

Signify Regulated Substances List

Signify List of Regulated Substances in Products
and Product packaging

RSL 2021-2

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1 INTRODUCTION

As a purpose-driven company, Signify takes a fully integrated approach to doing business in a responsible and sustainable way. Building on our proven track record in sustainability over the years, we have adopted a comprehensive set of key commitments across all the Environmental, Social and Corporate Governance (ESG) dimensions that guide the execution of our company strategy to unlock the extraordinary potential of light for brighter lives and a better world.

As a fundamental basis and as part of the Signify chemicals management strategy, the adherence to stringent global chemical regulatory requirements such as setting threshold limit values or complete bans is of crucial importance. Guided by the precautionary principle, Signify strives to pro-actively phase out the use of harmful substances, posing serious or irreversible harm to the environment and/or human health which have not yet been covered by regulatory enforcements. Signify substance requirements can be developed that may go beyond legislative compliance based on scientific evidence and stakeholder consultation. Decisions to seek alternatives consider the level of concern, commercial availability, and technical feasibility of alternatives.

The above-mentioned requirements are reflected in the present requirement document, the “Signify Regulated Substances List” (or RSL), applicable for products and product-packaging.

Suppliers must comply with the substance requirements as defined in the RSL and is an integral part of any commercial agreement between Signify and its suppliers.

This or newer versions of the present RSL List can be found at Signify website downloads:

<https://www.signify.com/global/sustainability/product-compliance>

Changes of this RSL compared to previous versions can be retrieved in ANNEX 5 ‘Revision History’ of this document.

Nicola Kimm, Head of Sustainability Signify

1.1 Purpose

This document contains the Signify Regulated Substances List and its annexes as integral part of the Signify commitment to health, safety, and the environment.

The RSL contains product substance requirements related to:

- Federal, state, county or municipal law, regulation, ordinance, or code, and
- Signify own requirements.

The RSL is part of the Signify global policy and therefore included in Signify general purchasing conditions. Each supplier and brand licensees must ensure product compliance with this list. In addition, Signify brand licensees are expected to comply with all additional legal substance regulations that are specific to their business and may not be included in the RSL.

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Additional specific Signify or legal requirements may apply for certain product categories or applications. Examples are food contact materials, biocides or materials treated with biocides or products to be used for patients, babies or children, cosmetics, or purely chemical based products. The RSL is aligned with the substances included in the BOMcheck Declaration System. The few deviations from BOMcheck in the current version of the RSL are shown in Table 0. The deviations as mentioned in Table 0 are only for consumer products in some very specific applications. ANNEX 5 of this RSL mentions the changes compared to the previous version.

TABLE 0: Additional substance restrictions in product related applications in RSL compared to BOMcheck

Substances	Additional requirements in RSL compared to BOMcheck		Reason for deviation
	Table	Maximum Concentration Limit in ppm (mg/kg)	
Brominated Flame Retardants <u>restricted</u> in consumer products	6 and 7	900	Additional restriction of Brominated Flame Retardants in printed wiring board laminate (other than PBBs, PBDEs and HBCDD) in consumer products. Medical devices and professional lighting products are exempted and only declarable in BOMcheck.
Brominated Flame Retardants, PVC and (P)VC copolymers <u>restricted</u> in consumer products	6 and 7	1000	Additional restriction of PVC, (P)VC copolymers and Brominated Flame Retardants (other than PBBs, PBDEs and HBCDD) in any plastics parts. Mains power supply cord sets are exempted and only declarable in BOMcheck, just like medical devices and professional lighting products.

1.2 Scope

The requirements as set up in the Signify Regulated Substances List are a global policy of Signify, even if local regulatory requirement may be less strict. Where there is a difference between the Signify requirements and the local regulatory requirements, the most stringent, i.e., the most protective for health, safety and the environment applies.

The scope of this document includes all articles (i.e. materials, components, subassemblies, products, labels attached to products, etc., further mentioned as Products in the RSL), and product packaging (i.e. wood, paper or card-boxes, plastic material, containers, user manuals, labels, etc., further mentioned as Packaging in the RSL).

The requirements listed in the RSL are mandatory to all products, parts, and packaging materials:

- placed on the global market,
- used to produce Philips branded products,
- used to produce products of other brands that are owned by or licensed to Signify.

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This includes all consumables, accessories and non-Philips branded products that are by-packed or integrated in our products, and of which the original brand name of the OEM is still visible for the customer. A dispensation must be applied in case the OEM requests to waive certain RSL requirements.

For non-Philips branded products that are placed on the market by Signify (e.g. as a distributor) it is recommended to also use the RSL as baseline requirements document. At least all substance legislation applicable in the country where the product is placed on the market must be complied with.

The restricted substances cannot be contained in the product or used in the manufacture of the product and its components above the designated thresholds for the controlled applications listed. Declarable substances that are used in products, articles or packaging materials must be declared according to the limits given in the respective table.

If the supplier needs clarification with respect to Signify's guidelines and rules presented here, they should discuss with the Signify representative, which is generally the supplier account manager. If a brand licensee needs clarification, they should discuss with the Signify representative for sustainability in the Brand Committee.

1.3 Deviations

In those cases where the supplier supplies or intends to supply products/articles to Signify that do not comply with the Signify RSL, the supplier needs to contact the Signify procurement organization immediately to resolve the issue and to decide through mutual agreement on corrective actions. When a brand license partner intends to bring brand license product to the market that does not comply with the Signify RSL, licensee needs to contact the Signify representative for sustainability in the Brand Committee.

Recycled content

Signify strongly promotes the use of recycled materials, in particular the but not limited to the use of recycled plastics. Signify realizes that the use of recycled materials may pose challenges in terms of safeguarding compliance to all substances as referred to in the Signify RSL. In case of issues related to the Signify RSL compliance for recycled materials, please contact Signify procurement for support. For non-legal obligations, it may be possible to obtain a waiver for the presence of certain substances in recycled materials.

1.4 Thresholds

Maximum concentration limit for restricted substances

Signify acknowledges that some materials contain a certain amount of restricted substances being naturally present. However, when a substance is present above the listed maximum threshold limit value, whether it be in products, or product-related packaging, the substance is restricted to the maximum threshold concentration limit as indicated in the different tables of the RSL. Thresholds can either be legal limits set by authorities or refer to analytic thresholds being temporarily accepted. Restricted substances (e.g. as defined under RoHS) are measured at homogeneous material level (unless otherwise specified), meaning these thresholds must be declared on the homogeneous material level (See also Annex 1 for further explanation). Substances for which the use is exempted in specific applications, as defined by legislation, are allowed for, but must be declared.

Maximum concentration limit for declarable substances

Declarable substances (e.g., REACH SVHCs) are substances of which the use needs to be monitored due to a regulatory requirement or because Signify wants to monitor use from a precautionary point of view. The use of

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these substances must be reported when above the maximum concentration limit as defined in the Philips RSL in line with BOMcheck. In order to meet the ECHA SCIP database requirements additional data fields are required in BOMcheck.

2 SUPPLIER DECLARATION PROCESS

2.1 Declaration System

As referred to in Section 1.1, Signify will collect substances information for its (sub-)parts, products and product packaging because regulations such as RoHS and REACH require us to maintain regulatory compliance evidence at that level. Signify has decided to utilize an industry wide web-based declaration platform named BOMcheck as a system to facilitate efficiently chemical substances information from suppliers (www.BOMcheck.net). BOMcheck is an industry platform used by a large number of companies and represents an efficient system that helps suppliers follow up on the many legal requirements and provides smooth communication with the customers and in particular with suppliers up the supply chain. BOMcheck is primarily a regulatory compliance system designed specifically to enable suppliers to provide declarations for RoHS, REACH, and any other restricted and declarable substances legislation through detailed substances reports. BOMcheck also allows suppliers to provide Full Material Declaration (FMD) of their articles. The benefit of FMD is that suppliers have to upload the total chemical composition of their articles only once (unless the formulation of supplied articles changes), while BOMcheck will then automatically update your company's compliance status every time regulatory changes are introduced. Signify requires its suppliers to use BOMcheck.

BOMcheck complies with FDA requirements in Title 21 CFR Part 11 and Title 21 CFR 820.70(i).

2.2 Demonstrating compliance to the RSL through BOMcheck

Suppliers are required to make declarations in BOMcheck for all articles (i.e. materials, components, subassemblies, products, labels attached to products, etc.), and packaging materials (i.e., wood, paper or card-boxes, plastic material, containers, user manuals, labels, etc.). We request suppliers to regularly check for possible updates of the RSL to remain informed of the latest changes in all legislative and policy obligations at <https://www.signify.com/global/sustainability/product-compliance>

The BOMcheck substances list which also includes EU REACH SVHC's, Proposition 65 and RoHS exemptions can be found at the following link: <https://www.BOMcheck.net/suppliers/restricted-and-declarable-substances-list>

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3 PRODUCTS CONTENT RESTRICTIONS AND DECLARATIONS

TABLE 1: RoHS Substances Restrictions (Directive 2011/65/EU) in products

Restrictions are derived from EU RoHS Directive. Similar legislation is increasingly adopted in other regions and for other non-EEE applications (e.g. in EU REACH). The requirements in this Table apply to all Signify brands products on homogeneous material level in all regions.

Substances (<i>remark 1</i>)	Maximum Concentration Limit ppm (mg/kg)
RoHS substance restrictions (Directive 2011/65/EU) (<i>remark 1</i>)	
Cadmium and Cadmium compounds (<i>remark 2</i>)	100
Hexavalent Chromium compounds (<i>remark 2</i>)	1000
Lead and Lead compounds (<i>remark 2</i>)	1000
Mercury and Mercury compounds (<i>remarks 2 and 3</i>)	1000
Polybrominated diphenyl ethers (PBDEs) (<i>remark 4</i>)	1000
Polybrominated biphenyls (PBBs) (<i>remark 4</i>)	1000
RoHS substance restrictions amendment 1 (Directive 2011/65/EU, as amended by Directive (EU) 2015/863 of March 2015) (<i>remark 5</i>)	
Bis (2-ethylhexyl)phthalate; Di (2-ethylhexyl) phthalate (DEHP), CAS 117-81-7	1000
Dibutyl phthalate; Di-n-butyl phthalate (DBP), CAS 84-74-2	1000
Benzyl butyl phthalate; Butyl benzyl phthalate (BBP), CAS 85-68-7	1000
Diisobutyl phthalate; Di-i-butyl phthalate (DiBP), CAS 84-69-5	1000

- The restrictions do not apply to the exemption limits in the [European Directive RoHS \(2011/65/EU\)](#), and exemption limits in other RoHS type of regulations like the [Canadian CEPA-SOR/2014254](#). They also do not apply to batteries- and automotive applications as these are covered by other legislation (see e.g. EU battery directive ([2006/66/EU](#); see also Table 4), the European ELV directive ([2000/53/EC](#) and the amendment [2011/37/EU](#)). The list of EU RoHS exemptions, EU battery directives and EU ELV directive can be found in [BOMcheck](#). Heavy metal restrictions for batteries and packaging are given in Tables 4 and 7, respectively.
- Maximum concentration limit applicable for the metal (i.e. Cd, Cr⁶⁺, Pb and Hg) and not for the compounds. The concentration determination is based on the metal weight not the metal containing component weight (for details see IEC 62321)
- Besides the RoHS obligations, Lighting Products should also comply with the UN Minamata Convention and the Ecodesign /ERP directive 2009/125/EC (Implementing measure EC No 245/2009), therefore, a declaration via BOMcheck is required including: (1) providing the average amount of Mercury per lamp in x,x mg ; and (2) indicating the relevant ROHS exemption number within the section on RoHS in BOMcheck system.
- Polybrominated diphenylethers (PBDE) are the same as polybrominated biphenylethers (PBBE); polybrominated diphenyloxides (PBDO) are the same as polybrominated biphenyl oxides (PBBO)
- Since 7 July 2020, the four phthalates (individually or in any combination (i.e., sum)) are restricted under REACH (EU/2018/2005 of 17 December 2018) in a concentration equal to or greater than 0.1 % by weight of the plasticised material in the article, except for equipment in scope of RoHS, medical devices and Food Contact legislation. The restriction also applies to toys and childcare articles.

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TABLE 2: REACH Article 67 Substance Restrictions in products and packaging (Regulation (EC) 1907/2006)

These substances are in line with the relevant restrictions as defined in article 67 of the EU REACH regulation. Unless otherwise stated the maximum concentration limits apply on the homogeneous material level. Signify enforces these limits worldwide.

Substances	Maximum Concentration Limit ppm (mg/kg) or as given in the table	Particular use and further remarks
Restrictions for electrical and mechanical products in all applications		
Asbestos (all types)	No intentionally added content	
Dibutyltin (DBT) compounds	1000	0.1% by weight of tin in a material, used as heat stabilizer
Dimethylfumarate (DMF)	0.1	Used as pesticides and biocides, e.g. in silica gel bags in packaging.
Tri-substituted organostannic compounds	1000	0.1% by weight of tin in a material, used as pesticides and biocides
Tar oils and creosotes	No content permitted	In wood or wooden material as preservative
Monomethyl dibromodiphenyl methane (DBBT)	No intentionally added content	Used as dielectrics
Monomethyl dichlorodiphenyl methane (Ugilec 121 or Ugilec 21)	No intentionally added content	
Monomethyl tetrachlorodiphenyl methane (Ugilec 141)	No intentionally added content	
Polychlorinated terphenyls (PCTs)	No intentionally added content	
1,2,4-Trichlorobenzene	1000	Used as dielectrics, in any substance or preparation.
Sum of selected Phthalates Group 1 (DIBP, BBP, DBP, DEHP) (<i>remark 6</i>)	1000	In plasticized material
Bisphenol A	200	In thermal paper.
Additional restrictions which apply to parts used in toys and childcare products		
Sum of selected Phthalates Group 2 (DIDP, DINP, DNOP)	1000	In plasticized material when used in toys and childcare articles which can be placed in the mouth
Benzene	5	Toys

Substances	Maximum Concentration Limit ppm (mg/kg) or as given in the table	Particular use and further remarks
Diocetyl tin (DOT) compounds	1000	0.1% by weight of tin in a material
Any individual PAH compound (<i>see list under remark 7</i>)	0.5	Plastic or rubber material coming to repetitive skin or oral cavity contact in toys and childcare articles, in force for products placed on market after 27 th December 2015. See Table 6 for additional requirements on PAH
Additional restrictions which apply to parts that contain leather and textiles		
Diocetyl tin (DOT) compounds	1000	0.1% by weight of tin in a material
Aromatic amines (released from Azocolourants and azodyes (<i>see remark 17</i>))	30	Restricted in textile and leather articles
Tris-(1-aziridinyl) phosphin oxide	No content permitted	Not permitted in textile articles
Tri-(2,3-dibromo-propyl) phosphate	No content permitted	Not permitted in textile articles
Additional restrictions which apply to parts that come in contact with skin		
Nickel and nickel alloys (<i>see remark 8</i>)	0.5µg/cm ² /week	
Individual PAH compound (<i>see list under remark 7</i>)	1	Plastic or rubber material coming to repetitive skin or oral cavity contact in consumer articles, In force for products placed on market after 27 th December 2015 See Table 6 for additional requirements on PAH
Additional restrictions which apply to parts which contain chemical products (liquids, gases, powders; as substance or preparation)		
Nonylphenol and nonylphenol ethoxylates compounds	1000	For example, use in textile processing
Benzene	1000	For example, use in cleaners
Pentachlorophenol (PCP)	1000	For example, use in leather, wood and paper

- DIBP added to the restriction. The scope of this restriction was amended from "Additional restrictions which apply to parts used in toys and childcare products" to all types of articles, including children's toys and childcare articles, and with a list of exemptions, e.g. for equipment which is in scope of RoHS, Medical Devices, Food contact legislation.
- The PAH compounds restricted are: Benzo[a]pyrene CAS 50-32-8, Benzo[e]pyrene CAS 192-97-2, Benzo[a]anthracene CAS 56-55-3, Chrysene CAS 218-01-9, Benzo[b]fluoranthene CAS 205-99-2, Benzo[j]fluoranthene, CAS 205-82-3 Benzo[k]fluoranthene CAS 207-08-9 and Dibenzo[a,h]anthracene CAS 53-70-3. See also ECHA's PAH guidance: https://echa.europa.eu/documents/10162/106086/guideline_entry_50_pahs_en.docx/f12ac8e7-51b3-5cd3-b3a4-57bfc2405d04.
- ECHA guidance on defining "direct and prolonged skin contact can be found at: http://echa.europa.eu/documents/10162/13641/nickel_restriction_prolonged_contact_skin_en.pdf Does not apply to Medical devices and associated equipment. Medical device safety standards require biocompatibility testing to ensure that chemical substances, which may contact patients during use per the device's intended use, do not pose a health risk, specifically with respect to biocompatibility.

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TABLE 3: Substances restricted or declarable by other legislation in products and packaging.

Unless otherwise stated, the limits are on homogeneous material level. Signify enforces the limits worldwide.

Substances	Maximum concentration limit ppm (mg/kg) or as given in the Table	Particular use / Legislation
Restrictions for electrical and mechanical products in all applications		
Formaldehyde	No intentionally added content	In composite wood products or components (plywood, particle board and MDF) and textiles (<i>see remark 9</i>); U.S. EPA TSCA Title VI + California Airborne Toxic Control Measures (ATCM).
Lead and lead compounds	300	Applied in outer sleeves of cables/cords with thermoset or thermoplastic coatings, according to Proposition 65 legislation, California
Polychlorinated and polybrominated dioxins and furans	No intentionally added content	EU POP regulation.
Radioactive substances	No intentionally added content	Japan Law Concerning Prevention from Radiation Hazards; EU-D 2013/59/Euratom.
Pentachlorophenol (PCP)	No intentionally added content	EU Biocidal Product Regulation; applied in wood and furniture (5 ppm, Germany and Switzerland); Applied in all products (Denmark, no limit); For textiles in Korea 0.05 ppm for children textile/leather, 0.5 ppm for adult's textile/leather.
Biocides	No intentionally added biocide	EU Biocidal Product Regulation: Medical devices are exempted.
Perfluorooctane sulfonate (PFOS) compounds	1000	1000 ppm in all articles and semi-finished products, in textiles 1 µg/m ² of the coated material; EU POP legislation
Hexabromocyclododecane (HBCDD) and its main diastereoisomers	100	EU POP regulation 2016/293 on persistent organic pollutants; use as flame retardant
Alkanes, C10-13, chloro (SCCP; Short chained chlorinated paraffins)	1500	Restricted by EU POP regulation 2015/2030 on persistent organic pollutants when applied in articles
Polychlorinated naphthalenes	No intentionally added content	With one or more chlorine atoms; applied as stabilizer and flame retardant in plastics; EU POP regulation, Swiss, Canada and Japan legislation
Polychlorinated biphenyls (PCBs)	No intentionally added content	EU POP regulation; use as plasticizers, flame retardants and dielectrics
Bisphenol S	200	The Swiss Chemical Risk Reduction Ordinance (ORRChem), use in thermal paper.

Substances	Maximum concentration limit ppm (mg/kg) or as given in the Table	Particular use / Legislation
Polybrominated diphenyl ethers (PBDEs)	500	EU POP regulation 2019/1021 on persistent organic pollutants; use as flame-retardants; exemption for materials/parts used exclusively in electrical or electronic equipment (under scope of EU RoHS, see Table 1). Threshold applies to the sum of the concentration of those substances.
Perfluorooctanoic acid (PFOA) and its salts	0.025	Since 4 July 2020 PFOA is restricted above 0.025 ppm by EU POP in all applications. PFOA, for example, is used as surfactant in the manufacture of certain fluoropolymers and fluoroelastomers.
Phenol isopropylated phosphate (3:1) (PIP 3:1)	No intentionally added content	Used as a.o. plasticizer and additive flame retardant in materials such as PVC, polyethylene, electrical wire, synthetic rubber, flexible polyurethanes, polyurethane foam, epoxy resins, and various industrial coatings, adhesives, sealants with good performance on electrical isolation and can be present in oils and lubricants. Also used in engineering thermoplastics. U.S. EPA under TSCA.
Additional Restrictions which apply to parts used in toys and childcare products		
Di-n-pentyl phtalate (DPENP)	1000	Applied in any material. US Consumer Product Safety Improvement Act (CPSIA)
Di-n-hexyl phtalate (DHEXP)	1000	
Dicyclohexyl phtalate (DCHP)	1000	
Diisononyl phtalate (DINP)	1000	
Tris(2-chloroethyl) phosphate (TCEP; CAS 115-96-8)	No content permitted	(see remark 10 for legislation)
Tris(2-chloro-1-methylethyl) phosphate (TCPP; CAS 13674-84-5)		
Tris(1,3-dichloro-2-propyl) phosphate (TDCPP/TDCP; CAS 13674-87-8)		
Lead and lead compounds	100	Applied in accessible parts in toys and childcare products; US Consumer Product Safety Improvement Act
Lead and lead compounds	90	Applied in paint and similar coatings; US Consumer Product Safety Improvement Act
Additional restrictions which apply to parts which come in contact with food		
BPA (Bisphenol A)	No content permitted	In all food contact materials in consumer products (see remark 11); French legislation

Substances	Maximum concentration limit ppm (mg/kg) or as given in the Table	Particular use / Legislation
Additional requirements which apply to parts used in medical devices		
BPA (Bisphenol A)	Declare	Declare if manufactured from raw materials using BPA or derived of BPA and if used in medical devices and part comes in contact with patient or patient fluids (e.g., via intravenous, inhalation, oral exposure, contact with skin, or as an implant). Canadian legislation
Latex	No intentionally added content	The United States FDA requires all medical devices and its packaging which contain natural rubber (Latex) or dry natural rubber that can contact human skin to be marked per FDA User Labeling for Devices that Contain Natural Rubber (21 CFR 801.437)
CMR 1A and 1B substances and endocrine disrupting substances (EDCs)	1000	The use of such substances above 0.1% in Medical Devices or those parts thereof or those materials used therein that: <ul style="list-style-type: none"> - are invasive and come into direct contact with the human body, - (re)administer medicines, body liquids or other substances, including gases, to/from the body, or - transport or store such medicines, body fluids or substances, including gases, to be (re)administered to the body, shall be justified as per EU MDR 2017/45 annex I 10.4 and the device is to be labelled.
Additional requirements which apply to parts containing textiles		
Flame retardant chemicals	1000	Applied in any material. This restriction does not apply to electronic components; US States bills (e.g. California)
Additional restrictions which apply to parts which contain chemical products (liquids, gases, powders; as substance or preparation)		
Ozone depleting substances	No intentionally added content	All applications; Montreal protocol and EU Regulation No 2037/2000
Fluorinated Greenhouse gases (PFC, SF6, HFC)	No content permitted	EU regulation 517/2014 and Canada (SOR/2016-137)

9. Composite wood finished goods must be labelled showing compliance with U.S. EPA TSCA Title VI regulation (it is voluntary to also label in compliance with the California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) Phase II emission standards). Formaldehyde emission from materials: Emission from hardwood plywood (HWPW) veneer core is 0.05 ppm after 1-Jan-2010. HWPW composite core emission limit is 0.05 ppm from 1-July-2012. Emission limit from particle board (PB) is 0.09 ppm from 1-Jan-2011. Emission limit from medium density fibreboard (MDF) is 0.11 ppm from 1-Jan-2011. Emission limit from thin medium density fibreboard (MDF) is 0.13 ppm from 1-Jan-2012. Composite wood is defined by California Code of Regulations (CCR), Title 17, Section 93120.1. Refer to CCR, Title 17, Section 93120.9 for test methods.

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10. TRIS flame retardants are regulated for childcare articles and children’s products in Canada, EU toy directive 2009/48/EC and by US states New York, Maryland, and Vermont. The US District of Columbia restricts TCEP and TDCPP in consumer products for children under 12 years of age from 2018 onwards and in all consumer products from 2019 onwards. See the BOMcheck online guidance for more details on these legislations.
11. For Signify consumer products, a policy banning BPA applies to all food contact materials in appliances introduced to market since 1st January 2012.

TABLE 4: Substance Legislative Restrictions in Batteries

The limits are on battery level. Signify enforces the limits worldwide.

Substances	Maximum concentration limit ppm (mg/kg)	Remarks/Legislation
Cadmium and cadmium compounds (<i>see remarks 2 and 12</i>)	10	EU battery directive
Mercury and mercury compounds	1	Chinese Standard GB 24427-2009
Lead and lead compounds (see remark 12 and 13)	40	Chinese Standard GB 24427-2009
Perchlorates in all batteries	0.006	Labelling requirement in Californian regulation

12. Cadmium use is exempted for batteries used in emergency lighting (see European Battery [directive \(2006/66/EU; and for some spare parts for electric vehicles \(2000/53/EC](#) and the amendment [2011/37/EU](#)). Additionally, cadmium and lead compounds use is exempted for batteries in some automotive applications (see European ELV directive [\(2000/53/EC](#) and the amendment [2011/37/EU](#))
13. The lowest restriction limit for non-alkaline zinc-manganese dioxide batteries is 1000 ppm from Conama 257/99 (Brazil) and from Swiss legislation. The IEC 62474 database includes a restriction on Lead and Lead compounds in all types of batteries of 0.004% (40 ppm) by weight of battery based on Chinese Standard GB 24427-2009 (Alkaline zinc manganese dioxide batteries) and the EU battery directive.

TABLE 5.1: REACH Candidate List Substances (Regulation (EC) 1907/2006) – Regulatory compliance declaration for all product and product-packaging related applications

REACH Candidate list substances are subject to the obligations defined in Article 33 of the EU REACH regulation. The limits are on REACH article level. Signify enforces the limits worldwide.

Due to the fact that the European Chemicals Agency updates this list at least twice a year, we refer to the http://echa.europa.eu/chem_data/candidate_list_table_en.asp for the most recent list of candidate substances. BOMcheck will also contain the most recent list of SVHC and separates between those SVHC which are likely to be found in electronics and those that are not. Please see the lists for substances likely to be present in product and packaging applications in the following link: [Link to BOMcheck](#).

The use of an SVHC is allowed (unless otherwise stated in any of the other Tables in the RSL). However, when the concentration on the article level is found to be above the limits stated here, declaration is obligatory. For definitions, such as “Article”, please see the Annex 1.

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TABLE 5.2: California proposition 65 substances used in all product and product-packaging related applications, which are not included in any other Table in the RSL.

The limits are on homogeneous material level. Signify enforces these limits worldwide.

Prop 65 requires companies doing business in California to provide a "clear and reasonable" warning via product labeling before knowingly and intentionally exposing anyone to a Prop 65 Listed Chemical, unless the manufacturer can show that the anticipated exposure level will not pose a significant risk of cancer or is significantly below levels observed to cause birth defects or other reproductive harm. Safe Harbor Levels exist for some Listed Chemicals and include No Significant Risk Levels (NSRLs) for cancer-causing chemicals and Maximum Allowable Dose Levels (MADLs) for chemicals causing reproductive toxicity. These levels are measured in µg/day and must take into account all exposure routes (e.g. inhalation, oral, dermal). When the product exposes individuals to chemicals above the Safe Harbor Level, a clear and reasonable warning must be provided by the manufacturer. When no Safe Harbor Level is available, and the product contains a Prop 65 Listed Chemical, a manufacturer also would be required to provide a Proposition 65 warning, unless the manufacturer can show that the anticipated exposure level will not pose a significant risk of cancer or reproductive harm.

Since OEHHA updates the Prop65 list regularly, we refer to the list in BOMcheck. BOMcheck will only show those substances which are likely to be found in hardware products and electrical and electronic equipment and are not listed elsewhere in BOMcheck. Please see this list in the following link: [Link to BOMcheck](#).

TABLE 6: Industry restricted and declarable substances in products and product packaging.

Unless otherwise stated the limits are on homogeneous material level. Signify enforces the limits worldwide. These restrictions and declarations go beyond legislation and are included due to upcoming legislation and customer requirements.

Substances	Restricted or declarable	Maximum Concentration or declaration Limit ppm (mg/kg)
Restrictions for electrical and mechanical products in all applications		
Beryllium and Beryllium Compounds by weight of any material (<i>see remark 14</i>)	Declarable	1000
Brominated Flame Retardants (BFR) in printed wiring board laminate (other than PBBs, PBDEs and HBCDD); restriction/declaration threshold for total bromine concentration by weight in homogeneous material used in printed wiring laminates (<i>see remark 15</i>)	Restricted in consumer products, declarable in professional Lighting products and Medical devices (see remarks 15 and 16)	900
Brominated Flame Retardants (other than PBBs, PBDEs and HBCDD) in any plastics parts; restriction/declaration threshold for total bromine concentration by weight in homogeneous material used in plastics (<i>see remark 15</i>)		1000
Polyvinyl Chloride (PVC) and polyvinyl chloride copolymers in total chloride concentration by weight in homogeneous material (<i>see remark 16</i>)		1000

Chlorinated Flame Retardants in printed wiring board laminate; declaration threshold for total chlorine concentration by weight in homogeneous material used printed wiring laminates	Declarable	900
Chlorinated Flame Retardants in any plastics parts; declaration threshold for total chlorine concentration by weight in homogeneous material used in plastics	Declarable	1000
Antimony trioxide in plastic materials;	Declarable	1000
Phthalates (if not declared elsewhere in the RSL)	See Annex 3	1000
Additional restrictions which apply to parts used in lamps and lamp ballasts		
Antimony compounds in glass of lamp bulbs	Restricted	1000
Arsenic compounds in glass of lamp bulbs	Restricted	1000
PAH (Polycyclic aromatic hydrocarbons) in potting material for electronic ballast of lamps	Restricted	50
Additional restrictions which apply to parts which come in contact with skin		
Aromatic amines (released from Azocolourants and azodyes) (see remark 17, and Annex 2)	Restricted	30
PAH compounds (German product safety requirement for consumer products)	Restricted	See Annex 4 for limit values
Additional restrictions which apply to parts that contain leather and textiles		
Alkylphenol and alkylphenol ethoxylates (see remark 18)	Restricted	100

14. By making these substances declarable, Signify intends to collect information on the presence of the Beryllium and Beryllium compounds also when no feasible technological alternatives exist, such as in the following applications: i) Be metal and BeO used in X-Ray applications, ii) BeO as ceramic heat-resistant in semiconductors, iii) Be metal alloy (e.g., BeCu), and iv) BeO used in high power RF resistors.
15. Signify is pursuing a phase out of the use of BFRs in consumer products newly put on the market. Mains power supply cord sets are exempt from this policy. The use of BFRs needs to be declared to Signify via the BOMcheck system. For Signify consumer products organobromine compounds in the form of flame retardants should not be used in parts, components, materials, or products in concentrations equal to or greater than 0.1% (1000 ppm maximum of Bromine) by weight in any homogeneous material and 0.09% (900 ppm maximum of Bromine) by weight in any homogeneous material used in printed wiring laminates. BFRs are declarable for professional Lighting products and Medical Devices and mains power supply cord sets.
16. Signify is pursuing a phase out of the use of PVC, in consumer products newly put on the market. Therefore, the use of PVC needs to be declared to Signify via the BOMcheck system. For Signify consumer products organochlorine compounds in the form of polyvinyl chloride or PVC copolymers should not be used in parts, components, materials, or products in concentrations equal to or greater than 0.1% (1000 ppm maximum of Chlorine) by weight in any homogeneous material. Mains power supply cord sets are exempt from this PVC phase out. PVC is declarable for professional Lighting products, Medical devices and mains power supply cord sets.
17. This restriction of aromatic amines released from Azocolourants and Azo dyes as applied in the Signify RSL goes beyond the legal restriction under REACH article 67 (see Table 2) as Signify restricts the use of Azo dyes in all applications that come into direct contact with the human skin or oral cavity, and not only for textiles and leather. A full list of all aromatic amines that are restricted according to the Signify RSL can be found in Annex 2. Also, two additional aromatic amines are restricted in Signify compared to the 22 aromatic amines restricted under REACH Article 67, based on regulation in Japan, Thailand, and China. These 2 additional Azo dyes are 2,6-xylydine (CAS: 87-62-7) and 2,4-xylydine (CAS: 95-68-1).
18. Increasing number of alkyl phenols and their ethoxylates are becoming regulated under legislation, e.g. EU Reach restriction in 2021 for textiles and leather (100 ppm). In view of the increasing concern and attention focused on these alkylphenols and their ethoxylates, a precautionary approach is taken to restrict the allowable concentration of these substances in parts to <0.01% w/w. Examples of such alkylphenols, including their ethoxylates are octylphenol and nonylphenol.

TABLE 7: Additional restrictions in Product-Packaging

Unless otherwise stated the limits are on homogeneous material level. Signify enforces the limits worldwide.

Legislative Substances	Maximum concentration limit ppm (mg/kg)	Remarks
Sum of Heavy metals (Cd, Hg, Cr(6+) and Pb)	100	EU packaging directive
Dimethyl fumarate (e.g. in silica gel bags)	0.1	REACH article 67
Arsenic compounds, applied for wood packaging	No intentionally added content	REACH Article 67, bans the use of arsenic compounds for the preservation of wood
Formaldehyde content in packaging (<i>see remark 9</i>)	1000	California and German legislation
Industry substances		
Polyvinyl chloride (PVC) and (P)VC copolymers	1000	
Expanded polystyrene (EPS) and other polymeric foam materials inside any consumer product packaging	Not permitted	For example, EPP, EPE, EVA as shock absorber buffers enclosing the product, excluding thin foam sheets and foam bags.

ANNEX 1 - Definitions and interpretation of certain terms

1.1. Declaration on homogeneous material level (EU RoHS directive)

A “homogenous material” means one material of uniform composition throughout or a material, consisting of a combination of materials, that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes. For example, a single material such as a thermoplastic (the PVC insulation on insulated copper wire). Components such as capacitors, transistors and semiconductor packages are not regarded as “materials” but instead contain several different homogenous materials. For example, a semiconductor package will contain at least six homogenous materials as shown In Figure 1. The RoHS materials restrictions apply to each of these individual homogenous materials.

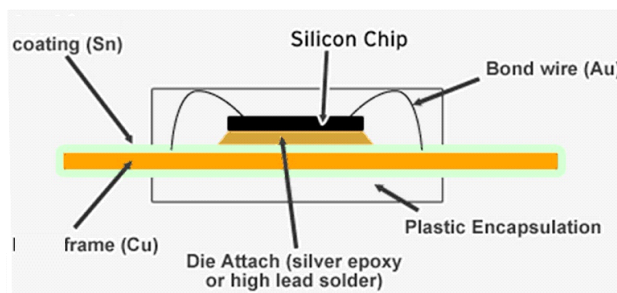


Figure 1: Material breakdown of an Integrated Circuit (IC) component

Substance ‘X’ < 0.1% at Homogeneous Material level means:

- Plastic encapsulation → $X < 0.1\%$
- Bond wire → $X < 0.1\%$
- Silicon ship → $X < 0.1\%$
- “Lead Frame” coating (Cu) → $X < 0.1\%$
- “Lead Frame” coating (Sn) → $X < 0.1\%$
- Die Attach → $X < 0.1\%$
- Etc.

1.2. Article Definition (EU REACH regulation)

An article means an object, which during production is given a special shape, surface or design, which determines its function to a greater degree than does its chemical composition. For reasons of simplification, to an article shall, hereafter, also be referred to, when several articles are joined or assembled in various manners to form a complex object. Note: The European Court of Justice ruled on 10th September 2015, on EU REACH Regulation article definition, that each of the articles, that are assembled or joined together in a complex product, remain as articles and are covered by the relevant duties to notify and provide information when they contain a Substance of Very High Concern in a concentration above 0.1% of their mass.

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ANNEX 2 - Summary Table of Aromatic amines (released from Azocolourants and azodyes) Restrictions.

Signify restricts the use of Aromatic amines in Azo dyes in all applications that come into direct contact with the human skin or oral cavity. A full list of all aromatic amines that are restricted according to the Signify RSL (maximum concentration permitted: 30 mg/kg) can be found below:

Chemical Substance Name	Index number	EC No.	CAS No.
4,4'-methylene-bis-(2-chloro-aniline) ; 2,2'-dichloro-4,4'-methylene-dianiline (MOCA)	612-078-00-9	202-918-9	101-14-4
4,4'-Diaminodiphenylmethane (MDA); 4,4'-methylenedianiline	612-051-00-1	202-974-4	101-77-9
4,4'-oxydianiline	612-199-00-7	202-977-0	101-80-4
4-Chloraniline	612-137-00-9	203-401-0	106-47-8
3,3'-dimethoxybenzidine ; o-dianisidine	612-036-00-X	204-355-4	119-90-4
3,3'-Dimethylbenzidine; o-tolidine	612-041-00-7	204-358-0	119-93-7
6-Methoxy-m-toluidine ; p-cresidine	612-209-00-X	204-419-1	120-71-8
2,4,5-trimethylaniline	612-197-00-6	205-282-0	137-17-7
4,4'-Thiodianiline	612-198-00-1	205-370-9	139-65-1
4-Aminoazobenzene	611-008-00-4	200-453-6	60-09-3
4-methoxy-m-phenylenediamine	612-200-00-0	210-406-1	615-05-4
4,4'-methylenedi-o-toluidine	612-085-00-7	212-658-8	838-88-0
o-anisidine ; 2-methoxyaniline	612-035-00-4	201-963-1	90-04-0
2-naphthylamine	612-022-00-3	202-080-4	91-59-8
3,3'-dichlorobenzidine ; 3,3'-dichlorobiphenyl-4,4'-ylenediamine	612-068-00-4	202-109-0	91-94-1
Biphenyl-4-ylamine ; 4-aminobiphenyl xenylamine	612-072-00-6	202-177-1	92-67-1
Benzidine ; 4,4'-diaminobiphenyl ; biphenyl-4,4'-ylenediamine	612-042-00-2	202-199-1	92-87-5
o-Toluidine ; 2-aminotoluene	612-091-00-X	202-429-0	95-53-4
4-chloro-o-toluidine	612-196-00-0	202-441-6	95-69-2
4-Methyl-m-phenylenediamine ; 2,4-Toluenediamin	612-099-00-3	202-453-1	95-80-7
4-o-Tolylazo-o-toluidine ; 4-amino-2',3-dimethylazobenzene ; fast garnet GBC base ; AAT ; o-aminoazotoluene ; C.I. Solvent Yellow 3	611-006-00-3	202-591-2	97-56-3
5-nitro-o-toluidine	612-210-00-5	202-765-8	99-55-8
2,4-xylidine		202-440-0	95-68-1
2,6-xylidine ; 2,6-dimethylaniline	612-161-00-X	201-758-7	87-62-7

ANNEX 3 - Summary Table of Phthalate Restrictions

Chemical Name	Abbreviation	CAS No.	EU RoHS restricted from 2019	Restriction REACH (1)	Restriction CSPIA	Restriction Prop 65 declarable	Declaration as industry substance	MDD (6) labeling	REACH declarable
			RSL Table 1	RSL Table 2	RSL Table 3	RSL Table 5.2	RSL Table 6	RSL Table 3	RSL Table 5
Bis (2-ethylhexyl)phthalate; Di (2-ethylhexyl) phthalate	DEHP	117-81-7	X	X	X (2)	X (3,4)	X	X	X (7)
Dibutyl phthalate; Di-n-butyl phthalate	DBP	84-74-2	X	X	X (2)	X (3,4)	X	X	X (7)
Benzyl butyl phthalate; Butyl benzyl phthalate	BBP	85-68-7	X	X	X (2)	X (3,4)	X	X	X (7)
Diisobutyl phthalate; Di-i-butyl phthalate	DIBP	84-69-5	X		X		X	X	X (7)
Di-isononyl phthalate; Diisononyl phthalate	DINP	28553-12-0; 68515-48-0		X	X (2)	X (5)	X		
Di-isodecyl phthalate; Diisodecyl phthalate	DIDP	26761-40-0; 68515-49-1		X		X (3,5)	X		
Di-n-octyl phthalate	DNOP	117-84-0		X			X		
Di-n-hexyl phthalate	DNHP	84-75-3			X	X (3,5)	X	X	X
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters	DIHP	71888-89-6					X	X	X
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear	DHNUP	68515-42-4					X	X	X
Bis(2-methoxyethyl) phthalate	DMEP	117-82-8					X	X	X
N-pentyl-isopentylphthalate	-	776297-69-9					X		X
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear		84777-06-0					X	X	X
Di-n-pentyl phthalate	DPP	131-18-0					X	X	X
Diisopentylphthalate	-	605-50-5					X	X	X
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	-	68515-50-4					X	X	X
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		68515-51-5 or 68648-93-1					X		X
Dicyclohexyl phthalate		84-61-7					X	X	
1,2-benzenedicarboxylic acid, dipentylester, branched and linear		84777-06-0					X	X	X

- 1) REACH Restriction under article 67: Restriction applies to the sum of the phthalates (the sum of DEHP, DBP, BBP and (the sum of DINP, DIDP, DNOP). As per 7 July 2020 DEHP, DBP, BBP DiBP (individually or in any combination (i.e., sum)) will be restricted under REACH (EU/2018/2005 of 17 December 2018) in a concentration equal to or greater than 0,1 % by weight of the plasticized material in the article, except for medical devices and EEE. It will also apply to toys and childcare articles
- 2) Same substances also restricted in REACH. CSPIA, USA: section 108 (see: <https://cpsc.gov/Business--Manufacturing/Business-Education/Business-Guidance/Phthalates-Information>)

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- 3) Proposition 65 Legislation in California, USA: Applied in outer sleeves of cables/cords of headphones and headsets
- 4) Proposition 65 Legislation in California, USA: Applied for bags, pouches, mobile phone and other portable electronics replaceable covers or cases
- 5) Proposition 65 Legislation in California, USA: all applications.
- 6) MDD: Medical Devices Directive
- 7) REACH authorization per 21-02-2015

ANNEX 4 - Detailed Requirements for Consumer Product Skin Contact Parts for PAH Compounds in Germany

The German GS-Mark on product safety ("Geprüfte Sicherheit") has revised their PAH-limits for consumer products.

Three different product categories ("Cat.") have been defined. See below table for details.

For each category, material needs to fill not only the total maximum allowable sum for all 18 PAHs, but also the individual PAH substance limits described in the table below.

In Table 2 of this RSL you will find the EU REACH restrictions on PAH. The REACH-restricted PAH-compounds have been marked in the table below.

Substance	CAS	Cat. 1) Materials intended to be placed in the mouth and materials in toys (Directive 2009/48/EC) or articles for children up to 3 years of age with intended prolonged skin contact (>30 sec.) [mg/kg]	Cat. 2) Materials that are not in Cat.1, with intended or foreseeable prolonged skin contact (>30 sec.) or repeated short-term skin contact.		Cat. 3) Materials not covered by Cat. 1 or 2, with intended or foreseeable short-term skin contact (≤30 sec.)		EU REACH restricted PAH (x)
			2a: Use by children under 14 (mg/kg)	2b: other consumer products (mg/kg)	3a: Use by children under 14 (mg/kg)	3b: other consumer products (mg/kg)	
Benzo[a]pyrene (BaP)	50-32-8	<0.2	<0.2	<0.5	<0.5	<1	x
Benzo[a]anthracene	56-55-3	<0.2	<0.2	<0.5	<0.5	<1	x
Chrysene	218-01-9	<0.2	<0.2	<0.5	<0.5	<1	x
Benzo[b]fluoranthene	205-99-2	<0.2	<0.2	<0.5	<0.5	<1	x
Benzo[k]fluoranthene	207-08-9	<0.2	<0.2	<0.5	<0.5	<1	x
Dibenzo[a,h]anthracene	53-70-3	<0.2	<0.2	<0.5	<0.5	<1	x
Benzo[j]fluoranthene	205-82-3	<0.2	<0.2	<0.5	<0.5	<1	x
Benzo[e]pyrene	192-97-2	<0.2	<0.2	<0.5	<0.5	<1	x
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.2	<0.2	<0.5	<0.5	<1	
Benzo(g,h,i)perylene	191-24-2	<0.2	<0.2	<0.5	<0.5	<1	
Phenanthrene	85-01-08	<1 (sum)	<5 (sum)	<10 (sum)	<20 (sum)	<50 (sum)	
Anthracene	120-12-7						
Fluoranthene	206-44-0						
Pyrene	129-00-0						
Naphthalene	91-20-3	<1	<2	<2	<10	<10	
Sum of 15 PAH		<1	<5	<10	<20	<50	

ANNEX 5 - Revision History

Date Revision	Short Explanation
March 2021	<ul style="list-style-type: none"> Version 19 Table 3: Phenol, isopropylated phosphate (3:1) (PIP 3:1): new substance added with a restriction set to “no intentionally added content”. Table 3: PFOA: Removal of the Norwegian threshold limit value (1000 ppm in all applications or for textiles 1 µg/cm²) and removal of “RSL/BOMcheck limit before 2018 was not set to: intentionally added/1000 ppm”.
January 2021	<ul style="list-style-type: none"> Version 18 New introduction text added, Sections 1.1, 1.2, 1.3 and 1.4: revision of text. Table 2: Bisphenol A: restriction added for thermal paper as per EU REACH Annex XVII Table 2: Re-wording for DBBT, Ugilec 121 or Ugilec 12, Ugilec 141 and PCT’s (all used as dielectrics) from “No additionally added content” to “no intentionally added content”, now being in line with BOMcheck. Table 2 and table 6: Re-wording of <i>Azocolourants and azodyes which form certain aromatic amines (see remark 18) to Aromatic amines (released from Azocolourants and azodyes) (see remark 17).</i> Remark 17: Following remark content has been removed: See further in Annex 3 for all legal requirements for phthalates and replaced with the content of the subsequent following remark (former remark 18, now remark 17. Former Remark 19 is now remark 18 and so on). Also, more specification on the applicability and scope of the Aromatic amines restriction has been added (“direct contact with the human skin or oral cavity”). Table 3: Bisphenol S, restriction added for thermal paper (200 ppm) in accordance with the Swiss Chemical Risk Reduction Ordinance Table 3: Hydrofluorocarbons (HFC): Change in threshold from “Specific permission needed” to “No content permitted”; Additional referencing to the Canadian Ozone-depleting Substances and Halocarbon Regulations (ODSHAR - SOR/2016-137). Table 3: Short chained chlorinated paraffins (SCCP): removal of the Dutch Legislation on plasticizers and flame-retardants and the ‘not intentionally added’ (ruling expired per 20-12-2013); Added new maximum concentration limit 1500 ppm (mg/kg) in accordance with the EU POP Regulation Table 3: Radioactive substances legislation updated from EU-D 96/29/Euratom to EU-D 2013/59/Euratom. ANNEX 2: is renamed to: ANNEX 2 - Summary Table of Aromatic amines (released from Azocolourants and azodyes) Restrictions which is containing the full list of all 24 restricted Aromatic amines (released from Azocolourants and azodyes) as per Signify RSL. Former ANNEX 2 - Summary Table of Phthalate Restrictions has now become ANNEX 3 - Summary Table of Phthalate Restrictions and so on.
July 2020	<ul style="list-style-type: none"> Version 17 Alignment with BOMcheck version 6.1 and future version(s) of 2020 In section 1.4 additional ECHA SCIP database requirements, to be fulfilled in BOMcheck, are mentioned Note, that additional substances (REACH Candidate List substance, California Prop 65, EU MDR) have been added to BOMcheck, which are not listed in this RSL Table 8: deleted (Name of table: Substances restricted in Manufacturing Processes) and all references thereto (excluding Annex 4)
January 2020	<ul style="list-style-type: none"> Version 16 Name change: Policy requirement is removed; this document is named “Regulated Substances List” (RSL) Alignment with BOMcheck version 5.4 Remark 2: for metals in RoHS, added the clarification that the concentration determination is based on the metal weight not the metal containing compound weight (for details see IEC 62321) Remark 5: re-wording on the scope exceptions of the four phthalates restrictions under REACH (EU/2018/2005) Table 2: PFOA restriction deleted and moved to table 3. In the new table 3 entry (now under EU POP), the references to the time related exemption for medical devices were deleted: “except medical device” and “This 1000 ppm limit will be the limit for medical devices until 2023.” Table 2: Sum of selected Phthalates Group 1 (BBP, DBP, DEHP) deleted under section “Additional restrictions which apply to parts used in toys and childcare products”. New restriction for Sum of selected Phthalates

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	<p>Group 1 (DIBP, BBP, DBP, DEHP), 1000 ppm in plasticized materials under section “Restrictions for electrical and mechanical products in all applications”.</p> <ul style="list-style-type: none"> • Remark 7 (Table 2): new remark explaining the changes on the scope of the Sum of selected Phthalates Group 1 (DIBP, BBP, DBP, DEHP) restriction, the new substance restriction (DIBP) and the with a list of exemptions (e.g., for equipment which is in scope of RoHS, Medical Devices, Food contact legislation). • Remarks numbering and references updated accordingly. • Table 3: new restriction under sections “Additional Restrictions which apply to parts used in toys and childcare products” and “Additional requirements which apply to parts containing textiles” for Flame retardant chemicals, 1000 ppm, applied in any material (except electronic components). US States bills (e.g, California) • Table 3: deleted restriction for Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST), since it has been removed from the Canada’s Prohibition of Certain Toxic Substances Regulations. • Table 3: correction of “Polychloronaphtalenes” into “Polychlorinated naphthalenes”, “chloro atoms” into “chlorine atoms” and “UN Stockholm Convention on POPs” into “EU POP regulation” • Table 3: restriction on “Alkanes, C10-13, chloro (SCCP; Short chained chlorinated paraffins), 10000 ppm” deleted from sub-section “Additional restrictions which apply to parts which contain chemical products (liquids, gases, powders; as substance or preparation)” for alignment with BOMcheck. • Remark 17 (Table 6): deleted specific example on declarable phthalates in medical devices • Annex 3: table adapted according to the new specifications for PAHs under GS Mark: number of PAHs reduced from 18 to 15- by removing acenaphthylene, acenaphthene and fluorene from the group of seven PAHs; scope of Category 1 expanded by including ‘articles for children up to three years of age’; Categories 2 and 3 divided into two sub-categories each, being 2a and 3a for ‘products used by children under the age of 14’ and 2b and 3b for ‘Other consumer products (mg/kg)’; new limits for sub-categories 2a and 3a; category description deleted from introductory text.
August 2019	<ul style="list-style-type: none"> • Version 15 • Alignment with BOMcheck version 5.3 • Table 1: in introduction changed “restrictions” into “requirements” • Table 1: divided into two sections: “RoHS Substance restrictions (Directive 2011/65/EU)” and “RoHS Substance restrictions amendment 1 (Directive 2011/65/EU, as amended by Directive (EU) 2015/863 of March 2015)”. Added new column “Remarks” with details on scope, conditions and timelines • Table 1.1 deleted. Substances moved to Table 1, under section “RoHS Substance restrictions amendment 1 (Directive 2011/65/EU, as amended by Directive (EU) 2015/863 of March 2015)” • Table 1: new remarks number 5 about upcoming restriction under REACH in 2020 (except medical devices and EEE). Remarks numbering adapted throughout the document • Table 3, section “Restrictions for electrical and mechanical products in all applications”: corrected column “particular uses/ legislation” and remark 9 for Formaldehyde to reflect that label in compliance with U.S. EPA TSCA Title VI regulation is mandatory and it is voluntary to label also according to CARB ATCM standards • Table 3: new entry for Polybrominated diphenyl ethers (PBDEs), for materials/parts not under EU RoHS Scope • Table 6: distinction between Br limit for printed wiring laminates and used in other plastics clarified also in remark 15 • Annex 1: homogenous material definition in line with EU RoHS legal definition • Annex 2: separated columns for REACH and CPSIA restrictions. Marked new Table 3 CPSIA substances relevant for CPSIA. Adapted footnote 2 • Annex 2: added note about upcoming restriction under REACH in 2020 (except medical devices and EEE) in remark 1
March 19, 2019	<ul style="list-style-type: none"> • Version 14. Small editorial changes to strengthen the requirement for use of BOMcheck
Jan. 23, 2019	<ul style="list-style-type: none"> • Version 13. Due to the name change from Philips Lighting into Signify some editorial changes have been made. • BOMcheck (declaration) “tool” changed into “system”. • Table 0 aligned with Table 6: added clarification that lighting products exempted are “professional”; deleted exemption for “mains power supply cord sets” for BFR restriction at 900 ppm; added “(P)VC copolymers” to BFR and PVC restriction at 1000 ppm.

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	<ul style="list-style-type: none"> Section 2.2 added “Proposition 65 substances” to the substances that can be found in BOMcheck substances list. Table 1: added remark with clarification on maximum concentration limit applicable for the metal (i.e, Cd, Cr⁶⁺, Pb and Hg) and not for the compounds. Remarks numbering and references updated accordingly. Table 1.1 added note informing that as per 7 July 2020 new requirements on phthalates from EU/2018/2005 of 17 December 2018 will apply. Table 3: corrected TCCPP name by adding “phosphate”. Table 3: added new entry (label and justify or restrict) for additional requirements which apply to parts used in medical devices “CMR 1A and 1B substances and endocrine disrupting substances (EDCs)”. Table 4: added reference to remark 2 for cadmium and cadmium compounds restriction. Table 6: changed “Beryllium Oxide” to “Beryllium compounds”; added “by weight of any material”; changed from “restricted” into “declarable”. Table 6: added clarification that PVC requirements also apply to “poly”vinyl chloride copolymers. Table 6: correction/alignment with BOMcheck for chlorinated flame retardants declarable from 900 ppm by replacing “plastics” for “printed wiring laminates” and chlorinated flame retardants declarable from 1000 ppm by replacing “printed wiring laminates” for “plastics”. Remark 12 on Beryllium adapted to explain the changes in the Beryllium requirements (Table 6) from restricted (when feasible alternatives exist) into declarable (to collect information also when no feasible technological alternatives exist). Annex 2, note 2: new hyperlink added for the Phthalates Business Guidance & Small Entity Compliance Guide Format changes.
May 14, 2018	<ul style="list-style-type: none"> Version 12. QS-000167 / QS-ExC4-004 California Proposition 65 legislation substances are added in Table 5.2 as declarable substances. The California Proposition 65 listed in previous RSL versions are removed from Table 3 and visible in Table 5.2 in version 12. Medical device exemptions are added for Biocides in Table 3 and PFOA in Table 2. Phthalates, when present in specific medical devices need labelling under the current EU MDD legislation are transferred from Table 3 to Table 6 to better align with BOMcheck Scope is adapted to have non-Philips Lighting branded and owned products when by-packed or integrated in Philips Lighting branded and owned products in scope of RSL. Table 0 only contains 2 instead of 4 differences between Philips RSL and BOMcheck. Tables 2, 3 and 6 are also valid for packaging now. Table 7 shows only the additional requirements for packaging. Further alignment between BOMcheck and RSL took place in listing of substances per application. Skin contact and leather & textiles are listed under textiles & leather now.
Feb 28, 2018	<ul style="list-style-type: none"> RSL version 11. QS-ExC4-004 The restriction for Perfluorooctanoic acid (PFOA) and its salts is set from 1000 ppm for all applications and no additionally added content for textile and leather applications to 25 ppb due to upcoming EU REACH legislation per July 2020. The restrictions for Azo colourants containing certain amines is changed to Azocolourants and Azodyes which form certain aromatic amines (Table 2 and 6). The maximum concentration limit is changed from “No content permitted” to 30 mg/kg. Biocides are added to Table 3 to declare with threshold No intentionally added biocide content due to the EU Biocidal Product Regulation; Following text is added to comment 8: US District of Columbia restricts TCEP and TDCPP in consumer products for children under 12 years of age from 2018 onwards and in all consumer products from 2019 onwards. It is noted here that businesses falling into this scope should take care of this additional requirement.
Sept 12, 2017	<ul style="list-style-type: none"> Version 9b & 10. Small editorial changes e.g. in header and footer
May 15, 2017	<ul style="list-style-type: none"> Version 8 and 9. RSL version 8 is not published. RSL version 8 is aligned with BOMcheck 4.8, RSL version 9 with BOMcheck 4.9. Separate categories have been made within the Tables for leather and textiles, toys and childcare, chemical products, skin contact applications, medical devices, food contact applications, lamp and lamp ballasts.

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	<ul style="list-style-type: none"> • Scope of RSL slightly adapted on page 1 to have it mandatory for all Philips Lighting and Philips branded and licensed products only. • Fluorinated Greenhouse gases (PFC, SF6, HFC) added to Table 3 replacing the SF6 entry, due to EU regulation 517/2014. Will be active in BOMcheck version 4.9. • 3 phthalates with CMR class 1b have been added to Annex 2, due to labelling requirements under the current MDD (Table 3). • 2 azo dyes added to Table 6 additional to REACH due to requirements in Japan, Thailand and China • Annex 3 on PAHs has been made clearer. • Phenols in Table 6 changed into Alkylphenols and their ethoxylates in leather and textile applications (100 ppm, Table 6) due to upcoming legislation and customer demands. Will be active in BOMcheck version 4.9. • PCP has been adjusted in Table 3 to no intentionally added content as threshold due to the EU biocide directive. PCP was also restricted due to various country legislations with a 5 ppm or even lower limit depending on the application. See Further in Table 3. Will be active in BOMcheck version 4.9. • Mains power supply cordsets exempted for PVC/BFR restriction in Table 6. • Table 0 adapted to the changes not included in BOMcheck yet and format adapted • Latex as declarable substance was added to Table 3 due to FDA labelling requirements. Will be active in BOMcheck version 4.9. • References to legislations have been made clearer (e.g. lead in batteries, remark 11 adjusted). When no reference to legislation is made, the substance is restricted or declarable due to Philips Lighting policy. • Scope and purpose section have been made clearer. • Phthalates DiDP, DnHP and DiNP have been added to Table 3 to align with BOMcheck and due to California proposition 65 requirements. • Exemption for BeO used in high power RF resistors added to industry restrictions for Be compounds in Table 6. • Threshold was changed from “no content permitted” to “no intentionally added content” for PCTs, DBBT, Ugilecs 21 or 121 and 141 in Table 2 to align with BOMcheck and other similar restrictions. Will be active in BOMcheck version 4.9. • Perchlorate was added to Table 4 for batteries due to a labelling requirement in California legislation. This will be active in BOMcheck version 4.9.
April 2016	<ul style="list-style-type: none"> • Version 7 – Philips Lighting version • A separate Lighting RSL version has been created for Philips Lighting B.V. as an independent legal entity. The content follows the Royal Philips Regulated Substance List PHGR-GS-BP01-013 version 7, except minor textual changes. • Table 3: Application text and threshold changed for Alkanes, C10-13, chloro (SCCP; Short chained chlorinated paraffins) and Hexabromocyclododecane (HBCDD) and its main diastereoisomers due to EU POPs regulations 2015/2030 and 2016/293. Minor text changes in Chapter 1.3 and 2.2
January 2016	<ul style="list-style-type: none"> • Version 6 • Edited the Table 0 to reflect the differences between RSL and BOMcheck list of reportable and declarable substances • Table 2, the subheader “Substances which are liquids at room temperature” changed to “Restrictions applicable to substances and preparations” • Table 3, added restriction for hexabromocyclododecane, HBCDD • Table 3, added restriction for Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene, BNST • Table 3, restrictions to the use of named phthalates (DEHP, BBP, DBP, DIDP and DNHP for cables in headsets and DEHP, BBP and DBP in bas, pouches and other accessories) from Table 6 to emphasize the obligatory restrictions • Table 3, included the term “food contact” in the subheader “Parts used in medical devices or in toys and childcare products” to correctly reflect the scope of BPA restriction • Table 4, added a remark to the footnote for lead compounds “For zinc chloride zinc manganese batteries, the concentration limit 1000 ppm is applied” • Table 7, foam use in packaging restriction scope clarified • Table 8, Hexavalent chromium passivation term clarified • Annex I, article definition changed due to EU Official Court ruling on 10th September 2015

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	<ul style="list-style-type: none"> Annex II, included phthalate 1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate (EC No. 201-559-5)
January 2015	<ul style="list-style-type: none"> Version 5 Edited the Table 0 to reflect the differences between RSL and BOMcheck list of reportable and declarable substances Added new Table 1.1 describing the RoHS phthalates; now declarable and restricted from 2019 onwards Corrected Table 2 PAH restriction scope: any PAH compound instead of sum of PAH Table 2, added a footnote to official guidance on prolonged skin contact for nickel Table 2, benzene requirement clarified Table 3, formaldehyde requirement aligned with wording in BOMcheck Table 3, revised the scope and limit values for TRIS flame retardants and added new TRIS substance Tris(2-chloro-1-methylethyl) phosphate (TCPP; CAS 13674-84-5) Table 3, clarified the scope of lead in paint and similar coatings Table 3, added a footnote describing the Philips BPA policy Table 4, lead compounds in batteries limit value updated Table 6, replaced outdated PAH and Benzo(a)pyrene limits with reference to detailed requirement found in ANNEX 3 Table 6, the scope of PVC restriction clarified; also, vinylchloride copolymers belong to the scope (previously mentioned in PVC footnote) Table 7, included other foam polymeric packaging materials into the scope of EPS ban Annex 2: Phthalate table updated Annex 3: Detailed requirements for PAH compounds for German GS mark added
February 2014	<ul style="list-style-type: none"> Version 4, GS-BP01-2014-001 (change to ISO conform version numbering, 4th version RSL) Added a remark on additional requirements which apply to special products into paragraph 1.1 Purpose Edited the Table 0 to reflect the differences between RSL and BOMcheck list of reportable and declarable substances Clarified the restriction for phthalates under REACH Article 67 restrictions, Table 2 Added REACH Article 67 regulation for PAH compounds to Table 2 with footnote listing the restricted substances. Restriction will be in force from 27th Dec 2015 Transferred the Californian Formaldehyde emissions requirement from Table 8 (Transport Emissions) to Table 3 Added the new restriction on PFOA originating from Norway to Table 3 Added the restrictions on TCEP and TDCPP in toys and childcare, and in childrens' products originating from state-level legislation in USA to Table 3 Corrected the restriction of PAH compounds limit for to be taken into the mouth or in contact with the skin of small children to Table 6 parts Added the list of PAH compounds with their CAS numbers as a footnote to Table 6 Removal of Table 8 (Transport emissions), replaced by internal control document Added a summary of Phthalate requirements in the RSL to the Annex 2
February 2013	<ul style="list-style-type: none"> Version C, CSO-BP01-2013-001 Lead and lead compounds in primary alkaline zinc-manganese dioxide batteries to 40 ppm in line with China Standard: GB 24427-2009 Lead and lead compounds in non-alkaline zinc-manganese dioxide batteries to 1000 ppm in line with Brazil Legislation (CONAMA Resolution 401/2008) Cadmium in batteries to 10 ppm in line with change in Swiss legislation (20 ppm) and Korean legislation (10 ppm) RSL further aligned with BOMcheck and legislation (addition of antimony trioxide in plastics to Table 6, SF6 to Table 3 (Austrian Legislation), thresholds for dimethylfumurate, organo stannic compounds and arsenic compounds in products and/or packaging Certain tin compounds (DBT and DOT) moved from table 6 to Table 2 (REACH article 67) Phthalates in some applications moved from Tables 2 and 3 to Table 6 and further specified which phthalates need to be declared if not asked elsewhere in the RSL. Ozone depleting substances and PFOS moved from Table 2 to Table 6, Phenols in Table 6 have been further specified. Philips policy on PVC and Bromine and Chlorine flame retardants has been slightly adapted in Table 6.

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	<ul style="list-style-type: none"> Added Diisobutyl phthalate (DIBP) 84-69-5 in footnote 7 to align with the essential requirements of the EU Medical Devices Directive.
15.09.2011	<ul style="list-style-type: none"> Version B, CSO-BP01-2011-001 Clarified in Section 1.1 where the RSL deviates from BOMcheck Changed Lead and lead compounds restriction limit from 300 to 100ppm in line with US legislation. Reorganised sequence of the Tables and a number of substances so it is the same sequence as BOMcheck (www.BOMcheck.net) paragraph explaining different thresholds moved from chapter 2.2 to chapter 1.4 Added clarification that waivers may be obtained to stimulate use of recycled content in chapter 1.3 added chapter 2.3 Demonstrating compliance through BOMcheck Revision in Chapter 3 moved completely to Annex II Adjusted the schedule for Medical devices' RoHS compliancy in Chapter 3, Table 1 Added hyperlink to RoHs recast in Official Journal of European Union and to BOMcheck with ELV and RoHS exemptions in Chapter 3, Table 1 Adjusted table sub-header to "toys and childcare products" in Chapter 3, Table 2 Organostannic compounds restriction corrected to "tri-substituted organostannic compounds" in Chapter 3, Table 2 Dioctyltin and Dibutyltin compounds restriction added to Chapter 3, Table 6. Removed remarks from asbestos, Ozone depleting substances, PFOS exemptions in Chapter 3, Table 2 Added new legislation concerning the phthalates use, based on Proposition 65 of California, USA, to Chapter 3, Table 3 Added a remark on the phthalates in the scope of new Proposition 65 regulation in Chapter 3, Table 3 Added CAS-numbers and corrected faulty EC numbers for medical devices phthalates remark in Chapter 3, Table 3 Formaldehyde, radioactive substances and lead advisory remarks removed in Chapter 3, Table 3 Added new batteries regulations to Chapter 3, Table 4 Cadmium remark for Medical devices removed from Chapter 3, Table 4 Added word "declarations" to better describe the contents of Chapter 3, Table 6 contents Removed explanatory remark for PAH compounds in Chapter 4, Table 5 Arsenic compounds concentration limit changed from 10 ppm to "no content permitted" in Chapter 3, Table 6 Removed the substances table for REACH Candidate list substances and added a reference to BOMcheck as source of information for Chapter 3, Table 7 Old Table 7 contents moved to be part of Chapter 3, Table 3 Old Table 8 contents moved to be part of Chapter 3, Table 3 Annex I on RoHS exemptions removed Annex II with examples on CAS-names removed
22-3- 2010	<ul style="list-style-type: none"> Version A, CSO-BP01-2010-001 The Philips Regulated Substances List covers not only restricted, but also declarable substances and, therefore, replaces both the Restricted and Relevant Substances Lists in Products (CSO-BP01-2006-11 and CSO-BP01-2006-12). The layout of the Philips RSL was aligned with the BOMcheck IT System. Inclusion of BOMcheck substances, such as tars oils, creosotes, and dioxins. Hg declaration - ErP(2009/125/EC) Implementing measure EC No 245/2009 and Philips policy for Lighting products in anticipation of the revision the EU ROHS exemption list. List of exemptions of Annex 1 updated (new exemptions added according to Decision 2009/443/EC. Expired exemptions are crossed out). Updated Annex 1 with exemptions for ROHS Categories 8 and 9 in anticipation of ROHS Recast. The List has been broadened from Substances in products to other relevant applications like packaging and transport material. Also regulated declarable substances as requested by REACH have been included. Dimethylfumarate restricted in all applications according to Decision 2009/251/EC. Restriction of Phenol and Phenolic compounds in PCB's was removed, as there is no reason to believe it still represents a problem in this application. SCCP are no longer restricted but declarable, in line with the REACH regulation. PVC and BFR declaration should comply with Industry guide – IEC 61249-2-21. Expanded Polystyrene (EPS) restricted when used in consumer products.

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	<ul style="list-style-type: none"> Limits for (gas) emissions from products, product-packaging and transport material as to fulfil with Dutch requirements (http://www.vrominspectie.nl/actueel/publicaties/uitvoering-motie-poppe-boelhouwer-containers-met-gevaarlijke-gassen.aspx). Substances being controlled are Carbon monoxide, Carbon dioxide, Cyanide, Ammonia, Sulfurylfluoride, Chloropicrine, Dichloroethane, Benzene, Styrene, Toluene and Xylene and fumigants, Phosphine and Methyl bromide.
1-1-2009	<ul style="list-style-type: none"> Lead in Childcare products according to USA requirements was added. Beryllium: exemption Be metal alloy added (where no feasible technological alternative exists). EU ROHS substances for medical devices were added to the restricted List with a phase-out date of 1-1-2013. Formaldehyde emission levels from composite wood have been changed according to California legislation Restriction to Cr6+ in processes limited to passivation processes EU ROHS exemptions lists is replaced by the December 3 2008 EU Commission proposal Annex 1.1 is added with an explanation on homogeneous and article product declaration
7-8-2008	<ul style="list-style-type: none"> Beryllium: few exemptions and possibility for waivers were included. Cadmium and Mercury declaration obligation above 50 ppm, moved from the footnote to one of the remarks just below the table for more visibility. There was no change on the content. Perfluorooctane Sulfonates (PFOS's) compounds were added to the list as they will be restricted as from 27 June 2008 (EU DIRECTIVE 2006/122/ECOF). Sum of all Polycyclic Aromatic Hydrocarbons (PAHs) (16 mentioned in EPA list) and Benzoapyrene: Those substances are included in the UNECE Protocol to be formalized in Regulation 850/2004/EEC on Persistent Organic Pollutants (POPs). Furthermore, also the "German Stiftung Warentest" or GS imposes this requirements for consumer products, based on the German transposition of the General Product Safety Directive (2001/95/EC) and the regulation on food contact materials (EC/1935/2004) to justify the legal basis for this requirement. Formaldehyde: requirements have been split into two categories, namely in products (in e.g. wooden loudspeakers, bread roasters, etc.) and packaging material (incl. transportation material, like pellets). Official requirements exist in many countries, like Germany Chem Verbot, Denmark statut. order nr 289, Austria, Norway, Poland, Lithuania, Finland, The Netherlands, USA – CA (93120-93120.12, title 17, California Code of Regulations). The limits in CA for HWPW were corrected. Restricted Substances in Batteries: to follow legislation. Chlorobenzene: general "chlorobenzene" was replaced by the two hazardous forms, hexachlorobenzene and trichlorobenzene (CMR 1 and 2, respectively). Chromium 6+ in plating process: Due to the difficulties to control the plating Cr6+ process, posing compliance risks of products brought to the market by Philips, it is proposed to fully restrict use of this substance in any plating or passivation process. Ozone Depleting Substances in processes: ODCs are subject of federal excise tax law applied to all imported electronics in USA. As part of federal efforts to implement the Montreal Protocol, the U.S. tax code applies excise taxes on the importation of a range of products – including electronics – based on the use or presence of banned/restricted ODCs. These taxes apply even if the ODCs were only used as process chemicals in the manufacture of the products and were never intended to be in the finished product. While there is a minimis exception for certain types of products, this exception does not apply to electronics. Prove of non-use must be delivered in order to apply for exemption. For clarity and help, annexes containing a list with exemptions and more detailed information about the substances of this list (CAS numbers, names, legislation information, use) were added.
1-1-2007	<ul style="list-style-type: none"> Due to its toxicity (CMR category 1) and to prepare ourselves on REACH, Beryllium is made restricted now. To solve problems at numerous suppliers, who only guarantee the ROHS limits, the restriction thresholds limits for Cd in plastics and Hg are changed to the ROHS limits (100 and 1000 ppm, respectively). To be sure that these supplied materials have Cd and Hg concentrations well below the legal ROHS limits, declaration above 50 ppm is introduced for these substances. Therefore, also the text "declaration threshold" is changed into "restriction threshold" on the restricted substance list. Some minor text changes are made for phthalates on the restricted list and lead reporting for PMS on the relevant list.