl ester, polymers with branched octyl acrylate, 2-[[[(heptadecafluorooctyl)sulfonyl]methylamino]ethyl acrylate, 2-[methyl[(nonafluorobutyl)sulfonyl]amino]ethyl acrylate, 2-[methyl[(pentadecafluoroheptyl)sulfonyl]amino]ethyl acrylate |
| 68958-61-2 | (C2H4O)nC13H12F17NO3S | Poly(oxy-1,2-ethanediyl), alpha-[2- |
| 70225-14-8 | C8HF17O3S.C4H11NO2 | [ethyl[(heptadecafluorooctyl)sulfonyl]amino]ethyl]-omega-methoxy-heptadecafluorooctanesulphonic acid, compound with 2,2'-iminodiethanol |
| 71487-20-2 | (C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S.C8H8.C5H8O2.C3H4O2)x | 2-Propenoic acid, 2-methyl-, methyl ester, polymer with ethenylbenzene, 2-[[[(heptadecafluorooctyl)sulfonyl]methylamino]ethyl 2-propenoate, 2-[methyl[(nonafluorobutyl)sulfonyl]amino]ethyl 2-propenoate, 2-[methyl[(pentadecafluoroheptyl)sulfonyl]amino]ethyl |
| 73772-32-4 | C14H19F13N2O6S2.Na | sodium 3-[[3-(dimethylamino)propyl][(tridecafluoroheptyl)sulphonyl]amino]-2-hydroxypropanesulphonate |
| 81190-38-7 | C16H24F13N2O7S2.HO.Na | sodio(2-hydroxyethyl)[3-[(2-hydroxy-3-sulphonatopropyl][(tridecafluoroheptyl)sulphonyl]amino)propyl]dimethylammonium hydroxide |
| 91081-99-1 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-(hydroxyethyl)-N-methyl, reaction products with epichlorohydrin, adipates (esters) |
| 94133-90-1 | C16H19F17N2O6S2.Na | sodium 3-[[3-(dimethylamino)propyl][(heptadecafluorooctyl)sulphonyl]amino]-2- |
| 98999-57-6 | (C9H18NO2.C7H12O3.C7H10O3.Cl.Unspecified)x | Sulfonamides, C7-8-alkane, perfluoro, N-methyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl], polymers with 2-ethoxyethyl acrylate, glycidyl methacrylate and N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethanaminium chloride |
| 117806-54-9 | C7HF15O3S.Li | 1-Heptanesulfonic acid, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,7-pentadecafluoro-, lithium salt |
| 129813-71-4 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-methyl-N-(oxiranylmethyl) |
| 148240-80-6 | Unspecified | Fatty acids, C18-unsatd., trimers, 2-[methyl[(tridecafluoroheptyl)sulfonyl]amino]ethyl esters |
| 148240-82-8 | Unspecified | Fatty acids, C18-unsatd., trimers, 2-[methyl[(pentadecafluoroheptyl)sulfonyl]amino]ethyl esters |
| 182700-90-9 | 該当なし | 1-Octanesulfonamide, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-methyl-, reaction products with benzene-chlorine-sulfur chloride (S2Cl2) reaction products chlorides |
| (L-92-0151) | | 2-Propenoic acid, 2-methyl-, butylester, polymer with 2-[ethyl[(heptadecafluorooctyl)sulfonyl]amino]ethyl 2-methyl-2-propenoate, 2-[ethyl[(nonafluorobutyl)sulfonyl]amino]ethyl 2-methyl-2-propenoate, 2-[ethyl[(pentadecafluoroheptyl)sulfonyl]amino]ethyl 2-m |
| 192662-29-6 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-[3-(dimethylamino)propyl], reaction products with acrylic acid |
| 306973-46-6 | Unspecified | Fatty acids, linseed-oil, dimers, 2-[[[(heptadecafluorooctyl)sulfonyl]methylamino]ethyl esters |
| 306975-56-4 | Unspecified | Propanoic acid, 3-hydroxy-2-(hydroxymethyl)-2-methyl-, polymer with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol and N,N',2-tris(6-isocyanatohexyl)imidodicarbonic diamide, reaction products with N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2- |
| 306975-57-5 | Unspecified | Propanoic acid, 3-hydroxy-2-(hydroxymethyl)-2-methyl-, polymer with 1,1'-methylenebis[4-isocyanatobenzene] and 1,2,3-propanetriol, reaction products with N-ethyl-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-N-(2-hydroxyethyl)-1-octanesulfonamide and |

| | | |
|-------------|------------------|--|
| 306973-47-7 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-(hydroxyethyl)-N-methyl, reaction products with 12-hydroxyoctadecanoic acid and 2,4-TDI, ammonium salts |
| 306975-62-2 | Unspecified | 2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl acrylate and vinylidene chloride |
| 160901-25-7 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-ethyl-N-(hydroxyethyl), reaction products with 2-ethyl-1-hexanol and polymethylenepolyphenylene isocyanate |
| 306974-19-6 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-methyl-N-[(3-octadecyl-2-oxo-5-oxazolidinyl)methyl] |
| 306975-84-8 | Unspecified | Poly(oxy-1,2-ethanediyl), alpha-hydro-omega-hydroxy-, polymer with 1,6-diisocyanatohexane, N-(hydroxyethyl)-N-methylperfluoro-C4-8-alkanesulfonamides-blocked |
| 306975-85-9 | Unspecified | 2-Propenoic acid, 2-methyl-, dodecyl ester, polymers with N-(hydroxymethyl)-2-propenamide, 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl methacrylate, stearyl methacrylate and vinylidene chloride |
| 306976-25-0 | Unspecified | 1-Hexadecanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-propenyl)oxy]ethyl]-, bromide, polymers with Bu acrylate, Bu methacrylate and 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl acrylate |
| 306976-55-6 | Unspecified | 2-Propenoic acid, 2-methyl-, 2-methylpropyl ester, polymer with 2,4-diisocyanato-1-methylbenzene, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol and 2-propenoic acid, N-ethyl-N-(hydroxyethyl)perfluoro-C4-8-alkanesulfonamides-blocked |
| 306974-28-7 | Unspecified | Siloxanes and Silicones, di-Me, mono[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl group]-terminated, polymers with 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl acrylate and stearyl methacrylate |
| 306980-27-8 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N,N'-[1,6-hexanediy]bis[(2-oxo-3,5-oxazolidinediyl)methylene]bis[N-methyl- |
| 306974-45-8 | Unspecified | Sulfonic acids, C6-8-alkane, perfluoro, compds. with polyethylene-polypropylene glycol bis(2-aminopropyl) ether |
| 306977-10-6 | Unspecified | 2-Propenoic acid, 2-methyl-, 2-(dimethylamino)ethyl ester, telomer with 2-[ethyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl methacrylate and 1-octanethiol, N-oxides |
| 179005-06-2 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-[3-(dimethyloxidoamino)propyl], potassium salts |
| 251099-16-8 | C22H48N.C8F17O3S | 1-Decanaminium, N-decyl-N,N-dimethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid (1:1) |
| 306978-04-1 | Unspecified | 2-Propenoic acid, butyl ester, polymers with acrylamide, 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl acrylate and vinylidene |
| 306977-58-2 | Unspecified | 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester, polymers with acrylic acid, 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl acrylate and propylene glycol monoacrylate, hydrolyzed, compds. with 2,2'-(methylimino)bis[ethanol] |
| 306978-65-4 | Unspecified | Hexane, 1,6-diisocyanato-, homopolymer, N-(hydroxyethyl)-N-methylperfluoro-C4-8-alkanesulfonamides- and stearyl alc.-blocked |
| 306979-40-8 | Unspecified | Poly(oxy-1,2-ethanediyl), alpha-[2-(methylamino)ethyl]-omega-[[1,1,3,3-tetramethylbutyl]phenoxy]-, N-[(perfluoro-C4-8-alkyl)sulfonyl] derivs. |

指定13物質

| CAS番号 | 分子式 | 英語名 |
|------------|--|--|
| 2250-98-8 | C36H27F51N3O10PS3 | N,N',N''-[phosphinylidynetris(oxyethane-2,1-diyl)]tris[N-ethylheptadecafluorooctane-1-sulphonamide] |
| 30381-98-7 | C24H19F34N2O8PS2.H3N | ammonium bis[2-[N-ethyl(heptadecafluorooctane)sulphonylamino]ethyl] phosphate |
| 57589-85-2 | C22H6Cl4F17NO6S.K | potassium 2,3,4,5-tetrachloro-6-[[[3-[[heptadecafluorooctyl]sulphonyl]oxy]phenyl]amino]carbonyl]benzoate |
| 61660-12-6 | C16H20F17NO5SSi | N-ethylheptadecafluoro-N-[3-(trimethoxysilyl)propyl]octanesulphonamide |
| 67969-69-1 | C12H11F17NO6PS.2H3N | diammonium N-ethylheptadecafluoro-N-[2-(phosphonatooxy)ethyl]octanesulphonamidate |
| 68608-14-0 | C15H10N2O2.Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-ethyl-N-(hydroxyethyl), reaction products with 1,1'-methylenebis[4-isocyanatobenzene] |
| 70776-36-2 | (C22H42O2.C14H10F17NO4S.C13H10F15NO4S.C12H10F13NO4S.C11H10F11NO4S.C10H10F9NO4S.C4H7NO2.C2H2Cl2)x | 2-Propenoic acid, 2-methyl-, octadecyl ester, polymer with 1,1-dichloroethene, 2-[[heptadecafluorooctyl]sulfonyl]methylamino]ethyl 2-propenoate, N-(hydroxymethyl)-2-propenamide, 2-[methyl[(nonafluorobutyl)sulfonyl]amino]ethyl 2-propenoate, 2-[methyl[(pen |

| | | |
|-------------|---|---|
| 127133-66-8 | (C ₁₆ H ₃₀ O ₂ .C ₈ H ₁₄ O ₂ .C ₄ H ₆ O ₂) _x | 2-Propenoic acid, 2-methyl-, polymers with Bu methacrylate, lauryl methacrylate and 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl methacrylate |
| 148240-78-2 | Unspecified | Fatty acids, C18-unsatd., trimers, 2-[[heptadecafluorooctyl)sulfonyl]methylamino]ethyl esters |
| 148684-79-1 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-(hydroxyethyl)-N-methyl, reaction products with 1,6-diisocyanatohexane homopolymer and ethylene glycol |
| 178535-22-3 | Unspecified | Sulfonamides, C4-8-alkane, perfluoro, N-ethyl-N-(hydroxyethyl), polymers with 1,1'-methylenebis[4-isocyanatobenzene] and polymethylenepolyphenylene isocyanate, 2-ethylhexyl esters, Me Et ketone oxime-blocked |
| (P-94-2205) | | Polymethylenepolyphenylenesocyanate and bis(4-NCO-phenyl)methane reaction products with 2-ethyl-1-hexanol, 2-butanone,oxime, N-ethyl-N-(2-hydroxyethyl)-1-C4-C8 perfluoroalkanesulfonamide |
| 306974-63-0 | Unspecified | Fatty acids, C18-unsatd., dimers, 2-[methyl[(perfluoro-C4-8-alkyl)sulfonyl]amino]ethyl esters |

ENVIRONMENT LOADING SUBSTANCES SURVEY(Ver.4.0)

| | | |
|--|-----|----|
| Star's part no.: | | |
| Star's description: | | |
| Maker's name : | | |
| Maker's type no.: | | |
| Maker's description: | | |
| Examination unit: | | |
| Weight: | | |
| Heat temperature: | | |
| Material Name (Process part) | | |
| When the subject is process part, this sheet includes material information. | YES | NO |

| | |
|------------------------------------|--|
| Date of entry (YY/MM/DD) | |
| Company name | |
| Company address | |
| Section in charge | |
| Person in charge for evaluation | |
| Telephone number | |
| Fax number | |
| E-mail address | |
| Vendor company | |
| Vendor code | |
| Company seal or the signature | |

Write the numerical value concretely (unit per "mg")

Content rate in homogeneous material:

| Substance Group | Total content | Purpose of use Intended use | Application area | Content (mg) | Content rate (ppm) | Additional information on material composition of |
|---------------------------|---------------|--|-----------------------------|-----------------|-----------------------|--|
| Metal compounds | A01 | Antimony and Antimony Compounds | | | | |
| | A02 | Arsenic and Arsenic Compounds | | | | |
| | A03 | Beryllium and Beryllium Compounds | | | | |
| | A04 | Bismuth and Bismuth Compounds | | | | |
| | A05 | Cadmium and Cadmium Compounds | | | | |
| | A07 | Hexavalent Chromium Compounds | | | | |
| | A09 | Lead and Lead Compounds | | | | |
| | A10 | Mercury and Mercury Compounds | | | | |
| | A11 | Nickel | | | | |
| | A13 | Selenium and Selenium Compounds | | | | |
| | A18 | Tri-substituted organostannic compounds | | | | |
| | A19 | Beryllium Oxide (BeO) | | | | |
| | A23 | Dibutyltin (DBT) compounds | | | | |
| | A24 | Diocetyl tin (DOT) compounds | | | | |
| Halogen-organic compounds | B02 | Polybrominated Biphenyls (PBBs) | | | | |
| | B03 | Polybrominated Diphenyl ethers (PBDEs) | | | | |
| | B05 | Polychlorinated Biphenyls (PCBs) | | | | |
| | B06 | Polychloronaphthalenes (Cl 3) | | | | |
| | B07 | Vinyl Chloride Polymer (PVC) | | | | |
| | B08 | Brominated Flame Retardants (other than PBBs, PBDEs, or HBCCD) | | | | |
| | B10 | Fluorinated greenhouse gases (PFC, SF6, HFC) | | | | |
| | B12 | Perchlorates | | | | |
| | B15 | Polychlorinated Terphenyls (PCTs) | | | | |
| | Others | C01 | Asbestos | | | |
| C02 | | Azocolorants and azodyes which form certain aromatic amines | | | | |
| C04 | | Ozone Depleting Substances/Isomers | | | | |
| C04 | | Ozone Depleting Substances/Hydrochlorofluorocarbons/Isomers | | | | |
| C06 | | Radioactive Substances | | | | |
| C07 | | Formaldehyde | | | | |
| C08 | | Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl) | | | | |
| C09 | | Selected Phthalates Group 1 (DEHP, DBP, BBP) | | | | |
| C10 | | Selected Phthalates Group 2 (DINP, DIDP, DNOP) | | | | |
| C11 | | Dimethyl Fumarate | | | | |
| Noble metals | | D01 | Copper and Copper Compounds | | | |
| | D02 | Gold and Gold Compounds | | | | |
| | D03 | Palladium and Palladium Compounds | | | | |
| | D04 | Silver and Silver Compounds | | | | |

Please add the line when the same chemical is contained in two or more parts and describe by one part a line.

SURVEY FOR SVHC/PFOS(Ver.4.0)

| | | |
|--|-----|----|
| Star's part no.: | | |
| Star's description: | | |
| Maker's name : | | |
| Maker's type no.: | | |
| Maker's description: | | |
| Examination unit: | | |
| Weight: | | |
| Heat temperature: | | |
| Material Name (Process part) | | |
| When the subject is process part, this sheet includes material information. | YES | NO |

| | |
|------------------------------------|--|
| Date of entry (YY/MM/DD) | |
| Company name | |
| Company address | |
| Section in charge | |
| Person in charge for evaluation | |
| Telephone number | |
| Fax number | |
| E-mail address | |
| Vendor company | |
| Vendor code | |
| Company seal or the signature | |

In addition to the regular survey, please cooperate with the survey for SVHC(Substance of Very High Concern) and PFOS.
 Since the following substances (S01 ~ S31; except S16) are required to research by EU Regulation(REACH), please fill the contents when any substance are contained. S16 and S32 to S39 are once proposed as potential SVHC, and we need to research as they may be future candidate of SVHC. PFOS (P01) was banned in 2009 for the result of Stockholm Convention on Persistent Organic Pollutants (POPs) , so it should be researched. Regarding PFOS, please answer the total content, and also answer if it is used in the manufacturing process of the parts.

| | | Write the numerical value concretely (unit per "mg") | | | Content rate in homogeneous material: | |
|--|---|--|------------------|--------------|---------------------------------------|--|
| Substance Group | Total content (mg) | Purpose of use Intended use | Application area | Content (mg) | Content rate (ppm) | Additional information on material composition of products |
| SVHC Ver.1 | S01 Anthracene | | | | | |
| | S02 4,4'- Diaminodiphenylmethane | | | | | |
| | S03 Dibutyl phthalate | | | | | |
| | S04 Cobalt dichloride | | | | | |
| | S05 Diarsenic pentaoxide | | | | | |
| | S06 Diarsenic trioxide | | | | | |
| | S07 Sodium dichromate | | | | | |
| | S08 5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene) | | | | | |
| | S09 Bis (2-ethylhexyl)phthalate (DEHP) | | | | | |
| | S10 Hexabromocyclododecane (HBCDD) and all major diastereoisomers | | | | | |
| | S11 Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) | | | | | |
| | S12 Bis(tributyltin)oxide | | | | | |
| | S13 Lead hydrogen arsenate | | | | | |
| | S14 Triethyl arsenate | | | | | |
| | S15 Benzyl butyl phthalate (BBP) | | | | | |
| | S16 Cyclododecane | | | | | |
| SVHC Ver.2 | S17 Anthracene oil | | | | | |
| | S18 Anthracene oil, anthracene paste, distn. Lights | | | | | |
| | S19 Anthracene oil, anthracene paste, anthracene fraction | | | | | |
| | S20 Anthracene oil, anthracene-low | | | | | |
| | S21 Anthracene oil, anthracene paste | | | | | |
| | S22 Coal tar pitch, high temperature | | | | | |
| | S23 Aluminosilicate, Refractory Ceramic Fibres | | | | | |
| | S24 Zirconia Aluminosilicate, Refractory Ceramic Fibres | | | | | |
| | S25 2,4-Dinitrotoluene | | | | | |
| | S26 Diisobutyl phthalate [DIBP] | | | | | |
| | S27 Lead chromate | | | | | |
| | S28 Lead chromate molybdate sulfate red (C.I. Pigment Red 104) | | | | | |
| | S29 Lead sulfochromate yellow (C.I. Pigment Yellow 34) | | | | | |
| SVHC Ver.3 | S30 Tris(2-chloroethyl)phosphate | | | | | |
| | S31 Acrylamide | | | | | |
| | S32 Trichloroethylene | | | | | |
| | S33 Boric acid | | | | | |
| | S34 Disodium tetraborate, anhydrous | | | | | |
| | S35 Tetraboron disodium heptaoxide, hydrate | | | | | |
| | S36 Sodium chromate | | | | | |
| | S37 Potassium chromate | | | | | |
| | S38 Ammonium dichromate | | | | | |
| | S39 Potassium dichromate | | | | | |
| P01 Perfluoro-octyl-sulphonates(P.F.O.S) | | | | | | Use in manufacturing process YES NO |

P01: Please refer to PFOS LIST for the substances