GLORY
specified chemical substances

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Glory Group specified chemical substances

[Definition of terms]

Containment : A chemical substance exists in Deliverables.

Concentration : content rate of chemical substances
Its unit is used with [ppm] (parts per million by weight) or [wt%] (weight percent). In terms of concentration calculation methods, please refer to the notation of each table.

Intentional addition: Deliberate use in the formulation of Deliverables where its presence is desired to provide a specific characteristic,appearance or quality regardless of concentration of the chemical substance.

Material : homogenous material which cannot be decomposed further more or composite material
which can be regarded as homogeneous in order to fulfill its specific function(s), for which it is set or formed at particular position.

Impurities : Substances that are contained in natural materials and cannot be eliminated during processes in which they are manufactured into industrial sources.

Table 1: Glory Group specified Banned Substances (1/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
001	Asbestos	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	ANNEX XVII of REACH Regulation (EC) No.1907/2006 US TSCA; Swiss Ordinance on Reduction of Risk from Chemical Products	Brake lining pad, insulator, filler, abrasive, insulator, filler, pigment, paint, talc, adiabatic material
002	Certain Azo colorants Refer to footnote (*1). Also, refer to Table 1a.	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	ANNEX XVII of REACH Regulation (EC) No.1907/2006	Pigment, dyes, colorants
003	Cadmium / Cadmium Compounds Refer to Exempted Application in Table 1e.	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 100 ppm even contained as impurities. [4]Sum of concentration of the 4 substances (*2) in Packaging materials must not exceed 100 ppm even contained as impurities.	ANNEX XVII of REACH Regulation (EC) No.1907/2006 RoHS Directive 2011/65/EU; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50	Pigment, anti-corrosion surface treatment, electric and electronic materials, optical material, stabilizer, plating, pigment for resin, fluorescent, electrode, solder, electric contact, contact point, zinc plating, stabilizer for PVC
004	Hexavalent Chromium/ Hexavalent Chromium Compounds	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities. [4]Sum of concentration of the 4 substances (*2) in Packaging materials must not exceed 1000 ppm even contained as impurities.	RoHS Directive 2011/65/EU; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50	pigment, paint, ink, catalyst, plating, anti-corrosion surface treatment, dye, paint dryer, surface treatment, chromate treatment, paints adhesion enhancement, anti-corrosion

*1: This applies to cases that azo dyes and azo pigments are used for leather products, textile products or their parts that are possible to contact human skins directly for a long time and that form specified amines listed in Table 1a as a result of decomposition of azo group.
*2: Sum of concentration of the 4 substances in Packaging materials are Cadmium /Cadmium Compounds,Hexavalent

Chromium/Hexavalent Chromium Compounds,Lead/Lead Compounds and Mercury/Mercury Compounds.

Table 1: Glory Group specified Banned Substances (2/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
005	Lead/ Lead Compounds Refer to Exempted Application in Table 1e.	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities. In this regard, however, concentration in Material must not exceed 300 ppm in the case of PVC (Polyvinyl Chloride) cable. [4]Sum of concentration of the 4 substances (*1) in Packaging materials must not exceed 1000 ppm even contained as impurities.	RoHS Directive 2011/65/EU; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50 US/CA Proposition 65	rubber hardener, pigment, paint, lubricant, plastic stabilizer, materials for battery, free-machining alloy, free-cutting steels, optical materials, X-ray shielding in CRT glass, electrical solder material, mechanical solder materials, curing agent, vulcanizing agent, ferroelectrics, resin stabilizer, plating, metal alloy,
006	Mercury/ Mercury Compounds Refer to Exempted Application in Table 1e.	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities. [4]Sum of concentration of the 4 substances (*1) in Packaging materials must not exceed 1000	ANNEX XVII of REACH Regulation (EC) No.1907/2006 RoHS Directive 2011/65/EU; China MII Methods; Korea RoHS; Japan J-MOSS; US/CA SB-20/50	fluorescent bulb, contact point material, pigment, anti-corrosion, switches, high-efficiency phosphor, antibacterial treatment
007	Ozone Depleting Substances (CFCs, HCFCs,HBFCs, carbon tetrachloride, etc.) Refer to detailed substances in Table 1b.	[1] Ban of intentional addition or use (except for HCFCs) [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] As for HCFCs, its concentration in Deliverables must not exceed 1000 ppm	Montreal Protocol EU EC No. 2037/2000 EC 1005/2009 US Clean Air Act	refrigerant, foaming agent, extinguishant, solvent cleaner
008	PFOS and PFOS-related substances Refer to Exempted Application in Table 1e.	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration or amount must not exceed undermentioned numerical numbers in case of being contained as impurities. - Concentration in Material: 0.1wt% - Concentration in Chemical product : 0.001wt% - Amount in the coated materials: 1μg/m2	POPs; REGULATION (EU) No 757/2010 Canadian Environmental Protection Act SOR/SOR/2008-178 Japan Law concerning the evaluation of chemical substances;	antistatic agent for films and plastics
009	Polybrominated Biphenyls (PBBs)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities.	RoHS Directive 2011/65/EU; China MII Methods; Korea RoHS; Japan J-MOSS	Flame retardant
010	Polybrominated Diphenyleethers (PBDEs)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities.	RoHS Directive 2011/65/EU; China MII Methods; Korea RoHS; Japan J-MOSS Japan Law concerning the evaluation of chemical substances;	Flame retardant

*1: Sum of concentration of the 4 substances in Packaging materials are Cadmium /Cadmium Compounds, Hexavalent Chromium/Hexavalent Chromium Compounds,Lead/Lead Compounds,Mercury/Mercury Compounds.

Table 1: Glory Group specified Banned Substances (3/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
011	Polychlorinated Biphenyls (PCBs) Refer to detailed substances in Table 1c.	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances; ANNEX XVII of REACH Regulation (EC) No.1907/2006 US TSCA.	insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution; Plasticizers, fire retardants, coatings for electrical wire and cable, dielectric sealants
012	Polychlorinated Terphenyls (PCTs)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 50 ppm even contained as impurities.	ANNEX XVII of REACH Regulation (EC) No.1907/2006	insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution; Plasticizers, fire retardants, coatings for electrical wire and cable, dielectric sealants
013	Shortchain Chlorinated Paraffins (C10-C13)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006, Norway Product Regulations FOR-2004-06-01-922; Swiss Ordinance on Reduction of Risk from Chemical Products	plasticizer for PVC, flame retardant
014	Tri-substituted organostannic compounds	The concentration should be 1,000 ppm or less (0.1% or less by weight) of tin in material.	ANNEX XVII of REACH Regulation (EC) No.1907/2006 Commission Regulation (EU) No.276/2010 Japan Law concerning the evaluation of chemical substances	Stabilizer, antioxidant, antibacterial and antifungal agents, antifoulant, antiseptic, anti-fungal agent, paint, pigment, antistaining
015	Tributyl Tin Oxide (TBTO)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006,	antiseptic, antifungal agent, paint, pigment, antistaining, refrigerant, foaming agent, extinguishant, solvent cleaner
016	Dimethylfumarate (DMF)	The concentration should be 0.1 ppm or less (0.00001% or less by weight) in material.	Commission Decision 2009/251/EC	Biocide, mold treatment of electronic leather seats,including recliners,massage chairs
017	Dibutyltin compounds (DBT)	The concentration should be 1,000 ppm or less (0.1% or less by weight) of tin in material.	ANNEX XVII of REACH Regulation (EC) No.1907/2006 Commission Regulation (EU) No.276/2010	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin
018	Dioctyltin compounds (DOT)	The concentration should be 1,000 ppm or less (0.1% or less by weight) of tin in material.	ANNEX XVII of REACH Regulation (EC) No.1907/2006 This applies to (a) textile and leather articles intended to come into contact with the skin, (b) childcare articles (c) two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin

Table 1: Glory Group specified Banned Substances (4/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
019	Fluorinated greenhouse gases (HFC, PFC, SF6) Refer to detailed substances in Table 1d	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	EU Regulation No.842/2006	This applies to cases that are used for one component foams.
020	Formaldehyde	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 75 ppm even contained as impurities.	US/CA CARB Rule US Federal Law 111-199/TSCA Section 601 Laws of Austria and Lithuania	This applies to cases that are used for textile products or their parts.
021	Tris(2,3-dibromopropyl) phosphate(TRIS)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	ANNEX XVII of REACH Regulation (EC) No.1907/2006	This applies to cases that are used for textile products or their parts intended to come into contact with the skin directly.
022	Tris（1-aziridinyl）phosphine oxide (TEPA)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	ANNEX XVII of REACH Regulation (EC) No.1907/2006	This applies to cases that are used for textile products or their parts intended to come into contact with the skin directly.
023	Polychlorinated Naphthalenes (more than 1 chlorine atoms)	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances EU POPs Regulation	lubricant, paint, stabilizer (electric characteristic, flame-resistant, water-resistant) insulator, flame retardant
024	Hexachlorobenzene	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticide
025	Aldrin	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticide
026	Dieldrin	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticide
027	Endrin	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticide
028	DDT Chlorophenothane	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticide

Table 1: Glory Group specified Banned Substances (5/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
029	Chlordanes	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Termite extermination agent
030	N,N'-ditolyl-p-phenylenediamine,N-tolyl-N'-xylyl-p-phenylenediamine and N,N'-dixylyl-p-phenylenediamine	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Rubber age resistor
031	2,4,6-tri-tert-butylphenol	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Antioxidant Lubricating oil
032	Toxaphene	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticide
033	Mirex	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Flame retardants Insecticide
034	Kelthane	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Miticide
035	Hexachlorobutadiene	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Solvent
036	2-(2H-benzotriazol-2-yl)-4,6-di-tert-butylphenol	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Antioxidant Lubricating oil
037	Pentachlorobenzene	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Agricultural chemicals
038	α−Hexachlorocyclohexane	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	By-product of γ-Hexachlorocyclohexane
039	β−Hexachlorocyclohexane	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	By-product of γ-Hexachlorocyclohexane
040	γ−Hexachlorocyclohexane	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Agricultural chemicals

Table 1: Glory Group specified Banned Substances (6/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
041	Chlordecone	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Agricultural chemicals
042	Hexabromocyclododecane (HBCDD) Refer to detailed substances in Table 1f	<Articles> Concentration in material must not exceed 0.01% by weight. <Chemicals> Concentration in chemicals must not exceed 0.01% by weight.	Japan Law concerning the evaluation of chemical substances EU POPs	Flame retardant
043	Endosulfan	[1] Ban of intentional addition or use [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Agricultural chemicals
044	Polycyclic aromatic hydrocarbons (PAH) Refer to detailed substances in Table 1g	[1] Ban of intentional addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration must not exceed 0.0001 % by weight of rubber or plastic component even contained as impurities.	ANNEX XVII of REACH Regulation (EC) No.1907/2006	This applies to rubber or plastic component where direct and prolonged contact, or repeated in short-term contact with the human skin or the oral cavity are expected: 1) The most outside surface of keyboards and mice 2) The most outside surface of palm rests of laptops and chassis of mobile phones 3) Surface of liquid crystal touch panels
045	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene(BNST)	[1] Ban of intentional addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Prohibition of Certain Toxic Substances Regulations, 2012 (Canada)	Antioxidant of automotive oil,Additive into the lubricating oil for commercial and industrial [Exempted Application :Additive in rubber(except tires)]
046	Pentachlorophenol,Pentachlorophenol-salts,Pentachlorophenol-esters	[1] Ban of intentional addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process.	Japan Law concerning the evaluation of chemical substances	Insecticides, herbicides, anti-microbial preservative, wood fungicide

Table 1: Glory Group specified Banned Substances (7/7)

№	Substances	Standards of ban	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
047	Bis(2-ethylhexyl) phthalate (DEHP)	[1] Ban of Intentional Addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities.	RoHS Directive 2011/65/EU; In force from 22 jul 2019 Goods delivered are prohibited from containing these substances from August 1, 2018.	Packaging materials,electrolytic solutions,PVC cables,electrolytic capacitor sleeves, Antivibration rubber, rubber feet
048	Butyl benzyl phthalate (BBP)	[1] Ban of Intentional Addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities.		Adhesives
049	Dibutyl phthalate (DBP)	[1] Ban of Intentional Addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities.		Cables, plugs, Rubber feet, tubes
050	Diisobutyl phthalate (DIBP)	[1] Ban of Intentional Addition [2] Ban of attachment, mix, or production of the substances in the manufacturing process. [3] Concentration in Material must not exceed 1000 ppm even contained as impurities.		Rubber, rubber products
051	Cobalt dichloride	＜Silica gel or other chemicals＞ Concentration in silica gel or other chemicals must be less than 0.01 wt%.	EU Directive 67/548/EEC; Directive 2003/34/EC	Humidity indicator (Use it with silicagel etc.)
052	4,4'-isopropylidenediphenol; bisphenol A	＜Thermal paper＞ Concentration in the thermal paper must be less than 0.02 wt%	ANNEX XVII of REACH Regulation (EC) No.1907/2006 In force from 2 Jan 2020	Manufacture of polycarbonate, epoxy resins and chemicals; hardener in epoxy resins

Notation regarding Table 1:

Deliverables shall meet all of "Standards of ban" specified in the above table.
In terms of "Banned Substances", methodology of how to calculate concentration shall follow below:

1)In the case of complex substances or materials, the following will be Material;
- ・chemical compound, polymer alloy, metal alloy
- ・in the case that Deliverables are raw material such as paint, adhesive, ink, paste, polymer resin, glass powder, ceramic powder, each finally formed product by means of expected normal usage
  Examples: - dried and hardened material for paint or adhesive
  - molded article for polymer resin
  - hardened material for glass or ceramic powder
- ・single layer of paint, printing, or plating. In the case of multi layers, each single layer shall be defined as Material.

2)Numerator is mass of the applicable chemical substance. In the case of metal alloy, metal element in the metal alloy will be the numerator.

Table 1a: Specified Amines

Detailed Substances	CAS No.
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-phenylenediamine	95-80-7
2,4,5-trimethylaniline	137-17-7
o-anisidine	90-04-0
4-amino azobenzene	60-09-3

Table1b: Ozone Depleting Substances (1/4)

Substance Group	Detailed Substances	CAS No.
CFCs	CFC-11	75-69-4
	CFC-12	75-71-8
	CFC-13	75-72-9
	CFC-111	354-56-3
	CFC-112	76-12-0 76-11-9
	CFC-113	76-13-1 354-58-5
	CFC-114	76-14-2
	CFC-115	76-15-3
	CFC-211	422-78-6 422-81-1
	CFC-212	3182-26-1
	CFC-213	134237-31-3
	CFC-214	29255-31-0 2268-46-4
	CFC-215	1599-41-3 76-17-5 4259-43-2
	CFC-216	661-97-2
	CFC-217	422-86-6
Halons	Halon-1011 (Bromochloromethane)	74-97-5
	Halon-1202	75-61-6
	Halon-1211	353-59-3
	Halon-1301	75-63-8
	Halon-2402	124-73-2

Table1b: Ozone Depleting Substances (2/4)

Substance Group	Detailed Substances	CAS No.
Carbon tetrachloride		56-23-5
1,1,1-Trichloroethane		71-55-6
Bromomethane		74-83-9
Bromoethane (Ethyl bromide)		74-96-4
1-Bromopropane(n-propyl bromide)		106-94-5
Trifluoroiodomethane (Trifluoromethyl iodide)		2314-97-8
Chloromethane (Methyl chloride)		74-87-3
HBFCs Hydrobromofluorocarbons	Dibromofluoromethane	1868-53-7
	Bromodifluoromethane	1511-62-2
	Bromofluoromethane	373-52-4
	Tetrabromofluoroethane	306-80-9
	Tribromodifluoroethane	-
	Dibromotrifluoroethane	354-04-1
	Bromotetrafluoroethane	124-72-1
	Tribromofluoroethane	-
	Dibromodifluoroethane	75-82-1
	Bromotrifluoroethane	421-06-7
	Dibromofluoroethane	358-97-4
	Bromodifluoroethane	420-47-3
	Bromofluoroethane	762-49-2
	Hexabromofluoropropane	-
	Pentabromodifluoropropane	-
	Tetrabromotrifluoropropane	-
	Tribromotetrafluoropropane	-
	Dibromopentafluoropropane	431-78-7
	Bromohexafluoropropane	2252-78-0
	Pentabromofluoropropane	-
	Tetrabromodifluoropropane	-
	Tribromotrifluoropropane	-
	Dibromotetrafluoropropane	-
	Bromopentafluoropropane	460-88-8
	Tetrabromofluoropropane	-
	Tribromodifluoropropane	70192-80-2
	Dibromotrifluoropropane	431-21-0
	Bromotetrafluoropropane	679-84-5
	Tribromofluoropropane	75372-14-4
	Dibromodifluoropropane	460-25-3
	Bromotrifluoropropane	421-46-5
	Dibromofluoropropane	51584-26-0
	Bromodifluoropropane	-
	Bromofluoropropane	1871-72-3
HCFCs Hydrochlorofluorocarbons	HCFC-21	75-43-4
	HCFC-22	75-45-6
	HCFC-31	593-70-4
	HCFC-121	134237-32-4 354-11-0 354-14-3
	HCFC-122	41834-16-6 354-21-2 354-15-4 354-12-1
	HCFC-123	34077-87-7 90454-18-5 306-83-2 354-23-4 812-04-4
	HCFC-124	63938-10-3 2837-89-0 354-25-6

Table1b: Ozone Depleting Substances (3/4)

Substance Group	Detailed Substances	CAS No.
HCFCs Hydrochlorofluorocarbons	HCFC-131	27154-33-2 134237-34-6 359-28-4 811-95-0
	HCFC-132	25915-78-0 1649-08-7 1842-05-3 471-43-2 431-06-1
	HCFC-133	1330-45-6 75-88-7
	HCFC-141	1717-00-6 25167-88-8 1717-00-6 430-57-9
	HCFC-132	25915-78-0 1649-08-7 1842-05-3 471-43-2 431-06-1
	HCFC-133	1330-45-6 75-88-7
	HCFC-141	1717-00-6 25167-88-8 1717-00-6 430-57-9
	HCFC-142	25497-29-4 75-68-3 25497-29-4
	HCFC-151	110587-14-9
	HCFC-221	134237-35-7
	HCFC-222	134237-36-8
	HCFC-223	134237-37-9
	HCFC-224	134237-38-0
	HCFC-225	127564-92-5 2713-09-9 128903-21-9 422-48-0 422-44-6 422-56-0 507-55-1 13474-88-9 431-86-7 136013-79-1 111512-56-2
	HCFC-226	134308-72-8
	HCFC-231	134190-48-0
	HCFC-232	134237-39-1
	HCFC-233	134237-40-4 7125-83-9
	HCFC-234	127564-83-4
	HCFC-235	134237-41-5 460-92-4
	HCFC-241	134190-49-1
	HCFC-242	134237-42-6
	HCFC-243	134237-43-7 7125-99-7 338-75-0 460-69-5
	HCFC-244	134190-50-4 679-85-6 421-75-0

Table1b: Ozone Depleting Substances (4/4)

Substance Group	Detailed Substances	CAS No.
HCFCs Hydrochlorofluorocarbons	HCFC-251	134190-51-5 818-99-5 421-41-0
	HCFC-252	134190-52-6 819-00-1
	HCFC-253	134237-44-8 460-35-5
	HCFC-261	134237-45-9 7799-56-6 420-97-3
	HCFC-262	134190-53-7 420-99-5 102738-79-4 421-02-3
	HCFC-271	134190-54-8 420-44-0 430-55-7

Table 1c: Polychlorinated Biphenyls (PCBs) and specific substitutes

Substances	CAS No.
Polychlorinated Biphenyls (all isomers and congeners)	1336-36-3
Monomethyl-tetrachloro-diphenyl methane (Ugilec 141)	76253-60-6
Monomethyl-dichloro-diphenyl methane (Ugilec 121, Ugilec 21)	-
Monomethyl-dibromo-diphenyl methane (DBBT)	99688-47-8

Table 1d:Fluorinated Greenhouse Gases(HFC, PFC, SF6)

Substances	CAS No.
Carbon tetrafluoride (Perfluoromethane)	75-73-0
Perfluoroethane (Hexafluoroethane)	76-16-4
Perfluoropropane (Octafluoropropane)	76-19-7
Perfluorobutane (Decafluorobutane)	355-25-9
Perfluoropentane (Dodecafluoropentane)	678-26-2
Perfluorohexane (Tetradecafluorohexane)	355-42-0
Perfluorocyclobutane	115-25-3
Sulfur Hexafluoride (SF6)	2551-62-4
Trifluoromethane (HFC-23)	75-46-7
Difluoromethane (HFC-32)	75-10-5
Methyl fluoride (HFC-41)	593-53-3
2H,3H-Decafluoropentane (HFC-43-10mee)	138495-42-8
Pentafluoroethane (HFC-125)	354-33-6
1,1,2,2-Tetrafluoroethane (HFC-134)	359-35-3
1,1,1,2-Tetrafluoroethane (HFC-134a)	811-97-2
1,1-Difluoroethane (HFC-152a)	75-37-6
1,1,2-Trifluoroethane (HFC-143)	430-66-0
1,1,1-Trifluoroethane (HFC-143a)	420-46-2
2H-Heptafluoropropane (HFC-227ea)	431-89-0
1,1,1,2,2,3-Hexafluoro-propane(HFC-236cb)	677-56-5
1,1,1,2,3,3-Hexafluoropropane (HFC-236ea)	431-63-0
1,1,1,3,3,3-Hexafluoropropane (HFC-236fa)	690-39-1
1,1,2,2,3-Pentafluoropropane (HFC-245ca)	679-86-7
1,1,1,3,3-Pentafluoropropane (HFC-245fa)	460-73-1
1,1,1,3,3-Pentafluorobutane (HFC-365mfc)	406-58-6

Table 1e: Exempted applications from the containment restriction

№	Substances	Code	Exempted applications
003	Cadmium /Cadmium Compounds	8(b)	Cadmium and its compounds in electrical contacts.
		13(b)-II	Cadmium in striking optical filter glass types; excluding applications falling under point 39 of this Annex(expires on 21 July 2021)
		13(b)-III	Cadmium in glazes used for reflectance standards(expires on 21 July 2021)
005	Lead/Lead Compounds	5(b)	Lead in glass of fluorescent tubes not exceeding 0.2% by weight
		6(a)-I	Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0,2 % lead by weight(expires on 21 July 2021)
		6(b)-I	Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling(expires on 21 July 2021)
		6(b)-II	Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight(expires on 18 May 2021)
		6(c)	Copper alloy containing up to 4% lead by weight(expires on 21 July 2021)
		7(a)	Lead in high melting temperature type solders (i.e. lead based alloys containing 85% by weight or more lead).(expires on 21 July 2021)
		7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.(expires on 21 July 2021)
		7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher
		9(b)	Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications
		13(a)	Lead in white glasses used for optical applications(expires on 21 July 2021)
		13(b)-I	Lead in ion coloured optical filter glass types(expires on 21 July 2021)
		13(b)-III	Lead in glazes used for reflectance standards(expires on 21 July 2021)
		15	Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages.
		34	Lead in cermet-based trimmer potentiometer elements.(expires on 21 July 2021)
006	Mercury/Mercury Compounds	1	Mercury in single capped (compact)fluorescent lamps not exceeding (perburner)
		1(a)	For general lighting purposes < 30 W: 2.5 mg
		1(b)	For general lighting purposes ≥ 30 W and < 50 W: 3.5 mg
		1(c)	For general lighting purposes ≥ 50 W and < 150 W: 5 mg
		1(d)	For general lighting purposes ≥ 150 W: 15 mg
		1(e)	For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm: 7 mg
		1(f)	For special purposes: 5 mg
		2(a)	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp)
		2(a)(1)	Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4mg
		2(a)(2)	Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17mm (e.g. T5): 3 mg
		2(a)(3)	Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28mm (e.g. T8): 3.5 mg
		2(a)(4)	Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12):3.5 mg
		2(a)(5)	Tri-band phosphor with long lifetime (≥ 25 000 h): 5 mg
			Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp)
		3(a)	—Short length (. 500 mm): 3.5mg
		3(b)	—Medium length (> 500mm and . 1500 mm): 5mg
		3(c)	—Long length (> 1,500 mm) : 13mg
008	PFOS and PFOS-related substances		・PFOS in photoresists or anti reflective coatings for photolithography processes ・PFOS in photographic coatings applied to films, papers, or printing plates

Glory Group may revise these exempted applications based on legislation.

Table 1f: Hexabromocyclododecane (HBCDD)

Substances	CAS No.
Hexabromocyclododecane	25637-99-4
	4736-49-6
	65701-47-5
	138257-17-7
	138257-18-8
	138257-19-9
	169102-57-2
	678970-15-5
	678970-16-6
	678970-17-7
1,2,5,6,9,10-hexabromocyclododecane	3194-55-6
α-hexabromocyclododecane	134237-50-6
β-hexabromocyclododecane	134237-51-7
γ-hexabromocyclododecane	134237-52-8

Table 1g: Polycyclic aromatic hydrocarbons (PAH)

Substances	CAS No.
Benzo[a]pyrene (BaP)	50-32-8
Benzo[e]pyrene (BeP)	192-97-2
Benzo[a]anthracene (BaA)	56-55-3
Chrysen (CHR)	218-01-9
Benzo[b]fluoranthene (BbFA)	205-99-2
Benzo[j]fluoranthene (BjFA)	205-82-3
Benzo[k]fluoranthene (BkFA)	207-08-9
Dibenzo[a,h]anthracene(DBAhA)	53-70-3

Table 2: Glory Group Specified Reportable Substances

Substances	Conditions of Deliverables to be controlled	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
SVHC specified by REACH Regulation (EC) (Candidate for Authorization) Refer to detailed substances in Table 2a	In the case that concentration in Deliverables exceeds 1000 ppm	Article 33 and 7.2 of REACH Regulation (EC) No 1907/2006	The additive of rubber and plastics products, flameretaldant, Insecticide, Antiseptics, Desiccating agent

Notation regarding Table 2:

1) Contents of management
•Reportable Substance(s) shall be taken hold on the presence or absence in Deliverables, and if Deliverables meet "Conditions of Deliverables to be reportable" defined in the above table, its total mass, purpose of use, and application area, etc., shall be reported to GLORY Group.
•The total mass shall be managed in [mg] unit with 2 effective digits.

2) In terms of "Reportable Substances", methodology of how to calculate concentration shall follow below:
•Denominator on calculating concentration is mass of Deliverables.
•Numerator is mass of the applicable chemical substance.

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（1/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
001	Anthracene	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen, category 2	Insecticides, herbicides, plant growth regulators, wood preservatives	120-12-7
002	4,4'-Diaminodiphenylmethane (4,4'-Methylenedianiline, 4,4'-MDA）	Carcinogen, cat. 2	Resin curing agent	101-77-9
003	Dibutyl phthalate (DBP)	Toxic for reproduction, cat. 2 Endocrine disrupting properties (Article 57(f) - human health)	Plasticizers, such as a vinyl chloride resin	84-74-2
004	Cobalt dichloride	Carcinogen, cat. 2	Dryness-and-moisture indicator	7646-79-9
005	Diarsenic pentaoxide	Carcinogen, cat. 1	Dyeing, metallurgy, wood preservative	1303-28-2
006	Diarsenic trioxide	Carcinogen, cat. 1	The raw material of metal arsenic The clarifier of special glass	1327-53-3
007	Sodium dichromate	Carcinogen, cat. 2 Mutagen, category 2 Toxic for reproduction, cat. 2	Manufacture of Chromium compound (chromium sulfate) Applied to the case only when the usage of this substance is applicable to the "Exempted Application" of "chromium VI compounds" defined in Table 1d.Other than those above, this substance shall be treated as Banned Substances and Deliverables shall comply with the "Standards of ban" defined in	7789-12-0 10588-01-9
008	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	Very persistent and very bioaccumulative	Manufacture of inorganic chromic acid system pigments	81-15-2
009	Bis(2-ethylhexyl)phthalate (DEHP)	Toxic for reproduction, cat. 2;Endocrine disrupting properties (Article 57(f) - environment);Endocrine disrupting	Plasticizers, such as a vinyl chloride resin	117-81-7
010	Hexabromocyclododecane (HBCDD) and allmajor diastereoisomers identified (α-HBCDD,β-HBCDD,γ-HBCDD)	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen, category 2	Flame retardant	25637-99-4 3194-55-6 134237-50-6 (α-HBCDD) 134237-51-7 (β-HBCDD) 1 34237-52-8 (γ-HBCDD)

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（2/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
011	Shortchain chlorinated paraffins	Persistent, Bioaccumulative, Toxic,Very Persistent, Very Bioaccumulative	Rubber, paints, gasket, adhesive lubricant, flameretardant, and plasticizer	85535-84-8
012	Tributyl tin oxide (TBTO)	Persistent, Bioaccumulative, Toxic	Fungicide and antifoulant paint	56-35-9
013	Lead hydrogen arsenate	Carcinogen, category 1; Toxic for reproduction, category 1	Insecticide Wood preservative Applied to the case only when the usage of this substance is applicable to the "Exempted Application" of "lead compounds" defined in Table 1e. Other than those above, this substance shall be treated as Banned Substances and Deliverables shall comply with the "Standards of ban" defined in Table 1.	7784-40-9
014	Benzyl butyl phthalate (BBP)	Toxic for reproduction,category 2 Endocrine disrupting properties (Article 57(f) - human health)	Plasticizers, such as a vinyl chloride resin	85-68-7
015	Triethyl arsenate	Carcinogen, category 1	Insecticide Wood preservative	15606-95-8
016	Anthracene oil	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen, category 2	The raw material of pure anthracene Antiseptics Waterproofing agent	90640-80-5
017	Anthracene oil, anthracene paste, distn. Lights	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen, category 2; Mutagen, category 2	The raw material of pure anthracene Antiseptics Waterproofing agent	91995-17-4
018	Anthracene oil, anthracene paste, anthracene fraction	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen, category 2 Mutagen, category 2	The raw material of pure anthracene Antiseptics Waterproofing agent	91995-15-2
019	Anthracene oil, anthracene-low	Very persistent and very bioaccumulative; Carcinogen, category 2 Mutagen, category 2	The raw material of pure anthracene Antiseptics Waterproofing agent	90640-82-7
020	Anthracene oil, anthracene paste	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen., category 2; Mutagen, category 2	The raw material of pure anthracene Antiseptics Waterproofing agent	90640-81-6
021	Coal tar pitch, high temperature	Persistent, bioaccumulative and toxic; Very persistent and very bioaccumulative; Carcinogen, category 2	Carbon electrode Graphite electrode	65996-93-2
022	Aluminosilicate,Refractory Ceramic Fibres	Carcinogen, category 2	Fire-resistant agent	
023	Zirconia Aluminosilicate, Refractory Ceramic Fibres	Carcinogen, category 2	Fire-resistant agent	
024	2,4-Dinitrotoluene	Carcinogen, category 2	The raw material of Toluene diisocyanate synthesis	121-14-2
025	Diisobutyl phthalate (DIBP)	Toxic for reproduction,category 2 Endocrine disrupting properties (Article 57(f) - human health)	Plasticizer	84-69-5
026	Lead chromate	Carcinogen, category 2; Toxic for reproduction, category 1	Pigment Brightener	7758-97-6
027	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	Carcinogen, category 2; Toxic for reproduction, category 1	Pigment	12656-85-8
028	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	Carcinogen, category 2; Toxic for reproduction, category 1	Pigment	1344-37-2

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（3/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
029	Tris(2-chloroethyl)phosphate (TCEP)	Toxic for reproduction, category 2	Flame retardant	115-96-8
030	Acrylamide	Carcinogenic,Mutagenic	Acrylamide is almost exclusively used for thesynthesis of polyacrylamides, which areused in various applications, in particular inwaste water treatment and paperprocessing. Minor uses of acrylamide comprisethe preparation of polyacrylamide gelsfor research purposes and as grouting agents incivil engineering.	79-06-1
031	Trichloroethylene	Carcinogenic	Trichlororethylene is mainly used asintermediate in the manufacture of chlorinatedand fluorinated organic compounds. Other usesare for cleaning and degreasing of metal parts oras solvent in adhesives.	79-01-6
032	Boric acid	Toxic to reproduction	Boric acid is widely used on account of itsconsistency-influencing, flame-retarding,antiseptic and preservative properties. It is acomponent of detergents and cleaners,adhesives, toys, industrial fluids, brake fluids,glass, ceramics, flame retardants, paints,disinfectants, cosmetics, food additives,fertilisers, insecticides and other products.	10043-35-3 11113-50-1
033	Disodium tetraborate, anhydrous	Toxic to reproduction	Disodium tetraborate and tetraboron disodiumheptaoxide form the same compounds in aqueoussolutions.Uses include a multitude of applications, e.g. indetergents and cleaners, in glass and glass fibres,ceramics, industrial fluids, metallurgy,adhesives, flame retardants, personal careproducts, biocides, fertilisers.	1303-96-4 1330-43-4 12179-04-3
034	Tetraboron disodium heptaoxide,hydrate	Toxic to reproduction	Disodium tetraborate and tetraboron disodiumheptaoxide form the same compounds in aqueoussolutions.Uses include a multitude of applications, e.g. indetergents and cleaners, in glass and glass fibres,ceramics, industrial fluids, metallurgy,adhesives, flame retardants, personal careproducts, biocides, fertilisers.	12267-73-1
035	Sodium chromate	Carcinogenic Mutagenic Toxic to reproduction	Sodium chromate is mainly used as anintermediate in the manufacture of otherchromium compounds as well as a laboratoryanalytical agent, but this use is limited. Otherpotential uses are mentioned in the literature butwhether they occur in the EU is not clear.	7775-11-3
036	Potassium chromate	Carcinogenic Mutagenic	Potassium chromate is used as a corrosioninhibitor for treatment and coating of metals, formanufacture of reagents, chemicals and textiles,as a colouring agent in ceramics, in themanufacture of pigments/inks and in thelaboratory as analytical agent.	7789-00-6
037	Ammonium dichromate	Carcinogenic Mutagenic Toxic to reproduction	Ammonium dichromate is mainly used as anoxidising agent. Other known uses are in themanufacture of photosensitive screens and asmordant in the manufacture of textiles. Minoruses seem to comprise metal treatment andlaboratory analytical agent.	7789-09-5
038	Potassium dichromate	Carcinogenic Mutagenic Toxic to reproduction	Potassium dichromate is used for chrome metalmanufacturing and as corrosion inhibitor fortreatment and coating of metals. It is furtherused as textile mordant, as laboratory analyticalagent, for cleaning of laboratory glassware, inthe manufacture of other reagents and asoxidising agent in photolithography.	7778-50-9

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（4/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
039	Cobalt(Ⅱ) sulphate	Carcinogenic Toxic to reproduction	Mainly used in the production of other chemicals. Further applications may include manufacture of catalysts and driers, surface treatments(such as electroplating), corrosion prevention, production of pigments,decolourising (in glass, pottery), batteries,animal food supplement, soil fertilizer, and Soil Additives	10124-43-3
040	Cobalt(Ⅱ) dinitrate	Carcinogenic Toxic to reproduction	Mainly used in the production of other chemicals and the manufacture of catalysts. Further applications may include surface treatments and batteries.	10141-05-6
041	Cobalt(Ⅱ) carbonate	Carcinogenic Toxic to reproduction	Mainly used in the manufacture of catalysts. Minor uses may include feed additive,production of other chemicals, production of pigments, and adhesion (in ground coat frit).	513-79-1
042	Cobalt(Ⅱ) diacetate	Carcinogenic Toxic to reproduction	Mainly used in the manufacture of catalysts. Minor uses may include production of other chemicals, surface treatment, alloys,production of pigments, dyes, rubber adhesion, and feed additive.	71-48-7
043	2-Methoxyethanol	Toxic to reproduction	Mainly used as solvent, chemical intermediate and additive for fuels.	109-86-4
044	2-Ethoxyethanol	Toxic to reproduction	Mainly used as solvent and chemical intermediate.	110-80-5
045	Chromium trioxide	Carcinogenic Mutagenic	Used for metal finishing and as fixing agent in waterborne wood preservatives.	1333-82-0
046	Acids generated from chromium trioxide and their oligomers: ・Chromic acid ・Dichromic acid ・Oligomers of chromic acid and dichromic acid	Carcinogenic	These acids and their oligomers are generated when chromium trioxide is dissolved in water. Chromium trioxide is mainly used in form of aqueous solutions. Consequently, the uses of these substances are the same as indicated for chromium trioxide.	7738-94-5 13530-68-2 -
047	2-Ethoxyethyl acetate	Toxic to reproduction	Coatings for metal products and furniture, solvent printing ink,solvent ink for electronic components	111-15-9
048	Strontium chromate	Carcinogenic	Coatings such as paints, varnishes, oil-colors,sealants, etcaeronautic/aerospace, coil coating or vehicle coating	7789-06-2
049	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP)	Toxic to reproduction	Plasticizer, dye, pigment,paint, ink, adhesive,lubricant	68515-42-4
050	Hydrazine	Carcinogenic	For the manufacture of plastic foam,boiler compound, reducing agent,polymerization catalyst, purifying agent	7803-57-8 302-01-2
051	1-Methyl-2-pyrrolidone	Toxic to reproduction	Resin solvent, acetylene solvent,MOS semiconductor manufacturing solvents,Electronics Cleaning, de-fluxing,edge bead removal, photoresist stripping	872-50-4
052	1,2,3-Trichloropropane	Carcinogenic Toxic to reproduction	Pesticides and solvents,Crosslinking agents for polysulfide elastomersand exafluoropropylene	96-18-4
053	1,2-Benzenedicarboxylic acid, di-C6-8-branchedalkyl esters, C7-rich (DIHP)	Toxic to reproduction	Plasticizer, dye, pigment,paint, ink, adhesive,lubricant	71888-89-6

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（5/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
054	Calcium arsenate	Carcinogenic	Calcium arsenate is present in complex raw materials (which themselves are by-products from metallurgical processes) that are used mainly for copper and lead refining. The substance is used to precipitate nickel from the molten metal and to manufacture diarsenic trioxide. However, most of the substance seems to be disposed of as waste	7778-44-1
055	Bis(2-methoxyethyl) ether	Toxic to reproduction	Bis(2-methoxyethyl) ether is used primarily as a reaction solvent or process chemical in a wide variety of applications. It is also used as solvent for battery electrolytes, and possibly in other products such as sealants, adhesives, fuels and automotive care products	111-96-6
056	Potassium hydroxyoctaoxodizincatedi-chromate	Carcinogenic	Potassium hydroxyoctaoxodizincatedichromate is mainly used in coatings in the aeronautic/aerospace, steel and aluminium coil coating and vehicle coating sectors.	11103-86-9
057	Lead dipicrate	Toxic to reproduction	No registration for lead dipicrate has been submitted to ECHA. The substance is an explosive like lead diazide and lead styphnate. It may be used in low amounts in detonator mixtures together with the two other mentioned lead compounds	6477-64-1
058	N,N-dimethylacetamide［DMAC］	Toxic to reproduction	N,N-dimethylacetamide is used as solvent, mainly in the manufacture of various substances and in the production of fibres for clothing and other applications. Also used as reagent, and in products such as industrial coatings, insulation paper, polyimide films, paint strippers and ink removers	127-19-5
059	Arsenic acid	Carcinogenic	Arsenic acid is mainly used to remove gas bubbles from ceramic glass melt (fining agent) and in the production of laminated printed circuit boards. To lesser extent the substance is also used in the manufacture of semiconductors and as laboratory agent.	7778-39-4
060	2-Methoxyaniline; o-Anisidine	Carcinogenic	2-Methoxyaniline is mainly used in the manufacture of dyes for tattooing and coloration of paper, polymers and aluminium foil.	90-04-0
061	Trilead diarsenate	Carcinogenic Toxic to reproduction	Trilead diarsenate is present in complex raw materials for manufacture of copper, lead and a range of precious metals. The trilead diarsenate contained in the raw materials is in the metallurgical refinement process transformed to calcium arsenate and diarsenic trioxide. Whereas most of the calcium arsenate appears to be disposed of as waste the diarsenic trioxide is used further	3687-31-8
062	1,2-Dichloroethane	Carcinogenic	1,2-Dichloroethane is mainly used for manufacture of other substances. Minor uses as solvent in the chemical and pharmaceutical industry, as well as in laboratories	107-06-2
063	Pentazinc chromate octahydroxide	Carcinogenic	Pentazinc chromate octahydroxide is mainly used in coatings in the vehicle coating and aeronautic/aerospace sectors	49663-84-5
064	4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	equivalent level of concern having probable serious effects to the environment	4-(1,1,3,3-Tetramethylbutyl)phenol is mainly used in the manufacture of polymer preparations and of ethoxylate surfactants. It is further used as a component in adhesives, coatings, inks and rubber articles.	140-66-9

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（6/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
065	Formaldehyde, oligomeric reaction products with aniline［technical MDA］	Carcinogenic	Technical MDA is mainly used for manufacture of other substances. Minor uses are as ion exchange resins in nuclear power plants, as hardener for epoxy resins, e.g. for the production of rolls, pipes and moulds, and as well for adhesives.	25214-70-4
066	Bis(2-methoxyethyl) phthalate	Toxic to reproduction	No registration for bis(2-methoxyethyl) phthalate has been submitted to ECHA. Hence, the substance seems not to be manufactured in or imported to the EU in quantities above 1 t/y. Main uses in the past were as plasticiser in polymeric materials and paints, lacquers and varnishes, including printing inks.	117-82-8
067	Lead azide Lead diazide	Toxic to reproduction	Lead diazide is mainly used as initiator or booster in detonators for both civilian and military uses and as initiator in pyrotechnic devices.	13424-46-9
068	Lead styphnate	Toxic to reproduction	Lead styphnate is mainly used as a primer for small calibre and rifle ammunition. Other common uses are in ammunition pyrotechnics, powder actuated devices and detonators for civilian use	15245-44-0
069	2,2'-dichloro-4,4'-methylenedianiline［MOCA］	Carcinogenic	2,2'-Dichloro-4,4'-methylenedianiline is mainly used as curing agent in resins and in the production of polymer articles and also for manufacture of other substances. The substance may further be used in construction and arts.	101-14-4
070	Phenolphthalein	Carcinogenic	Phenolphthalein is mainly used as laboratory agent (pH indicator solutions). Minor uses are in pharmaceutical preparations and in some special applications (e.g. pH-indicator paper, disappearing inks).	77-09-8
071	Dichromium tris(chromate)	Carcinogenic	Dichromium tris(chromate) is mainly used in mixtures for metal surface treatment in the aeronautic/aerospace, steel and aluminium coating sector	24613-89-6
072	1,2-bis(2-methoxyethoxy)ethane［TEGDME, triglyme］	Toxic for reproduction	Mainly used as a solvent or as a processing aid in the manufacture and formulation of industrial chemicals. Minor use in brake fluids and repair of motor vehicles.	112-49-2
073	1,2-dimethoxyethane; ethylene glycol dimethyl ether［EGDME］	Toxic for reproduction	Mainly used as a solvent or as a processing aid in the manufacture and formulation of industrial chemicals, including use as an electrolyte solvent in lithium batteries.	110-71-4
074	Diboron trioxide	Toxic for reproduction	Used in a multitude of applications, e.g. in glass and glass fibres, frits,ceramics, flame retardants, catalysts, industrial fluids, metallurgy,nuclear, electrical equipment,adhesives, inks/paints, film developing solutions, detergents and cleaners, reagent chemicals, biocides and insecticides	1303-86-2
075	Formamide	Toxic for reproduction	Mainly used as an intermediate in the manufacture of agrochemicals,pharmaceuticals and industrial chemicals. Minor uses as a solvent, as a laboratory reagent for quality control purposes in forensic laboratories, hospitals, pharmaceutical companies, food and drinks manufacturers and research laboratories. The substance seems to also be used as a plasticiser	75-12-7
076	Lead(II) bis(methanesulfonate)	Toxic for reproduction	Mainly used in plating processes (both electrolytic and electroless) for electronic components (such as printed circuit boards). The substance seems to also be used for batteries in special applications	17570-76-2

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（7/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
077	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	Mutagenic	Mainly used as a hardener in resins and coatings. Also used in inks for the printed circuit board industry, electrical insulation material,resin moulding systems,laminated sheeting, silk screen printing coatings, tools, adhesives, lining materials and stabilisers for plastics.	2451-62-9
078	β-TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	Mutagenic	Mainly used as a solder mask ink in the EU. Also used in electrical insulation material, resin moulding systems, laminated sheeting, silk screen printing, coatings,tools, adhesives, lining materials and stabilisers for plastics.	59653-74-6
079	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	Carcinogenic	Used as an intermediate in the manufacture of triphenylmethane dyes and other substances. Further potential uses include use as an additive (photosensitiser) in dyes and pigments, in dry film products and as a process chemical in the production of electronic circuit boards	90-94-8
080	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	Carcinogenic	Used as an intermediate in the manufacture of dyes and other substances.	101-61-1
081	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)	Carcinogenic	Used mainly for paper colouring and inks supplied in printer cartridges and ball pens. Further uses include staining of dried plants,use as a marker for increasing the visibility of liquids, staining in microbial and clinical laboratories.	548-62-9
082	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26)	Carcinogenic	Used in the formulation of inks, cleaners, and coatings, as well as for dyeing paper, packaging, textiles, plastic products, and other types of articles. It is also used in diagnostic and analytical applications	2580-56-5
083	α,α-Bis[4-(dimethylamino)phenyl]-4(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4)	Carcinogenic	Mainly used in the formulation of printing and writing inks, for dyeing paper and in mixtures such as windscreen washing agents.	6786-83-0
084	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol	Carcinogenic	Used in the formulation of writing inks and potentially other inks, as well as for dyeing a variety of materials.	561-41-1
085	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	PBT ; vPvB	Flame retardants	1163-19-5
086	Pentacosafluorotridecanoic acid	vPvB	Surfactant	72629-94-8
087	Tricosafluorododecanoic acid	vPvB	Surfactant	307-55-1
088	Henicosafluoroundecanoic acid	vPvB	Surfactant	2058-94-8
089	Heptacosafluorotetradecanoic acid	vPvB	Surfactant	376-06-7
090	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	Equivalent level of concern having probable serious effects to human health (Article 57 f)	Foaming agent	123-77-3
091	Cyclohexane-1,2-dicarboxylic anhydride [1] cis-cyclohexane-1,2-dicarboxylic anhydride [2] trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered by this entry].	Equivalent level of concern having probable serious effects to human health (Article 57 f)	Epoxy curing agent	85-42-7 13149-00-3 14166-21-3

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（8/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
092	Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalicanhydride [3], Hexahydro-3-methylphthalic anhydride [4]	Equivalent level of concern having probable serious effects to human health (Article 57 f)	Epoxy curing agent	25550-51-0 19438-60-9 48122-14-1 57110-29-9
093	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]	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	Surfactant raw materials, paint ink	-
094	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	Surfactant	-
095	Methoxyacetic acid	Toxic for reproduction	Intermediates in the synthesis	625-45-6
096	N,N-dimethylformamide	Toxic for reproduction	Solvent for synthesis	68-12-2
097	Dibutyltin dichloride (DBTC)	Toxic for reproduction	Rubber additives, PVC plasticizer	683-18-1
098	Lead monoxide (Lead oxide)	Toxic for reproduction	Glass raw material, raw materials stabilizer	1317-36-8
099	Orange lead (Lead tetroxide)	Toxic for reproduction	Paint pigment	1314-41-6
100	Lead bis(tetrafluoroborate)	Toxic for reproduction	Electrolyte for plating	13814-96-5
101	Trilead bis(carbonate)dihydroxide	Toxic for reproduction	Electronic ceramic material	1319-46-6
102	Lead titanium trioxide	Toxic for reproduction	Electronic ceramic material	12060-00-3
103	Lead titanium zirconium oxide	Toxic for reproduction	Electronic ceramic material	12626-81-2
104	Silicic acid, lead salt	Toxic for reproduction	Raw materials for glass	11120-22-2
105	Silicic acid ($H_2Si_2O_5$), barium salt (1:1), lead-doped [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]	Toxic for reproduction	Lamp fluorescent agent	68784-75-8
106	1-bromopropane (n-propyl bromide)	Toxic for reproduction	Cleaning solvent	106-94-5
107	Methyloxirane (Propylene oxide)	Carcinogenic ; Mutagenic	Raw materials, solvents	75-56-9
108	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	Toxic for reproduction	Plasticizer	84777-06-0

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（9/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
109	Diisopentylphthalate (DIPP)	Toxic for reproduction	Plasticizer	605-50-5
110	N-pentyl-isopentylphthalate	Toxic for reproduction	Plasticizer	776297-69-9
111	1,2-diethoxyethane	Toxic for reproduction	Solvent for ink and paint	629-14-1
112	Acetic acid, lead salt, basic	Toxic for reproduction	Synthetic intermediates, anticorrosive pigment	51404-69-4
113	Lead oxide sulfate	Toxic for reproduction	Battery electrode material	12036-76-9
114	[Phthalato(2-)]dioxotrilead	Toxic for reproduction	Stabilizers for PVC	69011-06-9
115	Dioxobis(stearato)trilead	Toxic for reproduction	Stabilizers for PVC	12578-12-0
116	Fatty acids, C16-18, lead salts	Toxic for reproduction	Stabilizers for PVC	91031-62-8
117	Lead cynamidate	Toxic for reproduction	Paint pigment	20837-86-9
118	Lead dinitrate	Toxic for reproduction	Synthetic raw material	10099-74-8
119	Pentalead tetraoxide sulphate	Toxic for reproduction	Battery electrode material, Stabilizers for PVC	12065-90-6
120	Pyrochlore, antimony lead yellow	Toxic for reproduction	Pigment	8012-00-8
121	Sulfurous acid, lead salt, dibasic	Toxic for reproduction	Stabilizers for PVC	62229-08-7
122	Tetraethyllead	Toxic for reproduction	Gasoline additive	78-00-2
123	Tetralead trioxide sulphate	Toxic for reproduction	Battery electrode material, Stabilizers for PVC	12202-17-4
124	Trilead dioxide phosphonate	Toxic for reproduction	Stabilizers for PVC	12141-20-7
125	Furan	Carcinogenic		110-00-9
126	Diethyl sulphate	Carcinogenic ; Mutagenic	Raw materials, intermediate solvent	64-67-5
127	Dimethyl sulphate	Carcinogenic	Raw materials, intermediate solvent	77-78-1
128	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	Toxic for reproduction	--	143860-04-2
129	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	Toxic for reproduction	Polymer material	88-85-7
130	4,4'-methylenedi-o-toluidine	Carcinogenic	Raw materials, intermediate	838-88-0
131	4,4'-oxydianiline and its salts	Carcinogenic ; Mutagenic	Raw materials, intermediate	101-80-4
132	4-aminoazobenzene	Carcinogenic	Raw materials, intermediate	60-09-3
133	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	Carcinogenic	Raw materials, intermediate	95-80-7
134	6-methoxy-m-toluidine (p-cresidine)	Carcinogenic	Raw materials, intermediate	120-71-8
135	Biphenyl-4-ylamine	Carcinogenic	Raw materials, intermediate	92-67-1
136	o-aminoazotoluene [(4-o-tolylazo-o-toluidine])	Carcinogenic	Raw materials, intermediate	97-56-3
137	o-toluidine	Carcinogenic	Raw materials, intermediate	95-53-4
138	N-methylacetamide	Toxic for reproduction	Solvent	79-16-3
139	Cadmium	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Ni-Cd batteries, pigments, plating, stabilizers, alloys, etc.	7440-43-9
140	Cadmium oxide	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (effects on kidney and bone) (Article 57 f)	Ni-Cd battery, plating, alloys, etc.	1306-19-0
141	Ammonium pentadecafluorooctanoate (APFO)	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	Reaction aid of fluorine rubber and fluoride resin	3825-26-1
142	Pentadecafluorooctanoic acid (PFOA)	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	Reaction aid of fluoride resin (PolyVinylidene DiFluoride:PVDF, polytetrafluoroethylene:PTFE)	335-67-1
143	Dipentyl phthalate (DPP)	Toxic for reproduction (Article 57 c)	Plasticizer	131-18-0

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（10/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
144	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]	Equivalent level of concern having probable serious effects to the environment (due to the endocrine disrupting properties of the degradation products) (Article 57 f)	Paints for Industrial or consumer. Use as ethoxylate (emulsifier) during emulsion polymerization.	-
145	Cadmium sulphide	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Dye of soap, glass, textiles, paper, rubber, printing inks.Fluorescent screen, Semiconductor	1306-23-6
146	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	Carcinogenic (Article 57a)	Azo dyes, direct dyes	573-58-0
147	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)	Carcinogenic (Article 57a)	Dye	1937-37-7
148	Dihexyl phthalate	Toxic for reproduction (Article 57 c)	Flooring, Grip of tool, Motor parts	84-75-3
149	Imidazolidine-2-thione (2-imidazoline-2-thiol)	Toxic for reproduction (Article 57 c)	Chlorine-containing rubber, polychloroprene, chloro-sulfonated polyethylene for vulcanization accelerator	96-45-7
150	Lead di(acetate)	Toxic for reproduction (Article 57 c)	Synthetic dye, Silk bulking agent, Waterproof agent, Production of lead salts, Dyeing assistant, Analytical reagent (the detection of sulfide), Pharmaceutical products (as an adstringentia), Product gold smelting, Hair dye, Hair color product	301-04-2
151	Trixylyl phosphate	Toxic for reproduction (Article 57 c)	Flame retardants, Plasticizers, Hydraulic fluid	25155-23-1
152	Cadmium chloride	Carcinogenic (Article 57a) Mutagenic (Article 57b) Toxic for reproduction (Article 57 c) Equivalent level of concern having probable serious effects to human health(Article 57 f)	For production of organic cadmium compounds,For production of inorganic cadomium compounds,Raw material for electrogalvanizing ,Raw material for electroplating,Laboratory reagent(industrial & professional),Component for production of PV(photovoltaic) modules	10108-64-2
153	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	Toxic for reproduction (Article 57 c)	sealant/jointing agents,engine oil atabilizer,automotive gear lubricant,medical devices(DEHP),general purpose PVC(DEHP) adhesives and inka(DIBP)	68515-50-4
154	Sodium peroxometaborate	Toxic for reproduction (Article 57 c)	bleaching agent in laundry detergents and machine dishwashing products,in cleaning products and in cosmetic preparations	7632-04-4
155	Sodium perborate; perboric acid, sodium salt	Toxic for reproduction (Article 57 c)	bleaching agent in laundry detergents and machine dishwashing products,in cleaning products and in cosmetic preparations	-

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（11/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
156	Cadmium fluoride	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for Reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	・Research applications, e.g. in solid ionic transport studies ・Flourescent and can therefore be used in certain phosphorus for luminescent screens ・For manufacturing of glass, in nuclear reactor control, for electric brushes, hightemperature dry-film lubricant, optical applications, and as starting material for crystals for laser ・Active component in fluxes for soldering of aluminium and its alloys	7790-79-6
157	Cadmium sulphate	Carcinogenic (Article 57 a); Mutagenic (article 57 b); Toxic for Reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	・Intermediate for industrial production of inorganic cadmium compounds, and as laboratory reagent ・Raw material for metal surface coating and for restoring of lead acid batteries ・Raw material for production of inorganic cadmium compounds. ・Laboratory reagent ・Battery restoring ・Metal electroplating ・The standard Weston cell and as electrolytes in electroplating	10124-36-4; 31119-53-6
158	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	PBT (Article 57 d); vPvB (Article 57 e)	・UV-stabilisers since they can absorb the full spectrum of UV-light: UV-A (320-400nm) and UV-B (280-320 nm). ・The most important UV-absorbers, especially for transparent plastic materials. ・UVprotection agents in coatings especially for cars and special industrial wood coatings. ・UVstabiliser for plastics,polyurethanes and rubber and constituent in formulations used for coating of surfaces, e.g. cars or special industrial wood coatings.	3846-71-7
159	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	PBT (Article 57 d); vPvB (Article 57 e)	・UV-stabilisers since they can absorb the full spectrum of UV light: UV-A (320-400nm) and UV-B (280-320nm) ・UVprotection agents in coatings especially for cars and special industrial wood coatings. ・Light stabilizing in coatings, ABS resin, epoxy resin, fiber resin,propylene and polyvinyl chloride	25973-55-1
160	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	Toxic for Reproduction (Article 57 c)	・Heat stabiliser in the production of rigid and to a minor extent of plasticised PVC. ・The industrial setting (manufacture and distribution, formulation of DOTE, processing of polymers containing DOTE) ,but also by professionals (processing of polymers ontaining DOTE)	15571-58-1
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)	Toxic for Reproduction (Article 57 c)	・The production of PVC as heat stabiliser ・Industrial settings (manufacture and distribution,formulation of DOTE） ・Heat stabiliser in the production of rigid and to a minor extent of plasticised PVC. ・Substances and constituents of mixtures when acting as biocides in free association paint or as biocides to prevent the fouling by microorganisms, plants or animals and of preparations intended for use in the treatment of industrial waters	-
162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ? 0.3% of dihexyl phthalate (EC No. 201-559-5)	Toxic for Reproduction (Article 57 c)	Plasticizers, lubricants, adhesives	68515-51-5 68648-93-1

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（12/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №.
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]	vPvB (Article 57 e)	Perfume raw material	-
164	Nitrobenzene	Toxic for reproduction(Article 57 c)	production of chemicals and intermediate forfurther chemical processing	98-95-3
165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	vPvB (Article 57 e)	UV-protection agents in coatings, plastics,rubber, polyurethanes and cosmetics	3864-99-1
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	vPvB (Article 57 e)	production of chemicals and intermediate forfurther chemical processing	36437-37-3
167	1,3-propanesultone	Carcinogenic (Article 57 a)	electrolyte fluid of lithium ion batteries	1120-71-4
168	Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptadecafluorononanoic acid and its sodium and ammonium salts)	Toxic for reproduction(Article 57 c); PBT (Article57 d)	a processing aid for fluoropolymermanufacture, and also as a lubricating oiladditive, surfactant for fire extinguishers,cleaning agent, textile antifouling finishingagent, polishing surfactant, waterproofingagents and in liquid crystal display panels	375-95-1 21049-39-8 4149-60-4
169	Benzo[def]chrysene（Benzo[a]pyrene）	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for Reproduction (Article 57 c); PBT (Article 57 d); vPvB (Article 57 e)	・Use in electro-steel industry / in products in the metallurgic smelting industry ・Formulation / end use of adhesives, paints,waterproof material ・Use in the active carbon supply chain ・Use as sealing or binding agent for gas storage tanks or artificial clay	50-32-8
170	4,4'-isopropylidenediphenol (bisphenol A; BPA)	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health) Endocrine disrupting properties (Article 57(f) – environment)	Manufacture of polycarbonate, epoxy resins and chemicals; hardener in epoxy resins	80-05-7
171	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	Toxic for reproduction (Article 57c) PBT (Article 57d)	Lubricant, wetting agent, plasticiser and corrosion inhibitor	3108-42-7 335-76-2 3830-45-3
172	p-(1,1-dimethylpropyl)phenol	Equivalent level of concern having probable serious effects to environment (Article 57f)	Manufacture of chemicals and plastic products	80-46-6
173	4-heptylphenol, branched and linear [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]	Equivalent level of concern having probable serious effects to environment (Article 57f)	Manufacture of polymers; formulation into lubricants	-
174	Perfluorohexane-1-sulphonic acid and its salts	vPvB (Article 57 e)	· Household products (such as cookware, floor polish and water repellent sprays for apparel and footwear) · Fire-fighting foams · Metal plating (hard metal plating and decorative plating) · Electronic equipment and components · Medical and healthcare products · Chemically driven oil and mining production · Pesticides (as active ingredients and	355-46-4
175	Benz[a]anthracene	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	Not registered under REACH. Normally not produced intentionally but rather occurs as a constituent or impurity in other substances.	56-55-3 1718-53-2

Table 2a: SVHC defined by REACH Regulation (EC)(Candidate for Authorization)（13/13）

№	Substances	Basis for Identification as "SVHC"	Examples of Use	CAS №
176	Cadmium carbonate	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Used as a pH regulator and in water treatment products, laboratory chemicals, cosmetics and personal care products.	513-78-0
177	Cadmium hydroxide	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Used in laboratory chemicals and for the manufacture of electrical, electronic and optical equipment.	21041-95-2
178	Cadmium nitrate	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Used in laboratory chemicals and for the manufacture of glass, porcelain and ceramic products.	10022-68-1 10325-94-7
179	Chrysene	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	Not registered under REACH. Normally not produced intentionally but rather occurs as a constituent or impurity in other substances.	218-01-9 1719-03-5
180	1,6,7,8,9,14,15,16,17,17,18,18Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene (“Dechlorane Plus”TM) [covering any of its ndividual anti- and syn-isomers or any combination thereof]	vPvB (Article 57e)	Used as a non-plasticising flame retardant, used in adhesives and sealants and in binding agents.	-
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]	Endocrine disrupting properties (Article 57(f) – environment)	Used as a lubricant additive in lubricants and greases.	-
182	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride (trimellitic anhydride、TMA)	Respiratory sensitising properties (Article 57(f) - human health)	Used in the manufacture of esters and polymers.	552-30-7
183	Benzo[ghi]perylene	PBT (Article 57d) vPvB (Article 57e)	Not registered under REACH. Normally not produced intentionally but rather occurs as a constituent or impurity in other substances.	191-24-2
184	Decamethylcyclopentasiloxane (D5)	PBT (Article 57d) vPvB (Article 57e)	used in cosmetics and personal care products, polishes and waxes, washing and cleaning products and textile treatment products and dyes.	541-02-6
185	Dicyclohexyl phthalate (DCHP)	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health)	Used in plastisol, PVC, rubber and plastic articles. A further use is also as a phlegmatiser and dispersing agent for formulations of organic peroxides.	84-61-7
186	Disodium octaborate	Toxic for reproduction (Article 57c)	used in antifreeze products, heat transfer fluids, lubricants and greases and washing and cleaning products.	12008-41-2
187	Dodecamethylcyclohexasiloxane (D6)	PBT (Article 57d) vPvB (Article 57e)	used in polishes and waxes, washing and cleaning products, and cosmetics and personal care products.	540-97-6
188	Ethylenediamine	Respiratory sensitising properties (Article 57(f) - human health)	used in adhesives and sealants, coating products, fillers, putties, plasters, modelling clay, and pH regulators and water treatment products.	107-15-3
189	Lead	Toxic for reproduction (Article 57c)	used in metals, welding and soldering products, metal surface treatment products, polymers and heat transfer fluids.	7439-92-1
190	Octamethylcyclotetrasiloxane (D4)	PBT (Article 57d) vPvB (Article 57e)	used in washing and cleaning products, cosmetics and personal care products and polishes and waxes.	556-67-2
191	Terphenyl hydrogenated	vPvB (Article 57e)	used as plastic additive, as solvent, in coatings/inks, in adhesives and sealants.	61788-32-7

Table 3: Glory Group Specified Control Substances

№	Substances	Conditions of Deliverables to be controlled	RemarkKey Legal and Regulatory or industry standard/ agreement citation	Examples of Use
001	Beryllium Oxide (BeO)	In the case that concentration in Deliverables exceeds 1000 ppm	DIGITALEUROPE/CECED/AeA / EERA guidance	ceramics
002	Brominated flame retardants (other than PBBs,PBDEs, or HBCDD) Refer to detailed substances in Table 3a.	In the case that concentration in Deliverables exceeds 1000 ppm	DIGITALEUROPE/CECED/AeA / EERA guidance	flame retardant, printed wiring board laminate, connectors, package molding sealing
003	Nickel	Intentionally added	EU Directive 76/769/EEC and EU Directive 94/27/EC	Stainless steel, plating; Example application for prolonged skin contact is an ear bud (headphone)
004	Perchlorates Refer to detailed substances in Table 3b.	0.0000006 % by weight (0.006 ppm) of the product	US/CA DTSC Rulemaking	Coin cell batteries
005	Phthalates (DINP, DIDP, DNOP)	0.1 % by weight (1,000 ppm) of plasticized material	EU Directive 2005/84/EC; Consumer Product Safety Improvement Act	plasticizer, dye, pigment, paint, ink, adhesive, lubricant
006	Polyvinyl Chloride (PVC)	0.1% by weight (1,000 ppm) of product	IEEE1680 (EPEAT: Electronic Product Environmental Assessment Tool)	Insulator, chemical resistance, transparency, sheath material
007	Radioactive substances Refer to detailed substances in Table 3c.	Intentional addition or use	EU-D 96/29/Euratom; Japan Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors, 1986; US NRC	optical properties (thorium), measuring devices, gauges, detector

Notation regarding Table 3:

1) Contents of management
   - In the case that Deliverables meet "Conditions of Deliverables to be controlled" defined in the above table, with respect to "Control Substance", its total mass, purpose of use, and application area, etc., shall be managed and recorded.
   - The total mass shall be managed in [mg] unit with 2 effective digits.

2) In terms of "Control Substances", methodology of how to calculate concentration shall follow below:
   - Denominator on calculating concentration is mass of Deliverables.
   - Numerator is mass of the applicable chemical substance. In the case of metal alloy, metal element in the metal alloy will be the numerator.

Table 3a:Brominated Flame Retardants (other than PBBs, PBDEs or HBCDD) (1/2)

CAS No.	Brominated Flame Retardants (other than PBBs, PBDEs or HBCDD)
–	Brominated flame retardant which comes under notation of ISO1043-4 code number FR(14) [Aliphatic/alicyclicbrominated compounds]
–	Brominated flame retardant which comes under notation of ISO1043-4 code number FR(15) [Aliphatic/alicyclicbrominated compounds in combination with antimonycompounds]
–	Brominated flame retardant which comes under notation of ISO1043-4 code number FR(16) [Aromatic brominatedcompounds excluding brominated diphenyl ether andbiphenyls]
–	Brominated flame retardant which comes under notation of ISO1043-4 code number FR(17) [Aromatic brominatedcompounds excluding brominated diphenyl ether andbiphenyls in combination with antimonycompounds]
–	Brominated flame retardant which comes under notation of ISO1043-4 code number FR(22) [Aliphatic/alicyclicchlorinated and brominated compounds]
–	Brominated flame retardant which comes under notationof ISO1043-4 code number FR(42) [Brominated organicphosphorus compounds]
69882-11-7	Poly(2,6-dibromo-phenylene oxide)
58965-66-5	Tetra-decabromo-diphenoxy-benzene
37853-59-1	1,2-Bis(2,4,6-tribromo-phenoxy)ethane
79-94-7	3,5,3',5'-Tetrabromo-bisphenol A (TBBA)
30496-13-0	TBBA, unspecified
40039-93-8	TBBA-epichlorhydrin oligomer
70682-74-5	TBBA-TBBA-diglycidyl-ether oligomer

Table 3a:Brominated Flame Retardants (other than PBBs, PBDEs or HBCDD) (2/2)

CAS No.	Brominated Flame Retardants (other than PBBs, PBDEs or HBCDD)
28906-13-0	TBBA carbonate oligomer
94334-64-2	TBBA carbonate oligomer, phenoxy end capped
71342-77-3	TBBA carbonate oligomer, 2,4,6-tribromo-phenolterminated
32844-27-2	TBBA-bisphenol A-phosgene polymer
139638-58-7	Brominated epoxy resin end-capped with tribromophenol
135229-48-0	Brominated epoxy resin end-capped with tribromophenol
21850-44-2	TBBA-(2,3-dibromo-propyl-ether)
4162-45-2	TBBA bis-(2-hydroxy-ethyl-ether)
25327-89-3	TBBA-bis-(allyl-ether)
37853-61-5	TBBA-dimethyl-ether
39635-79-5	Tetrabromo-bisphenol S
42757-55-1	TBBS-bis-(2,3-dibromo-propyl-ether)
615-58-7	2,4-Dibromo-phenol
118-79-6	2,4,6-Tribromo-phenol
608-71-9	Pentabromo-phenol
3278-89-5	2,4,6-Tribromo-phenyl-allyl-ether
26762-91-4	Tribromo-phenyl-allyl-ether, unspecified
55481-60-2	Bis(methyl)tetrabromo-phthalate
26040-51-7	Bis(2-ethylhexyl)tetrabromo-phthalate
20566-35-2	2-Hydroxy-propyl-2-(2-hydroxy-ethyl)-ethyl-TBP
75790-69-1	TBPA, glycol-and propylene-oxide esters
32588-76-4	N,N'-Ethylene-bis-(tetrabromo-phthalimide)
52907-07-0	Ethylene-bis(5,6-dibromo-norbornane-2,3-dicarboximide)
3234-02-4	2,3-Dibromo-2-butene-1,4-diol
3296-90-0	Dibromo-neopentyl-glycol
96-13-9	Dibromo-propanol
36483-57-5	Tribromo-neopentyl-alcohol
57137-10-7	Poly tribromo-styrene
61368-34-1	Tribromo-styrene
171091-06-8	Dibromo-styrene grafted PP
31780-26-4	Poly-dibromo-styrene
68955-41-9	Bromo-/Chloro-paraffins
82600-56-4	Bromo-/Chloro-alpha-olefin
593-60-2	Vinylbromide
52434-90-9	Tris-(2,3-dibromo-propyl)-isocyanurate
49690-63-3	Tris(2,4-dibromo-phenyl) phosphate
19186-97-1	Tris(tribromo-neopentyl) phosphate
125997-20-8	Chlorinated and brominated phosphate ester
87-83-2	Pentabromo-toluene
38521-51-6	Pentabromo-benzyl bromide
68441-46-3	1,3-Butadiene homopolymer, brominated
59447-55-1	Pentabromo-benzyl-acrylate, monomer
59447-57-3	Pentabromo-benzyl-acrylate, polymer
84852-53-9	Decabromo-diphenyl-ethane
59789-51-4	Tribromo-bisphenyl-maleinimide
—	Brominated trimethylphenyl-lindane
—	Other Brominated Flame Retardants
31454-48-5	Tetrabromo-cyclo-octane
3322-93-8	1,2-Dibromo-4-(1,2-dibromo-methyl)-cyclo-hexane
25357-79-3	TBPA Na salt
632-79-1	Tetrabromo phthalic-anhydride

Table 3b:Perchlorate Compounds

CAS No.	Perchlorate Compounds
7791-03-9	Lithium perchlorate
-	Other perchlorate compounds

Table 3c:Radioactive Substances (Radioactive Isotope)

CAS No.	Radioactive Substances (Radioactive Isotope)
7440-61-1	Uranium-238
10043-92-2	Radon
14596-10-2	Americium-241
7440-29-1	Thorium-232
7440-46-2 (Cs-137 010045-97-3)	Cesium (Radioactive Isotopes only)
(元素 7440-29-6) (Sr-90 10098-97-2)	Strontium (Radioactive Isotopes only)
-	Other radioactive substances

[Revision history]
Dec. 1, 2010 (1st edition): Created. (Separated from “GLORY Green Procurement Direction”)
Added 2 substances to Banned Substances
Added 9 substance to Reportable Substances.
Mar. 1, 2011(2nd edition): Added 5 substances to Banned Substances
Added 8 substance to Reportable Substances.
Deleted 2 substance to Control Substances.
Aug. 1, 2011(3rd edition): Added 7 substance to Reportable Substances.
Feb. 1, 2012(4th edition): Revised Some Standards of ban
Added 18 substance to Reportable Substances.
Aug. 1, 2012(5th edition): Revised Some Standards of ban
Added 13 substance to Reportable Substances.
Jan. 7, 2013(6th edition): Added 54 substance to Reportable Substances.
Jul. 1, 2013(7th edition): Added 6 substance to Reportable Substances.
Jan. 6, 2014(8th edition): Added 7 substance to Reportable Substances.
Jul. 1, 2014(9th edition): Added 2 substance to Banned Substances
Added 4 substance to Reportable Substances.
Nov.4, 2014(10th edition): Revised (Table 1e) Exempted applications from the containment restriction
Jan.5, 2015(11th edition): Revised (Table 1e) Exempted applications from the containment restriction
Added 6 substance to Reportable Substances.
Jul.1, 2015(12th edition): Added 1 substance to Banned Substances
Added 2 substance to Reportable Substances.
Jan. 5, 2016(13th edition): Added 5 substance to Reportable Substances.
Apr. 1, 2016(14th edition): Added 1 substance to Banned Substances
Jul.1, 2016(15th edition): Added 1 substance as “Banned Substances” and revised “Standards of
of 1substance. Added 1 substance to Reportable Substances.
Deleted expired Exempted applications in Table 1e.
Feb. 1, 2017(16th edition): Revised “Standards of ban” of 2substance.
Added 4 substance to Reportable Substances.
Aug. 1, 2017(17th edition): Added 6 substance as “Banned Substances” and revised “Standards of ba
of 1substance.
Added 1 substance as “Reportable Substances” and revised “Basis for
Identification as "SVHC"” of 5 substances.
Feb. 1, 2018(18th edition): Criteria change of one substance in Table 1
Criteria change of Exempted applications in Table 1e
Added 7 substance as “Reportable Substances” and revised “Basis for
Identification as "SVHC"” of 1 substances.
Aug.1, 2018(19th edition): Revised (Table 1e) Exempted applications from the containment restriction
Added 10 substance to Reportable Substances.