bluesign® CRITERIA for Chemical Assessment

ANNEX: Sustainability Attributes for bluesign® APPROVED Chemical Products

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1 Preliminary Remarks and Scope

Sustainable chemistry is a holistic concept that strives to not just remediate or minimize the negative impacts of a chemical product, but to look at its whole lifecycle and enhance positive impacts on environment, economy, and society (including the protection of human rights). Sustainable chemicals are fit for circular economy, encourage the use of sustainable feedstocks, improve the resource efficiency in downstream applications and contribute to the longevity of consumer products, while avoiding inherent properties that are harmful to human health and the environment.

Bluesign® SYSTEM PARTNER chemical suppliers can claim selected sustainability attributes for their bluesign® APPROVED chemical products. Bluesign® APPROVED chemical products meet the *bluesign® CRITERIA for chemical assessment* and therefore already the highest level of chemical product verification to minimize risks for people and the environment as well as to assure consumer safety. Sustainability attributes in addition show the overall sustainability performance of the chemical product but will not influence the chemicals' rating (blue or grey). Sustainability attributes are meant to be displayed to the bluesign® FINDER registry for bluesign® APPROVED chemical products.

Currently, the following sustainability attributes can be claimed by the bluesign® SYSTEM PARTNER chemical supplier, in addition to the bluesign® APPROVED status for chemical products:

- Renewable feedstock (biomass or bio-based)
- Sustainable sourced renewable feedstock (biomass or bio-based)
- Recycled content

Further sustainability attributes are under discussion with the relevant stakeholder groups and subjected to future provisions.

2 Sustainability Attributes for bluesign® APPROVED Chemical Products

2.1 Attribute: "Renewable feedstock (biomass or bio-based)"

2.1.1 Definitions

Biomass refers to material(s) of biological origin, excluding material embedded in geological formations or transformed to fossilized material, and excluding peat. This includes organic material (both living and dead) from above and below the ground, e.g., trees, crops, grasses, tree litter, algae, animals, and waste of a biological origin, e.g., manure.

Bio-based materials are derived, in whole or in part, from biomass resources.

2.1.2 Requirements

The sustainability attribute "Renewable feedstock (biomass or bio-based)" can only be claimed for bluesign® APPROVED chemical products by the bluesign® SYSTEM PARTNER chemical manufacturer itself. It is intended for use with any chemical product that contains at least 20% biomass content by weight in the form of biomass-derived carbon.

The biomass content must be derived from biomass sources that are replenished at a rate equal to or greater than the rate of depletion and shall originate from a legal source.

The bio-based content is determined using the radiocarbon method (C14 method) in accordance to acknowledged testing standards such as EN 16640:2017 or ASTM D6866-21. Biobased content is calculated using the ratio of "new" organic carbon (plant or agriculturally based) to total organic carbon ("new" organic carbon + "old" or fossil fuel-based organic carbon). Water, carbonate, and other inorganic or non-carbon molecules are excluded when calculating the bio-based content.

2.1.3 Data provision

During the registration procedure, the bluesign® SYSTEM PARTNER chemical supplier must submit a material declaration form to BLUESIGN, including information on:

1) The name of the chemical product (as it appeared in the bluesign® FINDER) that is intended to be registered for the corresponding sustainability product attribute
2) Type of biomass or bio-based raw material(s) used to manufacture the product(s) including, but not limited to:

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- ☐ Algae
- ☐ Aloe
- ☐ Animal Fat or Tallow
- ☐ Cassava, including Yuca and Tapioca
- ☐ Castor
- ☐ Citrus
- ☐ Corn
- ☐ Forestry / Wood
- ☐ Microbes
- ☐ Municipal Solid Waste
- ☐ Olive Oil
- ☐ Other Plant-Derived Oils (specify type)
- ☐ Palm, Including Coconut
- ☐ Rapeseed, Including Canola Oil
- ☐ Rice
- ☐ Seaweed / Kelp
- ☐ Shea Nuts, including Shea Butter
- ☐ Soy
- ☐ Sugar Beets
- ☐ Sugarcane
- ☐ Wheat

3) Calculated bio-based content in the final chemical product in percent according to abovementioned methodology and considering loss factors during production
4) Test report (not older than six months) for the bio-based content in accordance with EN 16640:2017 or ASTM D6866-21
5) Country of origin and supplier name and accompanying papers (e.g., invoices, transport documents)
6) Supplier confirmation about the legality of the source of the biomass or bio-based raw material(s)

In addition, the bluesign® SYSTEM PARTNER chemical supplier shall prepare a mass balance including the input of biomass or bio-based raw material(s) (purchasing volume by weight) and sales volume by weight of the final chemical product(s). Calculations shall consider relevant loss factors (e.g., production losses, dilution, etc.). Documentation must be kept up-to-date and available upon request.

2.2 Attribute: "Sustainable sourced renewable feedstock (biomass or bio-based)"

2.2.1 Definitions

The definition of biomass and bio-based materials is equivalent to the definition stated in chapter 2.1.1.

2.2.2 Requirements

The sustainability attribute "Sustainable renewable feedstock (biomass or bio-based)" can only be claimed for bluesign® APPROVED chemical products by the bluesign® SYSTEM PARTNER chemical manufacturer itself.

In addition to the requirements laid out in chapter 2.1.2 for "renewable feedstock (biomass or bio-based)", the biomass content shall originate from a certified land use.

Selection of renewable feedstock can have a big impact on the overall sustainability performance of a bio-based product. Agricultural cultivation often utilizes significant amounts of fertilizers, pesticides, and water. Working conditions on the fields might not be compliant with international labor standards, or in the case of wood, forestry practices may not be in line with sustainable forestry. Therefore "certified land use" means that biomass or bio-based raw materials are acquired in accordance with, and independently certified to, an internationally recognized voluntary certification standard or equivalent such as FSC, PEFC, ISCC Plus, REDcert^2, or RSPO.

2.2.3 Data provision

In addition to the material declaration form and the mass balance described in chapter 2.1.3 the bluesign® SYSTEM PARTNER chemical supplier must provide a valid certificate to proof that the biomass or bio-based feedstock originate from a sustainable land use.

2.3 Attribute: "Recycled content"

2.3.1 Definitions

Recycled content is the proportion, by mass, of recycled material in the dry content of a chemical product. Only materials that have been recovered or otherwise diverted from the waste stream, either during the manufacturing processes (pre-consumer), or after consumer use (post-consumer) are accepted as recycled content.

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Post-consumer materials are materials generated by households or by commercial, industrial, and institutional facilities in their roles as end users of the product that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain.

Pre-consumer materials are materials diverted from the waste stream during manufacturing processes. Excluded is the reutilization of materials such as those reworked, re-grinded, and scrap-generated in a process and capable of being reclaimed within the same process that generated it.

2.3.2 Requirements

The sustainability attribute "Recycled content" can only be claimed for bluesign® APPROVED chemical product(s) by the bluesign® SYSTEM PARTNER chemical supplier itself. It is intended for use with any chemical product that contains at least 20% recycled content by weight. For the calculation of the recycled content only the dry content of the chemical product shall be regarded, excluding water.

2.3.3 Data provision

BLUESIGN acknowledges full chain-of custody certifications such as the Recycled Content Standard or the Global Recycled Standard for verification of this sustainability claim.

During the registration procedure the chemical supplier can either submit a valid certificate (e.g., RCS, GRS) or a material declaration form to BLUESIGN, including:

1) Name of the chemical product(s) (as appeared in the bluesign® FINDER) intended to be registered for the corresponding sustainability product attribute
2) Description of the type and composition of the recycled raw material(s)
3) Calculated recycled content in the final chemical product in percent, considering loss factors during production
4) Identification as pre- or post-consumer materials as defined in chapter 2.3.1
5) Country of origin and supplier name (of the direct supplier) and accompanying papers (e.g., invoices, transport documents)
6) Valid supplier confirmation attesting that the supplied material is a reclaimed material that would have otherwise gone to the waste stream

In addition, the bluesign® SYSTEM PARTNER chemical supplier shall prepare a mass balance including the input of recycled raw material(s) (purchasing volume by weight) and sales volume by weight of the final chemical product(s). Calculations shall consider relevant loss factors (e.g., production losses, dilution, etc.). Documentation must be kept up-to-date and available upon request.

3 Verification of Claims

BLUESIGN verifies the sustainability claim(s) within the framework of the bluesign® COMPANY ASSESSMENT and the bluesign® CHEMICAL ASSESSMENT. It is the duty of the bluesign® SYSTEM PARTNER chemical supplier to provide sufficient documentation for the product(s) intended to be claimed as outlined in chapter 2.

The tests that are necessary to verify compliance with the requirements set out by this criteria document have to be carried out by third party-certified laboratories (DIN EN ISO 17025 or a comparable certification). If a certificate from a third party is not given, the chemical supplier must report to BLUESIGN that an adequate quality assurance system is established (round robin test, quality management documentation, etc.).

4 System Integrity

BLUESIGN reserves the right to perform traceability assessments (accounting audits) and testing of samples from the market. The bluesign® SYSTEM PARTNER chemical supplier is required to support with information and reference samples.

4.1 Active information duty

To ensure the function and integrity of the bluesign® SYSTEM, the bluesign® SYSTEM PARTNER chemical supplier is obliged to report immediately to BLUESIGN in the case that a claimed sustainability attribute is not valid anymore and would have to be changed, amended, or deleted as a consequence.

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5 Validity

This document comes into effect from 2022-09. It is subject to revisions. Details on the revision procedure for regular and unscheduled revisions are compiled in the *bluesign® SYSTEM document*.

6 Other Applicable Documents

The following documents complement the document at hand:

- *bluesign® SYSTEM*
- *bluesign® glossary*
- *bluesign® CRITERIA for production sites*
- *bluesign® CRITERIA for production sites – Annex: chemical suppliers*
- *bluesign® CRITERIA for chemical assessment*
- *bluesign® SYSTEM BLACK LIMITS (BSBL) - Threshold limits for chemical substances in chemical products*
- *bluesign® SYSTEM SUBSTANCES LIST (BSSL) - Consumer safety limits*
- *bluesign® GUIDELINE – Product Stewardship for chemical supplier*

Current versions are available for download at www.bluesign.com/criteria.

Disclaimer
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