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| B/S/H/ | Use of hazardous substances Use of SVHCs [Substance of Very High Concern] | 60100008646506 Rev: H1 07.08.2025 |
| Checking Directive | | |

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1 Scope

This specification is applicable in addition to other BSH specifications and other technical and quality requirements including national or international legal regulations. In cases of conflict, the stricter requirement must be complied with.

2 General Requirements

For the development of circular economy products, components must be free of hazardous substances to prevent pollution of the environment and to enable recycling.

As a basic principle, the substance restrictions as outlined in the BSH "List of substances prohibited and to be avoided in products" (available on the [BSH Homepage](#) → section *Substance-Related BSH requirements*) apply worldwide to all components and materials used in BSH home appliances and appliance accessories as well.

In addition, components and materials that are used in BSH products, shall in principle not contain the below listed substances as intentionally added substances (= actively added to achieve a technical function in the product), or – if not intentionally added - above a threshold of 0,1% w/w:

- Substances of very high concern (SVHCs) of the EU REACh candidate list
- Halogenated flame retardants, especially brominated flame retardants (BFR)
- Per- and Polyfluorinated substances (PFAS)
- Fluorinated gases

For additional information, please refer to the FAQs in Appendix II.

Absence or presence of these hazardous substances in form of intentional use and/or above the level of technically inevitable traces/contaminations must be confirmed.

If for technical reasons the application of or contamination with a hazardous substance above the threshold cannot be avoided, this must be reported to the BSH part/material responsible by using Appendix I and is only allowable as and under a formal exemption by BSH. Exemptions must be confirmed by BSH before the release of the material/component (for details see Appendix I).

2.1 Additional and Reactive Materials

If the parts or materials supplied are reactive or require additional materials (e.g. flux, mold release agents) for their processing, the requirements do not only apply to the finished form, but also to the initial form, and all additional material. For cases where technical alternatives to using a SVHC in additional materials are already available, those shall be preferred.

2.2 Finished goods

If a finished good is supplied, the requirements are to be applied for each of its (sub-)components, as well.

2.3 Production Process

BSH is not only aiming at eliminating Substances of Very High Concern (SVHC) and the other above listed substance groups in BSH products, but also in the production process even if the used SVHCs do not end up in the finished product. For cases where technical alternatives to using a SVHC in production are already available, those shall be preferred.

An example is the usage of hexavalent chromium (Cr^{VI}) baths for chromium plating. Cr^{VI} would not remain in the finished product in reportable amounts, still the usage of Cr^{VI} in the production process is not in accordance with BSH Substance Strategy requirements. Changing to a less critical alternative, such as trivalent chromium (Cr^{III}), is required if technical feasibility is given.

3 Requirements for Documentation

In principle, the absence or presence of relevant hazardous substances is to be declared using the BSH declaration system to comply with legal reporting duties. In the event of a material change that affects the declaration query, the declaration must be updated by the supplier. The BSH Declaration System on the Supplier Portal OCP (Material Compliance App) is currently available to declare absence or presence of SVHCs of the EU REACH candidate list.

Presence or absence of other substances of substance groups in scope of this TCD need to be declared via the corresponding declaration templates (e.g. for PFAS and Flame Retardants) available on the [BSH Homepage](#) (→ section *Declaration Templates & Filling Instructions*). Filled-in declaration templates need to be sent back to bsh-esg-connect@esg.bsh-partner.com.

Mind that PFAS and Flame Retardants are increasingly being requested on demand (currently campaign based) via the supplier collaboration tool “ESG Connect”. OEM business partners are usually providing all substance related declarations via this supplier collaboration tool.

If neither the declaration system nor a template is available to declare a substance, Appendix I of this TCD suffices for initial documentation (see chapter 2).

4 Request for Exemption

4.1 Conditions for granting

In cases, where one or several hazardous substances as mentioned in chapter 2 cannot be avoided due to technical reasons, and there is no conflict with legal requirements by that use, a supplier can apply for a temporary exemption of this requirement to BSH.

To apply for such an exemption, further information must be given to BSH using the questionnaire in annex I of this TCD (preferably in electronic form)

BSH technical experts will then review the information and decide about granting such an exemption and its duration. Before confirmation of such an exemption by BSH, the exemption may not be used.

Example:

Due to a large number of studies on technical necessity, the substance lead > 0.1% w/w cannot be prevented in some applications, e.g. copper alloy containing up to 4 % lead by weight (RoHS exemption 6c). As long as no technical alternative is available, BSH would accept these substances.

4.2 Expiration/Re-Application

Exemptions are tied to a certain version of this TCD and are given an expiration date by BSH upon granting. They get automatically invalid after the expiration date or if previously a relevant change of regulations occurs. The supplier is responsible to re-apply for an exemption in due time to ensure continuous supply, and to update the information (e.g. checking, if a replacement is meanwhile available) in that process.

BSH may cancel any deliveries of material or parts, which are based on expired exemptions or false information given in the application.

5 Document history

| Revision | Change description | Date |
|-----------|--|------------|
| A1 | Creation of Document | 30.03.2022 |
| B1 | Adaption for Corporate application | 07.07.2022 |
| C1 | Specification of limit values; Rework of appendix I; Inclusion of FAQs (appendix II) | 22.06.2023 |
| D2 | Adaptation of "Requirements for Documentation" | 06.03.2024 |
| E1 | Adding updated Shared Mailbox address in "Requirements for Documentation"; Update of question 4) in FAQs | 12.04.2024 |
| F1 | Adding "Production Process" chapter to specify corresponding requirements; Update of "Requirements for Documentation" | 25.04.2024 |
| G1 | <p>Adding FAQs "<i>What needs to be considered when declaring substances of very high concern of the EU REACH Candidate List?</i>" and "<i>Are spare parts in scope of BSH Substance Strategy?</i>"</p> <p>Extending "intentionally added" definition regarding intentional usage in production process and emphasizing technical feasibility.</p> | 16.12.2024 |
| H1 | <p>Reference to updated BSH "List of substances prohibited and to be avoided in products";</p> <p>Adding new Shared Mailbox in "Requirements for Documentation";</p> <p>Mention new collaboration tool ESG Connect</p> | 06.08.2025 |

Appendix I – Application for temporary exemption

Please indicate in the format below the applications for which you need to apply for an exemption from the BSH requirements as stated in this TCD. Once filled in, send it back to your technical contact (usually part responsible) at BSH.

| BSH material number (representative) | BSH material description | Substance name | Substance identifier (e.g. CAS no.) | Reason for usage of the substance | Availability of alternatives* |
|--------------------------------------|--------------------------|----------------|-------------------------------------|-----------------------------------|---|
| 1234567890 | Example material | Example SVHC | 12-3456-67 | Non-stick effect | Qualification of alternative material has started. Release expected until "mm-yyyy" |
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**Please explain if there is an alternative material or technical solution available without usage of the indicated substance. Please also indicate the estimated time schedule for implementing it.*

If there is no alternative available yet, please indicate if you have started working on alternatives already. If possible, please also indicate the estimated time schedule until release of an alternative material.

Appendix II – FAQs

1) What are substances of very high concern (SVHCs) of the EU REACH Candidate List?

Substances of very high concern (SVHCs) on the EU REACH Candidate List have been identified to have certain hazard properties. In order to minimise their use in products, it needs to be ensured that SVHCs are progressively replaced by less dangerous substances or technologies where technically and economically feasible alternatives are available.

Once being on the REACH Candidate List and upon request by a consumer, suppliers of articles which contain substances on the Candidate List in a concentration above 0.1% w/w have to provide sufficient information to allow safe use of the article.

Substances with the following hazard properties may be identified as SVHCs acc. to REACH art. 57:

- Substances meeting the criteria for classification as carcinogenic, mutagenic or toxic for reproduction (CMR) category 1A or 1B in accordance with the CLP Regulation.
- Substances which are persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) according to REACH Annex XIII.
- Substances on a case-by-case basis, that cause an equivalent level of concern as CMR or PBT/vPvB substances.

The Candidate List of SVHCs is regularly updated. The latest and official version can be accessed following this link: <https://echa.europa.eu/candidate-list-table>

2) What needs to be considered when declaring substances of very high concern of the EU REACH Candidate List?

A limit value of < 0,1% w/w (1000 ppm) applies. This limit value refers to the article as such as defined by art. 3 REACH, **not to the complex object** which can be composed of several articles and mixtures. In other words, the limit value does not apply to the finished good or appliance, but to all subcomponents that it is composed of.

Detailed information can be found in the *Guidance on requirements for substances in articles* document of ECHA: https://echa.europa.eu/documents/10162/2324906/articles_en.pdf

Lead (CAS no. 7439-92-1)

- Usually, if a **RoHS exemption for lead** is applicable (e.g. 6(a)-I), lead is present in a concentration >0.1%. Therefore, it has to be declared as SVHC substance in the REACH declaration as well.
- In case of **RoHS exemption 7(c)-I** (lead in glass or ceramics), there is not necessarily the need for a lead declaration under REACH. Lead in glass or ceramic is **USUALLY NOT an SVHC** since glasses and ceramics have their own chemical composition. Lead or lead oxides can be part of the chemical composition of glass or ceramic matrix but are not be reported as a single SVHC substance

Glass/Ceramics - Multi-constituent substances

Lead oxides or diboron trioxide as constituents of glass/ceramic, should not be declared if following positions apply:

- Lead oxides - [Joint Position of BVKI, JEITA and ZVEI Inside the Electrical Industry's Value Chain](#) (Ceramics) and [Joint Position of BVGLAS, JEITA and ZVEI inside the Electrical Industry's Value Chain](#) (Glass)
- Diboron trioxide - [About the industry's position relating to diboron trioxide \(B₂O₃\)](#).

3) What does "free of" explicitly mean with regards to limit values?

In this context, "free of" means that a component is free of **intentionally added SVHCs** (= actively added to achieve a technical function in the product) or - if the substance was not intentionally added – a limit value of < 0,1% w/w (1000 ppm) applies (if no stricter legal requirements are to be followed). This limit value refers to the article as such as defined by art. 3 REACh (as stated above).

Remark: A SVHC substance can have been added intentionally within the production process as a source material or process aid to achieve certain properties in the final product. Still, if it remains in very low concentrations and **without technical function** in the final product, it is not considered as **intentionally added to the product** but rather as an impurity in the product and as **intentionally used in the production process**. Phase-out of SVHCs used in production processes are also in scope of BSH Substance Strategy (see chapter 2.3).

Concerning **printed circuit boards (PCB)** and **electronic components**, PCB base materials that meet the "halogen-free" requirement according to IEC 61249-2-21 also meet the requirements of the BSH Substance Strategy with regards to the use of brominated flame retardants. This is because the limit for chlorine and bromine according to IEC 61249-2-21 is 0.09 % w/w (equivalent to 900 ppm) each in order to be able to describe a PCB as halogen-free. Thus the use of flame retardants containing chlorine and bromine is practically excluded.

The same applies when the "low-halogen" term of the standard JS 709C is used for electronic components, because this means that all materials except PCBs may only have a bromine or chlorine content of < 0.1% w/w (equivalent to 1000 ppm).

Please note, that the other halogens fluorine and iodine are not covered by the definitions "low halogen" and "halogen-free" of the stated standards. Thus, these definitions do not include being free of per- and polyfluorinated substances (PFAS).

4) How to recognize if a halogenated flame retardant is used?

DIN EN ISO 1043-4 classifies flame retardants used in polymers by assigning code letters to the polymer designation. These code letters consist of the abbreviation "FR" in capital letters (FR: flame retardant) followed by a two-digit code number in brackets. Halogenated flame retardants have two-digit codes starting with 1X or 2X.

Only flame retardants exceeding 1 % by mass must be indicated according to DIN EN ISO 1043-4.

Example: PA66-GF30-FR(21)

- PA66: Polyamide 66
- GF30: 30% glass fibre
- FR(21): halogenated flame retardant based on polybrominated biphenyls in combination with antimony compounds

5) What are PFAS substances and where do they occur?

PFAS stands for **Per- and Polyfluoroalkyl Substances** and is defined by OECD as "any substance that contains at least one **fully fluorinated** methyl (CF₃-) or methylene (-CF₂-) **carbon atom**". For a consolidated overview of PFAS substances, please refer to these two CompTox search engines:

<https://comptox.epa.gov/dashboard/chemical-lists/PFASSTRUCT>
<https://comptox.epa.gov/dashboard/chemical-lists/PFASDEV>

Since PFAS hardly break down and thus can accumulate in the environment, they belong to the group of "Persistent Organic Pollutants" (POP) and are also known as "forever chemicals".

Meanwhile, PFAS are known or suspected to cause several health issues. For that reason, PFAS are part of the BSH Substance Strategy and shall be phased-out in BSH products until end of 2025 unless stricter legal requirements apply earlier.

PFAS are present in mixtures as surfactants, flow-aids and wetting agents, anti-foaming and film-formers. PFAS are also used in working fluids, lubricants and greases, as additives to reduce friction, minimise wear and increase part life. In articles, PFAS are used as flame retardants and for surface coatings on all kinds of materials, including metals, plastic and rubbers, e.g. in insulation of electrical wirings, bearings, gaskets and for non-stick cooking surfaces.

PFAS in electrical and electronic equipment can be found all the way down to small parts like semiconductor packages, PCB components (diodes, capacitors etc.) and PCBs themselves, wire, cable, glands, seals and housings, and even in the packaging.

Well known PFAS substances are:

- Polytetrafluoroethylene (**PTFE**), e.g. used for non-stick cooking surfaces.
- Fluoroelastomers **FKM** (Viton®) and **FKKM** (Kalrez®), which are used for gaskets, seals, high temperature hoses and cables.

Remark: Many PFAS used in mixtures have no hazardous classification in the globally harmonised system for classification and labelling (CLP), and are not substances of very high concern (SVHC) on the REACH candidate list. Therefore, many PFAS are not shown on safety data sheets even though the substance is present.

6) How can I check if alternatives for my application/material are already available?

The NGO *ChemSec* has gathered alternative materials, free of substances meeting the SVHC criteria acc. to art.57 REACH, in a database called "Marketplace". This database can be accessed by following this link: <https://marketplace.chemsec.org/Alternatives>

This database can be filtered by chemical functions, relevant industry or a specific hazardous chemical that you are looking for safer alternatives to.

7) Are spare parts in scope of BSH Substance Strategy?

The BSH Substance Strategy considers the "repair-as-produced" principle as a reasonable approach. Otherwise, new sampling and releases as well as new tooling would be required for affected spare parts. This would mean an unreasonable effort for parts that are in many cases already produced and on stock and may not pose a risk to human health during the use phase but rather due to the production and waste disposal process.

Therefore, spare parts are allowed to still contain SVHC substances that shall be phased-out in series production.