BASF
We create chemistry

Sustainable Solutions Steering

TripleS

Manual

About the TripleS Manual

The information in this document is based on the current know-how and approach to TripleS applied at BASF. We reserve the right to update the content and the processes described in the manual and implement them immediately before publishing an updated version. Irrespective of the date of disclosure we ensure that the implemented method is audited by the financial auditor of BASF.

Table of Contents

List of Figures

List of Tables

Glossary and Abbreviations

BU	Business unit
BZVLE	Service materials
CE	Circular Economy
CLP	Regulation (EC) No 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures
CMR	Carcinogenic, Mutagenic or Toxic for Reproduction
CSS	Chemicals Strategy for Sustainability by European Commission
ECHA	European Chemicals Agency
ED	Endocrine Disruptor
EHS	Environment, Health and Safety
ELoC	Equivalent Level of Concern
EU	European Union
ESPR	Eco-design for Sustainable Products Regulation
GHS	Globally Harmonized System
KTC	Key Technology Capability
LCM	Life Cycle Management
MhS	Most harmful Substances
OC	Operational conditions
OD	Operating Division
OECD	Organization for Economic Co-operation and Development
PBG	Product-BASF-Group; the relationship PBG-PRD is 1:n (several PRD can be assigned to one PBG)
PBT	Persistent, Bioaccumulative and Toxic
PMT	Persistent, Mobile and Toxic
PRD	Product with a name; a PRD is a chemical product characterized by a particular trade name (trademark or generic name – unless customer specific, and a particular use.
REACH	Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals
R&D	Research and Development
RC	Responsible Care
RCMS	Responsible Care Management System
RMM	Risk management measure
SBU	Strategic Business Unit

SDGs	UN Sustainable Development Goals
SoC	Substances of Concern
Solution	In the context of this TripleS manual, the word solution is used for the chemical products assessed under the method described, regardless of whether they are a single substance, a mixture of multiple substances or a functional material resulting from a reaction of multiple substances.
SSbD	Safe and sustainable by Design
SVHC	Substances of Very High Concern
TripleS	Sustainable Solution Steering
Verbund	In the BASF Verbund, production facilities, energy flow, logistics and infrastructure are intelligently networked with each other in order to increase production yields, save resources and energy, and reduce logistics costs.
vPvB	Very Persistent and Very Bioaccumulative
vPvM	Very Persistent and very Mobile
WBCSD	World Business Council for Sustainable Development
ZPAR	Semi-finished non-chemical products and components; represent technical, non-chemical sales products

Preamble

This current TripleS (Sustainable Solution Steering) manual contains updates reflecting simplifications in the segmentation process, increasing transparency of the process and allowing for automation. Furthermore, changes in chemicals legislation have been reflected, ensuring the functionality as an early warning system for portfolio management.

The purpose of this manual is to document the process for BASF's TripleS approach. The manual aims to describe the segmentation methodology and relevant processes, including roles and responsibilities of participants involved. The TripleS process, as presented hereafter, fulfills the following quality criteria, based on the International Standard on Assurance Engagement (ISAE) 3000.

- *Relevance:*
  Relevant criteria result in a TripleS portfolio segmentation on a products-application-region level that assists decision-making by the intended users. Regulatory, codex, economic, environmental and social criteria relevant for BASF's business are considered in the TripleS approach. The regulatory and codex-related topics of the Basic Check for Sustainability Requirements are based on the regulations and codes that BASF aims to comply with. The sustainability categories of the Check for Sustainability Value Contribution are based on material sustainability topics for BASF, which identify the most important issues and were updated in Q3 2022.

- *Completeness:*
  Criteria are considered to be complete when the TripleS portfolio segmentation prepared in accordance with them does not omit relevant factors that could reasonably be expected to affect decisions made by the intended users on the basis of the segmentation. To reflect the TripleS results in a reasonable and appropriate manner, the TripleS approach covers BASF's Group-wide sales to third parties under consideration of the scope described in chapter 3.3. The portfolio segmentation shall be considered as complete if at least 90 percent at corporate level of the defined scope is assessed within the timeframe defined.

- *Reliability:*
  Reliable and clearly defined criteria allow reasonably consistent measurement or evaluation of the underlying TripleS portfolio segmentation, where relevant, presentation and disclosure, when used in similar circumstances by different practitioners. The TripleS process is based on accepted sources of information and ensures a reliable compilation of data without incurring a loss of quality. The TripleS assessment is sufficiently accurate to enable a reproduction of the individual portfolio evaluation.

- *Neutrality:*
  Neutral criteria result in TripleS portfolio segmentation that is free from bias as appropriate in engagement circumstances. To enable a reasoned assessment of the complete business portfolio, the TripleS approach reflects the whole range of sustainability performances, ranging from solutions with a substantial sustainability contribution to solutions with a strong sustainability concern.

- *Understandability:*
  Understandable criteria result in TripleS portfolio segmentation that can be understood by the intended users. The TripleS methodology is presented in a manner that is understandable and accessible to participants involved in the process. The final documentation of segmentation results is comprehensible to people who have a reasonable understanding of the methodology.

1. We Create Chemistry for a Sustainable Future

BASF wants to contribute to a world that provides a viable future with enhanced quality of life for everyone. We do so by creating chemistry for our customers and society and by making the best use of available resources. We live this commitment by:

- *Sourcing and producing responsibly*
- *Acting as a fair and reliable partner*
- *Connecting creative minds to find sustainable solutions to serve society's needs*

For us, this is what successful business is all about. This ambition is directly linked to several business factors:

- *Growing customer needs to provide sustainable solutions*
- *New regulations, standards and commitments related to sustainability in all value chains*
- *Changing societal and business environments prompting demand for sustainable products*

Sustainability is a key factor for growth and value creation. We therefore cooperate with our customers and value chain partners in creating and driving more sustainable solutions while discontinuing products with strong sustainability issues in their specific application and region. This supports customers in delivering on current and future sustainability needs. Sustainability is firmly embedded into our company and organization. Sustainability management follows our corporate purpose, "We create chemistry for a sustainable future," and supports our strategic principle, "We drive sustainable solutions."

BASF's sustainability management has two strategic responsibilities: minimizing risks and establishing strong relationships with internal and external stakeholders, besides utilizing respective business opportunities. As a basis, BASF has derived its understanding of sustainable development based on the United Nations' definition:
Humankind is in a dilemma resulting from consumption exceeding the resources which the planet can regenerate. While the global population is growing, rising demands are increasingly difficult to meet in a responsible way. This will pose great challenges for ecosystems, society and the economy. Despite this, these challenges open up many opportunities for the chemical industry, which delivers into many industrial sectors. With its high-value products and intelligent solutions fostering circularity, BASF is in a great position to address these global challenges and contribute to sustainable development, particularly in the areas of resource efficiency, environment and climate protection, circular economy, and the reduction of malnutrition and poverty.

BASF is committed to respecting and promoting internationally agreed standards regarding compliance, environmental protection, health and safety and decent work. Adherence to these standards is the basis for avoiding strategic, operational or reputational risks. Besides considering sustainability aspects in the process of acquisitions, BASF expects its suppliers to be committed to and actively support the implementation of the principles of sustainable development within their sphere of responsibility.

BASF engages in an ongoing dialog with stakeholders like customers, employees, shareholders, neighbors, workers' representatives, politicians, media, civil society and business partners. This ongoing dialog not only supports BASF in recognizing sustainability issues at an early stage, it also lays the ground for identifying market needs and turning them into product solutions.

2. Objectives of TripleS

The objective of TripleS is to provide a fully transparent and consistent evaluation of the sustainability performance of BASF's solutions, thus generating the basis to actively steer our portfolio towards a better sustainability profile. This manual provides details on how to apply the TripleS method and how it helps to meet the needs of customers, value chains, governments and society.

TripleS was introduced at BASF with the aim of increasing our portfolio of innovative and sustainable solutions and the sustainability performance of the value chains we serve. By assessing key drivers and issues in our customers' industries, we strive to identify the sustainability contribution of each of our products in its specific application. To do so, solutions in their respective application and region are assessed in terms of defined sustainability criteria.

With our approach, we evaluate the value chain from cradle to grave and consider industry and region-specific views in our markets. We strive to achieve a balance between the three dimensions of sustainability:

- Environment, e.g., ensuring standards are met, developing environmentally sound solutions
- Society, e.g., enhancing safety in production, use and end of life along the value chain
- Economy, e.g., potential cost savings for customers using our technologies

The results derived from the evaluation of the value chain support business units by given them a clear picture of the sustainability drivers and concerns in their current and future portfolio. In this respect, the performance assessment serves as an **early warning system**. We aim to identify at an early stage those solutions that are likely to be affected by regulations and/or a negative market perception. Where deemed necessary, mitigation options for solving the sustainability issue(s) are developed.

In addition, the TripleS tool serves as a **steering instrument to trigger innovations** that ensure differentiation in the markets through their contribution to sustainability and improved quality of life. This generates business opportunities and provides content for market communications. Consequently, BASF has derived measures to use TripleS **as a strategic steering tool for** its **portfolio development**. The two segments of most sustainable products, Contributor and Pioneer, were defined as the basis. Through this KPI, the qualifiers for such most sustainable products are an integral guidance for our business development with the goal to grow this share of the business over proportionally.

TripleS is embedded into BASF's management processes. Several key functions ensure an efficient integration and coordination of the outcomes of the segmentation process in the organization. Using a cross-functional assessment setup, TripleS reaches and involves many functions, such as R&D, Marketing, Sales, Sustainability Experts and Product Stewardship, and thus supports the anchoring of sustainability in the company's daily business.
In a nutshell, the tool helps to enable company's long-term economic success while improving its environmental and social performance.

Sharing the knowledge about the TripleS methodology can help customers and other third parties to analyze their portfolio, increase transparency and steer towards their sustainability targets.

3. TripleS Methodology

BASF manages a broad portfolio of approximately 45,000 solutions in approximately 80 business units globally. To gain a comprehensive understanding of our portfolio and the associated sustainability risks and opportunities, we have created a robust and scalable evaluation process that accounts for our upstream, intermediate and downstream businesses with their regional market differences. In case of customer- or industry-specific sustainability requirements, segmentation may be adapted accordingly. In the process, solutions are evaluated in a cradle-to-grave value chain approach including raw material supply, production, use phase and end of life, e.g., disposal or recycling. The evaluation is based on a combination of screening for hazards, risk assessment, scientific evidence, expert judgments as well as market knowledge and perception.

The current TripleS manual reflects the latest changes in the regulatory environment, e.g., the EU Commission's Chemicals Strategy for Sustainability (CSS) as well as new market drivers like circularity and the increased focus on climate protection. It is based on the existing methodology, which was revised in 2022. The method now includes an extended range of sustainability criteria, thus increasing transparency on contributions to climate and energy, circular economy and resource efficiency. In addition, a streamlined assessment procedure has been implemented based on information and parameters available within BASF's IT systems. As a result, BASF now aggregates all product-related sustainability aspects under one central governance and steering framework. On this aggregated level, contributions to the most relevant sustainability categories are reflected and can be linked to the UN Sustainability Goals they contribute to.

3.1. TripleS Segments

The TripleS assessment reflects the full range of sustainability performances: from solutions with a substantial sustainability contribution, to solutions with market standard performance, to solutions with a significant sustainability concern (see quality criterion "Neutrality"). As an outcome of the TripleS process, solutions from BASF business units are grouped into five segments according to their sustainability performance in the respective application, industry and region. These five segments are:

Figure 1: Five TripleS Performance Segments

3.2. Process Flow

The process of portfolio categorization can be divided into two steps. In the first step, all solutions in scope are subject to the so-called "Check for Basic Sustainability Requirements" (see 3.4) to systematically identify solutions that are likely to be affected by a sustainability issue, either at present or in the foreseeable future. As part of this check, each solution is evaluated in its respective application and region based on corporate minimum requirements and stakeholder specific criteria. These cover BASF's Code of Conduct, the chemicals hazard and exposure across the life cycle, anticipated regulatory trends and sustainability ambitions along the value chain, and risks for the company's reputation.

Solutions identified as being likely affected by a sustainability issue are classified as "Monitored" or "Challenged" depending on the severity of the issue found.

In the second step, solutions that have successfully passed the "Check for Basic Sustainability Requirements" are then subject to a "Check for Sustainability Value Contribution" (see 3.5). This step evaluates the solution's sustainability contribution compared to competing solutions in the same application and region. Solutions for which neither an issue nor a sustainability benefit is identified, will be segmented as "Standard." Solutions for which a sustainability benefit is identified will be segmented as "Contributor" or "Pioneer" depending on the level of performance relative to the market standard and their contribution to a transformation topic.

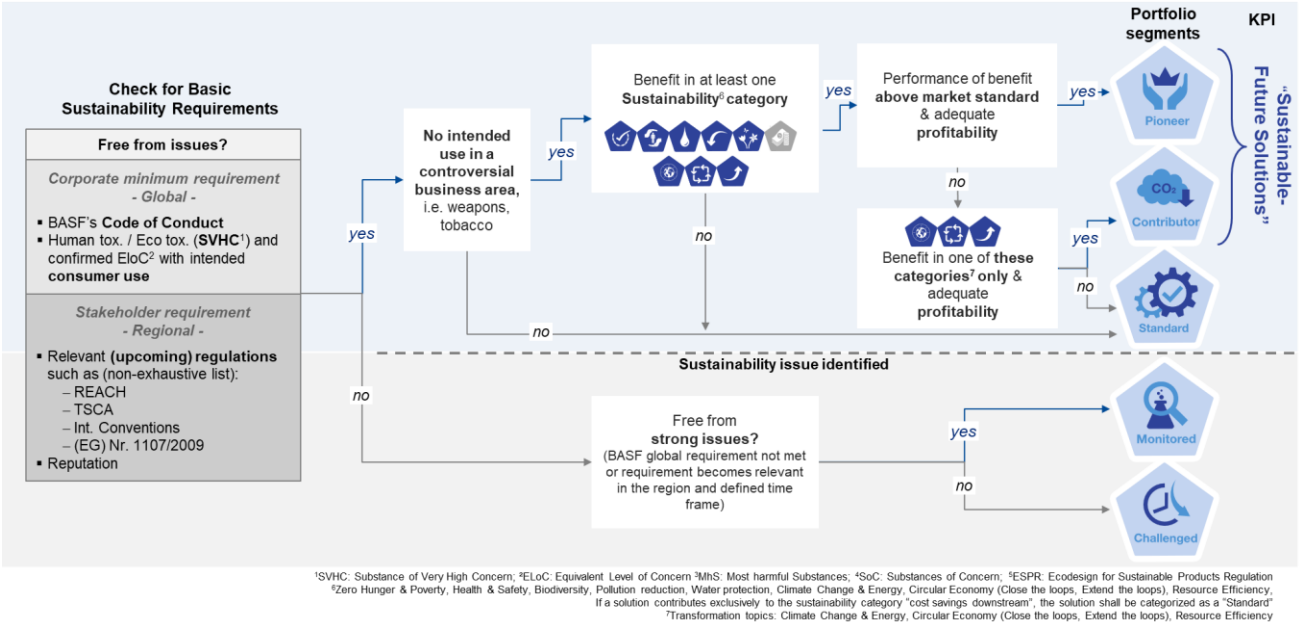

Figure 2: TripleS segmentation process in detail.

As a result, the following differentiation can be made for the different segments:

Pioneer: A solution segmented as a "Pioneer" needs to pass the "Check for Basic sustainability requirements" and is not intended to be used in a "Controversial Business Area" and is "profitable". In addition, the solution must "contribute to a minimum of one sustainability category" and must "outperform the "market" (For definitions see chapters 3.4 and 3.5.1 - 3.5.5).

Contributor: A solution segmented as a "Contributor" needs to pass the "Check for Basic sustainability requirements" and is not intended to be used in a "Controversial Business Area" and is "profitable." In addition, the solution must "contribute to a minimum of one transformation topic (Climate Change & Energy, Circular Economy, Resource Efficiency)" and performs on market standard level. (For definitions see chapters 3.4 and 3.5.1 - 3.5.6)

Standard: A solution segmented as "Standard" needs to pass the "Check for Basic sustainability requirements" and perform on market standard level. The solution does not contribute to a transformation topic and/or the profitability is not satisfying and/or the intended use is within a controversial business area. (For definitions see chapters 3.4 and 3.5.1 - 3.5.4)

Monitored: A solution segmented as "Monitored" does not pass the "Check for Basic sustainability requirements" because a concern has been identified. The concern is seen as rather "weak," as it will materialize in "> 2 to 5 years" (e.g., regulation) or it results from a regional "reputational risk." (For definitions see chapters 3.4)

Challenged: A solution segmented as "Challenged" does not pass the "Check for Basic sustainability requirements" because a concern has been identified. The concern is seen as rather "strong," as it will materialize in "< 2 years" (e.g., regulation), or it is related to a "violation of BASF's Code of Conduct," or the solution contains "substance(s) posing a material risk to the environmental- and/or humans (see decision tree chapter 3.4) or it results from a strong (global) "reputational risk." Challenged solutions will be phased out within five years of being classified as such. (For definitions see chapters 3.4)

3.3. Scope and Boundaries

3.3.1. Sales Portfolio

The portfolio to be assessed according to the TripleS method covers BASF's Group-wide third-party sales of the strategically relevant portfolio in the respective fiscal year (see definition below).

Sales which are part of the strategically relevant portfolio but have not been assessed will be marked as "not assessed" and will reported as such and not within the segmentation results of the respective fiscal year. Examples are newly developed or recently acquired products.

The sustainability segmentation of the strategically relevant portfolio usually takes place on the level of a PRD number. In case a PRD number is not available or appropriate for segmentation, the following identifiers can be used:

- *PBG*
- *ZPAR*
- *BZVLE*
- *X-products, which are artificial numbers that are used if no suitable number in BASF's IT systems is available for segmentation*
- *Other, not further specified but unique identical number given by the SAP system*

As a result of the above, the following sales are out of scope for TripleS, e.g., because they do not represent sales to third parties, stem from non-product related businesses or are considered as not being strategically relevant:

- *Products for captive use*
- *Non-strategic "other operating activities" / tolling operations by BASF (BASF as Toller)*
- *Sales from precious metals through trading or as part of the product composition*
- *Raw materials with no value added by BASF (incl. non-strategic intermediates and transfer products)*
- *"**Non-strategic**" sales defined by the Strategic Business Unit or defined as such by Corporate Strategy (i.e., X-SBUs)*
- *Samples / test products / prototypes / merchandise products*
- *Waste / scrap products*
- *Sales that cannot be allocated to product level*
- *Sales of remainders (only applicable if solution is not yet assessed)*

3.3.2. Research & Development

A separate segmentation of BASF's R&D projects is carried out according to the TripleS methodology in addition to the segmentation of the year-end sales portfolio. Due to the lack of sales in the R&D phase, R&D spendings are considered as KPI for this phase for reporting purposes. Once an assessed R&D project results in a solution with related sales, the segmentation of the respective R&D project is valid for the solution until the confirmation (review) is done within the first financial year. Before year-end closing, missing data must be completed and confirmed by the respective SBU and Corporate Sustainability in order for the segmentation to be included as part of the sales KPI.

The R&D assessment process also follows the same two steps described above ("Check for Basic Sustainability Requirements" and "Check for Sustainability Value Contribution") and is conducted and

updated throughout the innovation process on the basis of the information available at the given stage of the innovation process.

All relevant R&D process models are in scope of the assessment.

A detailed process description for the segmentation of R&D activities can be found in Appendix 1 of this manual.

3.4. Check for Basic Sustainability Requirements

As a global company with a focus on the environment, health and safety, BASF fully supports efforts to ensure that chemical substances do not pose a risk to human health or the environment. We therefore strive to adhere to the highest environmental, health and safety (EHS) standards, and to ensure that our portfolio complies with all applicable regional, national, state and local legal requirements. In addition, each solution needs to contribute to the company's own strategic goals.

However, solutions that are currently compliant with the relevant legislation in their respective applications and region and that are demanded by customers may face stricter legal requirements in the future or be subject to negative consumer perception or public pressure. We conduct our Check for Basic Sustainability Requirements to proactively identify such solutions that are likely to be affected by a sustainability concern in either the immediate or foreseeable future. As part of this check, BASF's solutions are reviewed in their respective applications and regions to evaluate their compliance with our corporate minimum requirements as well as stakeholder requirements (see 3.4.1 to 3.4.4):

Corporate minimum requirements:

- *Corporate-wide minimum demands that BASF solutions need to fulfill globally, such as BASF's commitment to legal compliance and responsible business conduct*
- *Definitions of corporate minimum requirements are set by corporate functions. Fulfilment of compliance with requirements is evaluated by corporate functions and the responsible business unit under the leadership of Corporate Sustainability.*

Stakeholder requirements:

- *Demands that can be adapted to industry and regional specifics*
- *Definition of relevant requirements is proposed by the respective business unit, corporate functions and Corporate Sustainability. Decision on the fulfilment is made by corporate functions and the relevant business unit under the leadership of Corporate Sustainability.*

The substance lists used for the assessment of human and ecotoxicological risks will be updated regularly, at a minimum twice a year. The date of the substance list used for segmentation of a particular business unit will be documented in the final assessment report.

In practice, the following decision tree helps to conduct the Check for Basic Sustainability Requirements:

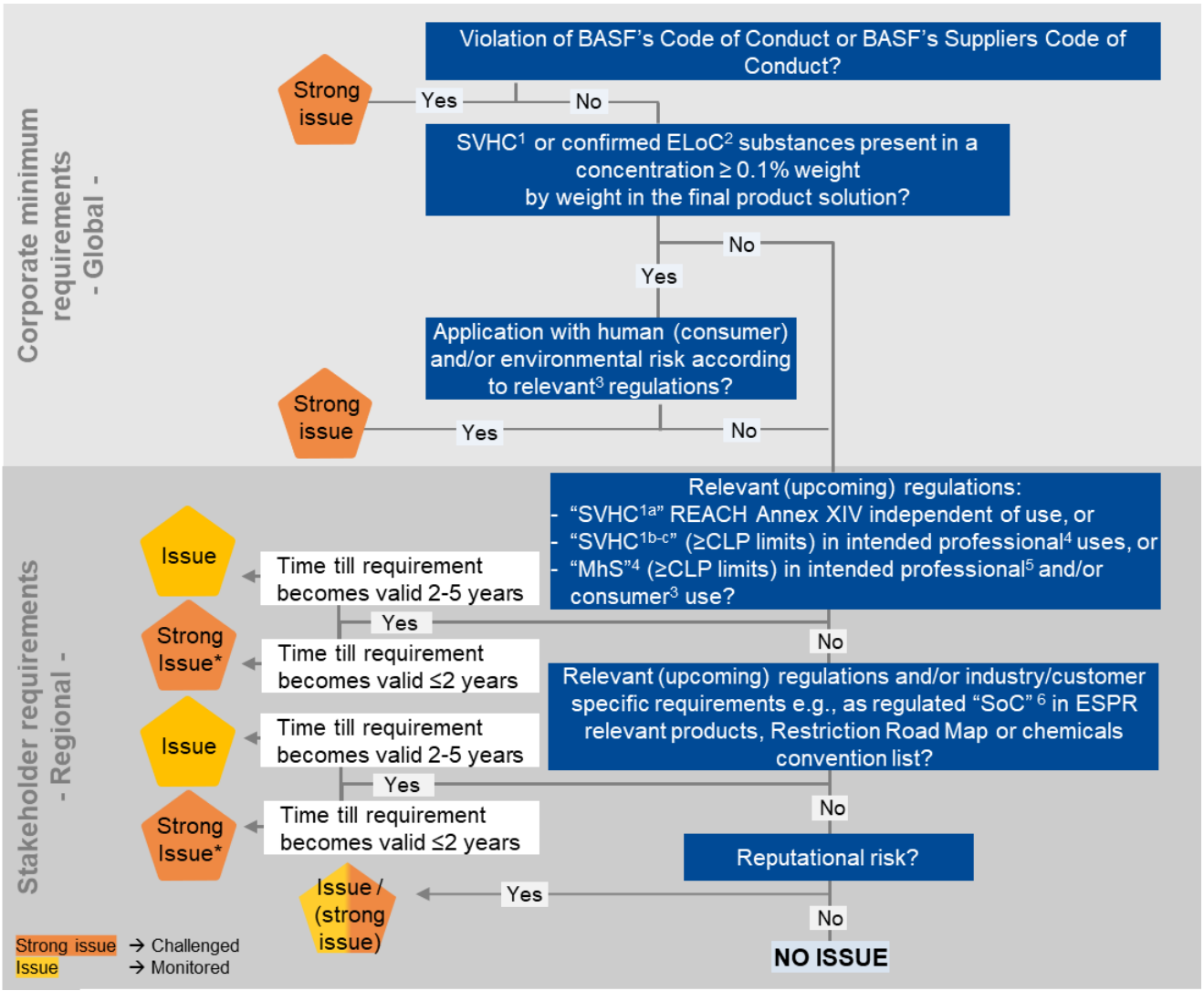

Figure 3: Check for Basic Sustainability Requirements.

*If Challenged in one region, strongly advised segmentation as Monitored in other regions at best

1) For this assessment of Substances of Very High Concern (SVHC) the following clusters are considered:
   a) SVHC according to REACH authorization list (Annex XIV)
   b) SVHC according to REACH candidate list
   c) SVHC substances as defined by CSS and anticipated to be valid in 2027, covering the following hazards:
      - Substances classified as carcinogenic, mutagenic or toxic to reproduction (CMR) according to hazard categories 1A and 1B of the Harmonized Classification, Labelling and Packaging (CLP) Regulation.
      - Substances classified as persistent, bio-accumulative and toxic (PBT) or very persistent and very bio-accumulative (vPvB) according to the CLP Regulation.
      - Substances determined as persistent, mobile and toxic (PMT) or very persistent and very mobile (vPvM) according to the CLP Regulation.
      - Substances fulfilling criteria as endocrine disruptors cat.1 (ED) according to the CLP regulation.
2) Substances with confirmed equivalent level of concern (ELoC) to CMR cat. 1A and 1B, PBT/vPvB, PMT/vPvM or ED cat. 1 according to Article 57(f) of the REACH Regulation.
3) Relevance according to REACH Use Descriptor System; solution intended for consumer uses and solution with potential release into the environment.
4) MhS: Group of so-called Most harmful Substances. For details see chapter 3.4.3
5) Relevance according to REACH Use Descriptor System; solution intended for professional uses.
6) SoC: Group of so-called Substances of Concern. For details see chapter 3.4.3

For Agricultural Solutions:
Agrochemical products consist of active ingredients (ai) and non-active ingredients. The classification of agrochemical products regarding their chemical risk is a combination of the assessment of the active ingredients and non-active ingredients.
Ai of agrochemical products are regulated under specific regional/local legislation and requirements may considerably differ. Further to this, the following approach is taken: Agrochemical products solely containing ai with registration terms of ≥3 years, are classified based on the applicable regional/local specifics for all relevant uses (consumer, professional, industrial). This can be considered equivalent to "no" unacceptable risk in relation to the product's registered uses and hence the product could be rated as standard, contributor or pioneer.
Once the remaining term of an active ingredient's registration is <3 years and in addition regulatory pressure is increasing, the respective product shall be segmented as Monitored/Challenged. In addition, active ingredients are checked against the International Code of Conduct on Pesticide Management (fao.org). Presence of listed substances will lead to a segmentation as Monitored/Challenged. Country specific deviations are possible.

If the Check for Basic Sustainability Requirements reveals any sustainability issue, based either on available system information or on expert input (Product Management / Marketing / Corporate Sustainability / Regulatory), the solution's concern is evaluated as weak or strong. Subsequently, this will result in segmentation as Monitored or Challenged. For this evaluation, the severity and timeline of an issue to materialize are key considerations.

In practice: If a solution is segmented as Challenged in one region, it should be segmented as Monitored in other regions. If the operating division or region can deliver a material rationale for the limitation of a strong issue to one region, such solutions may be segmented as Standard at best in other regions without potential for an upgrade as a Contributor with a contribution to transformation topics.

If no sustainability issue is identified, the solution's sustainability contribution is evaluated as part of the Check for Sustainability Value Contribution (see 3.5).

3.4.1. Minimum Requirement: Compliance with BASF's Code of Conduct

BASF is committed to maintaining high standards of legal compliance and business ethics. Our Code of Conduct defines the boundaries within which employees must act to comply with laws and internal policies. It guides employees to put the company's values and commitments into practice and helps foster respect and trust among our customers, investors, employees and all other stakeholders. For detailed information, see our current Code of Conduct and Supplier Code of Conduct (both Appendix 2).

In short: to fulfill the corporate minimum requirement of compliance with BASF's Code of Conduct and BASF's Supplier Code of Conduct, a solution and/or its manufacturing shall be in accordance with:

- *applicable laws and regulations on environmental protection as well as guidance provided under BASF's Responsible Care Management System*
- *BASF's corporate principles regarding social standards and occupational safety*
- *all applicable embargo and trade regulations, regulations on money laundering and corruption*
- *BASF's expectations for our suppliers of raw materials and goods to put ESG standards into everyday practice, and to respect human and employee rights.*

In practice: If a solution is in conflict with the requirements of BASF's Code of Conduct or / and Supplier Code of Conduct (both Appendix 2), the solution shall be classified as Challenged globally.

3.4.2. Minimum Requirement: Eco-toxicity Risk and Human Toxicity Risk in Sensitive Applications

We work continuously to ensure that our products pose no risk to people or the environment when they are used responsibly and in the manner intended.

Substances with carcinogenic, mutagenic or reprotoxic properties (CMR substances with H-phrases: H340, H350, H360 [+H362] according to GHS) are of specific concern to human health due to the irreversibility and seriousness of the effects they may cause. Regulation (EC) No 1272/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) classifies CMR substances into different categories (category 1A to 2) according to their hazard potential for human health. Substances in categories 1A and 1B of the CLP Regulation are particularly critical as there is enough evidence to determine that these substances are "known" or "presumed to be" carcinogenic, mutagenic or toxic to reproduction (see Appendix 3).

Besides CMR substances, substances which are (i) persistent, bio-accumulative and toxic (PBT) or very persistent and very bio-accumulative (vPvB) formerly defined according to Annex XIII of Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH Regulation) or (ii) of a confirmed equivalent level of concern (EloC) to those categories above according to Article 57(f) of the REACH Regulation may also have serious effects on human health or the environment. The REACH Regulation classifies substances as PBT/vPvB based on their persistence, tendency to bioaccumulate and toxicity (see Appendix 4). Such substances are regulated by the REACH Regulation while considering them as potential substances of very high concern (SVHCs) and adding them to the candidate list for eventual inclusion in Annex XIV (list of substances subject to authorization) of the REACH Regulation.

The insertion of new hazard classes and their criteria into the CLP Regulation is one of the primary commitments of the chemicals strategy for sustainability (CSS), which is one of the building blocks of the European Green Deal, intended to protect consumers, vulnerable groups and workers from the most

harmful chemicals and for the target of zero chemical pollution in the environment. The additional hazard classes are currently being defined by the CLP Regulation. These include substances with the following properties (for details see Appendix 4 and 5):

- *endocrine disrupting (ED) properties (Appendix 3 and 4)*
- *the potential to be persistent, bio-accumulative and toxic (PBT) and very persistent, very bio-accumulative (vPvB) (Appendix 5)*
- *the potential to be persistent, mobile and toxic (PMT) and very persistent, very mobile (vPvM)*

The corresponding sections in Annex I of the CLP Regulation are amended accordingly

- *ED: 3.11 (human health) and 4.2 (environment)*
- *PBT and vPvB: 4.3*
- *PMT and vPvM: 4.4*

Considering the substances involved is thus a crucial step when evaluating whether our solutions might pose a risk to human health or the environment.

However, a risk to human health or the environment cannot solely be determined by the substance's properties. Whether a hazard materializes depends on whether contact with chemicals, i.e., exposure, is possible. For evaluating the potential risk of human exposure, the intended uses of a substance must be considered. According to the REACH Use Descriptor System (ECHA, R12, 2015), the following main user groups can be distinguished:

- ***Consumer use:*** *private households/general public, e.g., toys, cosmetics, food contact, cleaning agents, tensides, do-it-yourself products*
- ***Professional use:*** *public domain (administration, education, entertainment, services, craftsmen), e.g., painter, hairdresser, health & safety officer*
- ***Industrial use:*** *uses of substances as such, or in preparation at industrial sites (ECHA 2010).*

Use cases can be a helpful first step for the assessment, but it should be considered that the same use may result in a different potential of exposure, depending on regional differences in training and equipment standards.

In practice: *If a solution which is intended for consumer use contains any*

i. CMR substance according to category 1A and 1B of the CLP Regulation (H340/H350/H360 [+H362]).
ii. PBT or vPvB substance according to the CLP Regulation (H440/H441),
iii. PMT or vPvM substance according to the CLP Regulation (H450/H451),
iv. ED cat. 1 substance according to the CLP Regulation (H380), or
v. confirmed ELoC substance according to Article 57(f) of the REACH Regulation

in a concentration of greater than or equal to 0.1% weight by weight in the final product, the solution shall be evaluated across its lifecycle. If a solution fails, this assessment is viewed as having a strong issue and therefore segmented as Challenged.

In the case of professional and industrial use, exposure scenarios (ES) represent the recommended operational conditions (OCs) and risk management measures (RMMs) for each scenario. These ES define the "conditions of use" of a substance assessed as being safe. Therefore, an industrial use is not considered to be an application with human risk, but a professional use requires a thorough evaluation of the observed use conditions under the responsibility of the SBU regulatory experts. The result will be considered in the TripleS segmentation process.

Substances that can create adverse effects on environmental organisms and ecosystems are of concern from an environmental perspective. PBT, vPvB, PMT, vPvM and ED cat. 1 as well as confirmed EloC substances are particularly problematic. However, the effects of the solution on the environment depend not only on the (hazardous) properties of the respective substance, but also on the extent of release in, or exposure to, the environment. Thus, the environmental properties of the substances/mixtures must be assessed only in the context of actual or potential exposure of the environment.

In practice: *If a solution which is intended for an application with a potential release into the environment contains any*

i. PBT or vPvB substance according to the CLP Regulation,
ii. PMT or vPvM substance according to the CLP Regulation,
iii. ED cat. 1 substance according to the CLP Regulation, or
iv. confirmed ELoC substance according to Article 57(f) of the REACH Regulation

in a concentration of greater than or equal to 0.1% weight by weight in the final product, the solution shall be evaluated across its lifecycle. If a solution fails, this assessment is viewed as having a strong issue and therefore segmented as Challenged.

Note: In general, the CLP Regulation serves as basis for the identification of CMR substances within TripleS globally. However, if a solution is sold in a country in which the legal framework concerning CMR criteria is stricter than European law, the respective national classification forms the basis for the performance assessment. The same general rule applies to substances categorized as PBT, vPvB, PMT, vPvM and ED cat. 1 according to Annex I of the CLP Regulation within TripleS globally. Besides the REACH Regulation, national regulatory schemes are implemented, sometimes using slightly different definitions and criteria for identifying PBT / vPvB / PMT / vPvM / ED cat. 1 properties. If a solution is sold in a country in which the legal framework concerning PBT / vPvB / PMT / vPvM / ED cat. 1 criterion is stricter than European law, the respective national regulation shall be taken as the basis for evaluation.

3.4.3. Stakeholder Requirements: Relevant Upcoming Regulations and Industry/Customer Requirements

In addition to the above, a solution from BASF's portfolio is required to correspond to relevant stakeholder demands, today and in the foreseeable future. Observing existing and upcoming regulatory changes as well as customer or industry-specific requirements is of decisive importance to either remain competitive, to gain a competitive advantage or to successfully enter a market. In contrast to the corporate minimum requirements, the stakeholder specific demands for the portfolio assessment are guided by Corporate Sustainability and corporate EHS functions combined with relevant topics from the respective business unite.

When evaluating whether our solutions might pose a risk to human health or the environment, considering the substances involved, further endpoints must be considered as relevant for a solution sold into a particular application and region. With the CSS, the scope of endpoints in focus of regulatory action has been broadened to groups of hazards clustered as so-called "Most harmful Substances" (MhS) and "Substances of Concern" (SoC). Hence, substances that can create adverse effects on human health and environmental organisms and ecosystems for consideration are:

"Most harmful Substances":

- *Respiratory sensitizer Cat. 1 substances according to GHS (H334)*
- *Specific target organ toxic Cat. 1 (repeated exposure) substances according to GHS (H372)*
- *Ozone depleting substances according to GHS (H420)*

"Substances of Concern":

- *CMR substances Cat. 2 according to GHS (H341, H351, H361)*
- *Specific target organ toxic Cat. 1/2 (single exposure) substances according to GHS (H370/H371)*
- *Specific target organ toxic Cat. 2 (repeated exposure) substances according to GHS (H373)*
- *Skin sensitizer Cat. 1A/1B substances according to GHS (H317)*
- *Endocrine disruption Cat. 2 substances according to CLP Regulation (H381)*
- *Chronic aquatic toxic Cat 1/2/3/4 substances according to GHS (H410/H411/H412/H413)*

However, the effects of the solution on human health and the environment depend not only on the (hazardous) properties of the respective substance but also on the extent of release into the environment or exposure to humans. Thus, properties of the substances / mixtures must be assessed only in the context of actual or potential exposure, which depends on the generic concentration limits[1].

In practice: *If a solution which is intended for an application with a potential exposure to humans or release into the environment contains any*

i. Respiratory sensitizer Cat. 1 substance according to GHS
ii. Ozone depleting substance according to GHS
iii. Specific target organ toxic Cat. 1/2 (repeated exposure) substance according to GHS
iv. Specific target organ toxic Cat. 1/2 (single exposure) substance according to GHS
v. CMR substance Cat. 2 according to GHS
vi. Skin sensitizer Cat. 1A/1B substance according to GHS
vii. Endocrine disruption Cat. 2 substance according to CLP Regulation.
viii. Chronic aquatic toxic Cat 1/2/3/4 substance according to GHS

in a concentration of greater than or equal to the relevant generic concentration limit in the final product, the solution shall be evaluated across its lifecycle. If a solution fails this assessment, depending on the timeline until the respective regulation becomes valid, is viewed as having an issue (2-5 years) and therefore segmented as Monitored or a strong issue (≤2 years) and therefore segmented as Challenged.

In a similar way as described in chapter 3.4.2, the intended uses of a substance must be considered to evaluate the potential risk of exposure. The relevance of industry-specific regulations and requirements varies depending on the application and the geographic region in which a solution is marketed. The implications of changing regional requirements and regulations in other regions of the world (spillover effect) have to be considered for a comprehensive assessment.

In addition, different bodies, e.g., regulatory authorities, international conventions, industrial associations, trade unions, consumer associations and key players in the value chain, publish lists of substances of potential concern that give indications on restrictions or bans or may give indications on forthcoming industry-specific regulations.

[1] The generic concentration limits applied are: Carcinogenic and Mutagenic substances Cat. 2 according to GHS (H351, H341) = 1%wt/wt; Reprotoxic substances Cat. 2 according to GHS (H361) = 3%wt/wt; Respiratory sensitizer Cat. 1 substances according to GHS (H334) = 0.1%wt/wt; Ozone depleting substances according to GHS (H420) = 0.1%wt/wt; Skin sensitizer Cat. 1A/1B substances according to GHS (H317) = 0.1%wt/wt; STOT SE Cat. 1.

Examples of lists relevant to BASF's TripleS assessment are given below:

- *REACH authorization list (Annex XIV)*
- *Ban of a substance identified under REACH restrictions (Annex XVII)*
- *US EPA Section 6 Banned Chemicals*
- *Montreal Protocol (Ozone depleting substances)*
- *Stockholm Convention (Persistent organic pollutants)*
- *Rotterdam Convention (Prior informed consent substances)*
- *California proposition 65*
- *TSCA workplan chemicals*
- *REACH Candidate List of Substances of Very High Concern, or similar lists in other countries*
- *CoRAP*

Further, customer, region or industry-specific lists can be added as relevant for the operating division or corporate functions for evaluation of the solutions in the relevant industry sectors, e.g., the SIN list (Substitute It Now!), the Code of Conduct on Pesticide Management (Highly Hazardous Pesticides fao.org) list and others.

In practice: *If a solution that is intended for an application with a potential exposure to humans or release into the environment contains any substance that fall into the following categories*

i. *REACH authorization list (Annex XIV)*
ii. *Ban of a substance identified under REACH restrictions (Annex XVII)*
iii. *US EPA Section 6 Banned Chemicals*
iv. *Montreal Protocol (Ozone depleting substances)*
v. *Stockholm Convention (Persistent organic pollutants)*
vi. *Rotterdam Convention (Prior informed consent substances)*
vii. *California proposition 65*
viii. *TSCA workplan chemicals*
ix. *REACH Candidate List of Substances of Very High Concern, or similar lists in other countries*
x. *CoRAP*

in a concentration of greater than or equal to the relevant limit in the final product, the solution must be evaluated across its lifecycle. If a solution fails this assessment, depending on the geographical limits, the legal implications and the timeline until respective restrictions becomes valid, is viewed as having either no issue but can be segmented as Standard at best, or as having an issue (2-5 years) and therefore segmented as Monitored or as having a strong issue (≤2 years) and therefore segmented as Challenged. If for TSCA workplan chemicals, the operating division can deliver a material rationale that no material issue arises, such solutions may be segmented above Standard level.

In addition to industry-specific upcoming regulations and requirements, meeting customer demands is also of importance. Demand for solutions with an improved toxicological and environmental profile is on the rise. Responding to market requirements, BASF's customers increasingly request concentration thresholds below those defined by law, for example to conform with the requirements of environmental labels (e.g., Blue Angel eco-label) or to achieve their specific corporate environmental targets.

Note: All upcoming regulations and industry/customer specific requirements that may lead to a behavioral change or action by relevant stakeholders at present or in the foreseeable future, at a minimum considering impacts materializing within the next five years, should be considered in the segmentation process. To pass this stakeholder requirement, a solution in its specific application should comply with relevant upcoming regulations and requirements.

3.4.4. Stakeholder Requirement: Reputational Risk

Despite compliance with legal, corporate and market/industry-specific requirements and trends, a solution may face public rejection due to a specific sustainability topic. A solution that is affected by a sustainability topic resulting from a lack of acceptance among the general public may constitute a reputational risk for BASF even if it is fully compliant. The respective business units are requested to determine current or potential (foreseeable and upcoming) sustainability topics that are relevant for the performance assessment with the support of the EH&S, Corporate Communications and Corporate Sustainability units. As an example, circularity is gaining an increasing importance. Hence products shall be checked for material circularity. In case materiality of the topic was confirmed the solution should be checked against the respective requirements. As a consequence, solutions posing a reputational risk to BASF should be segmented as “Monitored”.

In addition, a strong reputational risk, posing a threat to the company’s business in all regions can be defined by the BASF Board of Directors. In such cases, a down-grade as Challenged of respective products is possible.

To pass this stakeholder requirement, a solution and its raw materials or production process must not be exposed to reputational risks, currently or in the foreseeable future.

In practice: *If a solution and/or its raw materials and/or production process entails a risk to the company’s reputation, the solution is to be viewed as having an issue or a strong issue respectively, and consequently classified as Monitored or Challenged.*

3.5. Check for Sustainability Value Contribution

Solutions not associated with a sustainability issue are subject to the Check for Sustainability Value Contribution. This checks controversial business areas and profitability as exclusion criteria for a solution that is to be segmented as a Pioneer or Contributor. Only then, are the significance of the solution's sustainability contribution considered across the life cycle in the competitive environment.

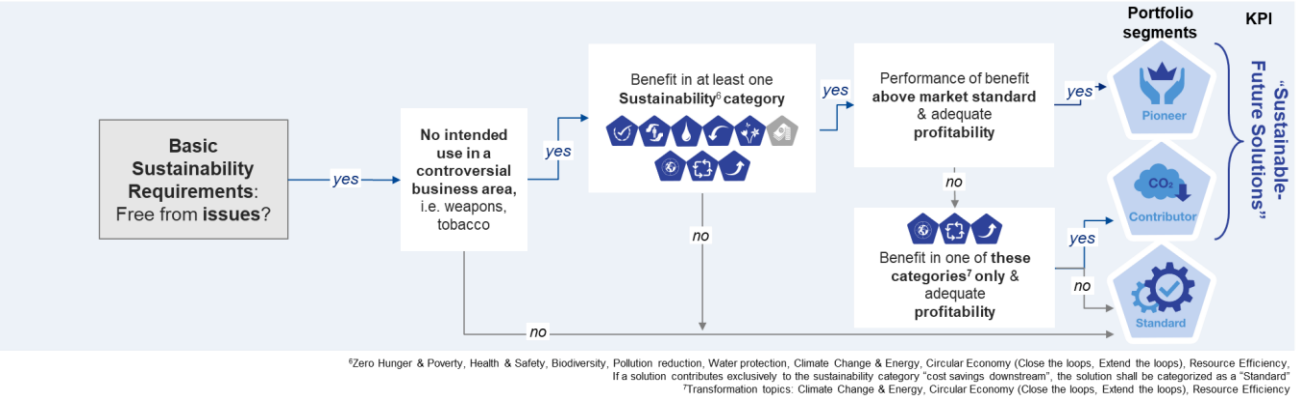

Figure 4: Check for Sustainability Value Contribution.

3.5.1. No Link to Relevant Controversial Business Area

As an additional quality check, business areas regarded as being controversial are applied as an exclusion criterion for a Performer or Contributor segmentation. A longlist of controversial business areas was compiled based on a collection of broadly applied exclusion criteria for investments from a variety of stakeholders. A materiality check was then performed to identify those exclusion criteria of highest importance. As a minimum outcome, the following two controversial business areas have been defined:

- *Tobacco*
- *Controversial weapons*[2]

Proposals for additional specific controversial business areas can be made by the business units; the final decision is taken by Corporate Sustainability. The materiality check is reviewed and updated every four years at the latest.

In practice: *A solution that is intended for an application in a controversial business area, meaning there is a direct link to a relevant challenged or disputed societal license to operate, should not be categorized as Pioneer or Contributor but as Standard at best.*

3.5.2. Adequate Profitability

As a second condition, a solution shall contribute to the company's economic development and therefore be profitable, currently and in the foreseeable future. As an indicator, the consolidated contribution

[2] Controversial weapons: Even though there is no official definition, such weapons may be considered to be excessively injurious, to have indiscriminate effects or to damage the natural environment. For this reason, some of these weapons have been specifically banned or regulated under international treaties (Vigeo EIRIS). Examples are Cluster Munitions, Anti-personnel, Landmine, Nuclear Weapons, Biological Weapons, Chemical Weapons, Blinding Laser Weapons, Incendiary Weapons, Non-Detectable Fragments; Depleted Uranium Weapons, White Phosphorus Weapons.

margin 1 of the current year and the two previous years should be considered. The decision as to whether a solution's profitability is appropriate is entrusted to the respective SBU(s). Exceptions may be considered within the decision-making process, e.g., solutions in the launch phase may not yet be sufficiently profitable. However, to meet this criterion, there must be a sufficient degree of likelihood that the solution will be profitable within a reasonable time frame after full-scale market introduction.

> **In practice:** *If a solution fails the profitability check, the respective business unit either documents the interim acceptance or the solution should be segmented as Standard at best.*

3.5.3. Sustainability Categories

When evaluating the positive sustainability impact of a solution, as the first condition, the solution shall contribute to at least one sustainability category of relevance[3] in the value chain, while at the same time not having significant negative impacts on any other relevant sustainability category.

The following eight sustainability categories are defined as relevant[3]: Climate Change & Energy, Resource Efficiency, Circular Economy, Pollution Reduction, Water protection, Biodiversity, Zero Hunger & Poverty, Health & Safety. As a ninth category "Cost savings downstream" covers the economic aspect of sustainability, which can only be selected in combination with one of the eight relevant ones.

Table 1: Overview TripleS Sustainability Categories

I. Climate Change & Energy:

Transformation topic	With reduced carbon footprint (cradle-to-gate), in production, which can come from: • **Scope 1 and / or 2:** Energy supplied for manufacturing, Reduced energy demand during manufacturing • **Scope 3 up-stream:** Raw materials applied, Energy supplied for manufacturing (of raw materials), Energy demand during manufacturing (of raw materials), Enables greenhouse gas and/or energy savings cradle-to-grave • **Scope 3 down-stream:** Enables greenhouse gas and/or energy savings downstream (e.g., use phase, end-of-life), Enables on-farm greenhouse gas or energy savings (e.g., reduced number of tractors drive across the field)

II. Resource Efficiency:

Transformation topic	• Produced at selected Verbund site(s) • Enables improved production/yield/harvest efficiency downstream • Enables resource savings in the value chain (e.g., phosphate, land, up-/downstream) • Allows improved production of biomass for the use as a feedstock or as biofuel: biodiesel, biogas, biobased products • Reduced abiotic stress / positive physiological effects • Enables increased application of integrated pest management (IPM)

[3] Alone, the sustainability category "Cost savings downstream," does not enable a solution to be classified as Pioneer or Contributor and must be combined with at least one additional sustainability category.

III. Circular Economy:

Transformation topic

(a) Close the loops

- Contains recycled[4] or responsibly sourced renewables raw materials[4] (sustainably produced towards the environment and towards human)
- Enabling recycling or biodegradability and/or compostability
- Support end-of-life material treatment and/or solves recyclability or biodegradability and/or compostability issues, e.g., sorting to (partly) recycle end-products
- Enables reuse or recycling of waste
- Extraction of contaminants or impurities enabling better recyclability
- Enables the use of recycled products downstream
- Enables the use of sustainably produced renewable raw materials
- Services enabling new circular business models
- Product is biodegradable[5] or compostable[5] in target application
  - Biodegradability is relevant for the intended end-of-life and/or addresses issues in significant non-intended fates

(b) Extend the loops

- Enables higher durability of products
- Enables prolonged lifetime/use phase of the final product
- Enables reduction of waste along the value chain

Note: Digestible products (Nutrition & Care) which are intended for consumption in human or animal food or feed, dietary supplements and medicines may not be classified as circular based on their biodegradability alone, especially if this is mandatory by regulation. Seeds and Traits may not be classified as circular based only on their biodegradability. Unclear cases are to be discussed case-by-case; credibility needs to be ensured.

IV. Pollution reduction (air, noise, soil):

- Reduced air pollutant emissions in production (non-CO_2)
- Enables a reduction of air pollutants (e.g., also due to reduced use of tractors/airplanes for spraying)
- Enables noise reduction in the value chain
- Enables a reduction of soil contaminants
- Reduction of plastic usage (i.e., mulch, seed and produce packaging solution)

V. Water protection:

- Enables reduction of emissions into water
- Enables water savings downstream
- Improved aqua tox profile
- Reduced water footprint in production (along value chain)
- Enables water treatment and drinking water purification
- Reduces leaching e.g., nitrate
- Reduced water usage in production (i.e., growing methods and variety suitable to less water and processing; varieties with easy to clean properties)

[4] *As a guidance for a content to be relevant, a minimum of 20wt% is advised.*

[5] *Recommended to be certified according to intended use (i.e., ISO, ASTM, EN, OECD, …)*

VI. Biodiversity:

- Enables conservation of biodiversity (e.g., less deforestation or overfishing, protection of threatened animals and plants)
- Higher compatibility with low-drift technologies
- Reduced environmental exposure due to optimized application technology (e.g., bait technology)
- With improved eco tox profile
- More favorable behavior (e.g., less leaching)
- Reduced risk for non-target organisms or beneficials (e.g., increased specificity)
- Positive effect on diversity of ecosystem (e.g., soil organisms)
- Reduced land use
- Integrated resistance management: unique position with new mode of action (MOA), curative control of sudden disease outbreaks, disruptive/ shifting type/multisite MOA

VII. Zero Hunger & Poverty (with focus on the advancement of developing countries)**:**

- Achieves food security and/or improves nutrition
- Enables affordable housing
- Improves sanitation
- Helps reduce poverty
- Reduces child mortality

VIII. Health & Safety:

- Improved human tox profile
- Enables safer handling and use of chemical substances
- Enables improvement of health, safety and living conditions, e.g. for workers along the value chain or the public (e.g., protection against malaria)
- Enables reduction of nutrition deficiencies
- Reduces child mortality
- Improves maternal health
- Combats malaria, HIV/AIDS and other diseases
- Increase vegetable consumption towards a healthy society

IX. Cost Savings Downstream (only in combination with one of the categories I – VIII):

- Enables cost savings downstream
- Increases quality of produce (e.g., mineral content, visual quality)
- Enables cost savings by the farmer and/or along the value chain
- Enables cost savings for growers, plant raisers, processors and retailers

3.5.3.1. Transformation Topics

Three of the eight sustainability categories were identified as being most relevant for the transformation necessary towards sustainable carbon management: Climate Change & Energy, Resource Efficiency and Circular Economy. These categories focus on the reduction of CO_2 emissions, a reduction of the environmental footprint through improved usage of resources and an optimized use of carbon in the solution's life cycle. With the updated methodology, Circular Economy has been fully integrated into TripleS to streamline reporting and steering across the company through a single system. Furthermore,

contributions to the three transformation topics are identified not only for solutions that outperform the market, but also those that perform on market standard level (see 3.5.4 – 3.5.6.), increasing the impact of our strategic steering target of Sustainable-Future Solutions.

3.5.4. Segmentation as Pioneer, Contributor or Standard

A contribution is generally regarded as substantial if it is essential for enabling the sustainability benefit in the life cycle. A sustainability category is generally considered relevant if it addresses a sustainability issue that may reasonably be considered important in the solution's life cycle. If a solution has significant negative impacts in at least one relevant sustainability category along the value chain, the solution must not be segmented as a Pioneer or Contributor but as a Standard. A negative impact is generally considered as significant if the negative effect outweighs the solution's positive sustainability contribution. In the case of uncertainties concerning trade-offs, a Life Cycle Assessment (e.g., Eco-Efficiency Analysis) may help quantify benefits and harms.

Three out of the eight relevant sustainability categories, categories I, II and III (see table in chapter 3.5.3.), contribute to the transformation topics that are currently of highest relevance to balance the use of available carbon-based resources within the planet's boundaries to regenerate. Consequently, emphasis of contributions to these three categories is increased by evaluating them for solutions entitled to be segmented as Contributor and Pioneer. Sustainability categories IV to VIII will only be evaluated for solutions entitled to be segmented as Pioneer.

> **In practice:** *If a solution cannot meet all three conditions mentioned in chapters 3.5.1 - 3.5.3, it shall not be segmented as Pioneer or Contributor, but as Standard instead. If a solution contributes only to the sustainability category "cost savings downstream," it must be categorized as a Standard.*

Note: The contribution to a sustainability category can take place at any stage in the solution's life cycle.

3.5.4.1. Responsible Sourcing

As described in chapter 3.4.1, all solutions are assessed to ensure their compliance with BASF's Code of Conduct as well as the Supplier Code of Conduct, which emphasizes, for example, BASF's expectations for our suppliers of raw materials and goods to put ESG standards into everyday practice, and to respect human and employee rights.

With the increasing use of renewable raw materials, resulting in the benefit of lower CO_2 footprints due to their biogenic carbon and reduced dependency on fossil resources, care needs to be taken regarding the sourcing situation. The biggest environmental impacts are GHG emissions, yield, (indirect) land use change, biodiversity loss, eutrophication (i.e., excessive algae growth due to too much fertilizer) and water use/quality. The social risks include the potential impact on food security as well as human rights violations on farms.

Therefore, TripleS considers the following elements as guidance:

i. *We increasingly source waste-based renewables to improve the sustainability of value chains.*
ii. *We increasingly source certified renewables to mitigate risks.*
iii. *We regularly assess and review sourcing risks in the light of our sustainability principles and take actions to mitigate those risks.*
iv. *We commit to not harming local food security.*

For TripleS and where relevant for the market served, elements i. and ii. serve as indicators for a segmentation as Contributor or Pioneer, among all other relevant criteria to be fulfilled. Elements iii. and iv. are indicators used within the basic sustainability requirements that would lead to identification of an issue with a respective segmentation as a consequence.

3.5.5. Benefit to a Sustainability Category above Market Standard

The second condition to be fulfilled to categorize a solution as a Pioneer is that either the solution's sustainability contribution is better than that of a sufficiently large share of alternative solutions or the non-use of the solution, and/ or that the performance is perceived as "enabling." As guidance, the share of alternative solutions is generally deemed to be sufficiently large if the combined market share is greater than or equal to 40 percent in the reference market based on sales volume. The relevant market is to be defined as the sum of products and processes that show a physical-technical similarity (e.g., functionality, material) to the assessed solution. In other words, the products within one market fulfill the same customer need and can therefore replace each other from a functional perspective. For example, in case of the customer need for a seat cover, the relevant market may include seat covers made from synthetic rubber, synthetic leather and natural leather.

In practice: *If a solution contributes to one of the eight relevant sustainability categories AND out-performs the market – as a guidance: ≥ 40% of the solutions in the market (products and processes) showing lower sustainability performance – a product shall be segmented as Pioneer.*

Note: The aim of the second condition is to prevent a solution being assessed as a Pioneer if it tackles a sustainability issue that is no longer perceived as such by the public (e.g., due to legal regulations or market environment) or if it has been on the market for a long time.

3.5.6. Benefit to a Transformation Topic on Market Standard Level

Solutions that contribute to the transformation topics Resource Efficiency, Climate Change & Energy and/ or Circularity with a performance on market standard level (see Pioneer criteria) should be segmented as Contributor. Their performance either upstream, during production processes or downstream enables them to contribute to at least one of the three categories along their life cycle.

3.5.7. Prioritization of Sustainability Categories

A solution may contribute to several sustainability categories. To reflect its major sustainability contribution along the life cycle *(main driver, main communication point, main selling value)*, one sustainability category shall be selected as priority benefit.

In practice: *The priority benefit shall be marked as leading (i.e., "1" in IT system), all other benefits shall be marked as secondary (i.e., "2" in IT-system). Cost savings downstream should generally be marked as a secondary benefit (i.e., IT system "2") only.*

4. TripleS Key Processes

The segmentation of the sales portfolio is conducted in a semi-automated manner and finalized in an alignment workshop, if necessary. Automated segmentation proposals based on information available in the IT environment of BASF are likely to increase continuously.

Corporate Sustainability plans the reviews (or first-time assessments) for a fiscal year and aligns the timing and process with the business unit. The decision about which strategic business unit and its portfolio will be segmented depends on several parameters.

4.1. Review Planning and Timing

- **Point in time** when the last review was done. In principle, a review should be done every four years at the latest; exceptions can be agreed, e.g., if there is an upcoming re-organization or strategy review.
- **Number of unassessed products**: As guidance, the proportion of unassessed products in a strategic business unit should not exceed 10% (sales share in relation to total sales in scope of strategic business division) of the total sales in scope.
- **Upcoming strategy process:** As guidance, the results of the last TripleS review should not be older than 3 years in the year that the strategic business unit agrees its strategy with the Board of Executive Directors. Exemptions are possible, e.g., if continuous updates have been made and the SBU confirms the current segmentation.
- **Changes in the regulatory environment** with significant impact on the portfolio (segmentation). As guidance, a review should be done if 25% of the portfolio in scope is affected by regulatory changes.

By no later than year end, Corporate Sustainability agrees with the sustainability manager of the (strategic) business unit on whether the unit needs to be reviewed according to the present TripleS methodology in the coming year. Short-term changes to planning are possible, e.g., for strategic reasons. The final decision on reviews in the fiscal year is made by Corporate Sustainability.

4.2. Briefing

The objective of the briefing is to ensure a common understanding of the concept of sustainable development and the TripleS methodology. To qualify all participants for the review process, Corporate Sustainability offers live cross divisional and regional “Briefing Sessions.” In addition, podcasts and presentation material are published in the intranet. The responsible Sustainability Manager of the (strategic) business unit is responsible for ensuring that only experts who are aware of the content of the briefing sessions (minimum method knowledge) play an active role in the review process.

4.3. Participants in the Review Process

The selection of participants involved in the segmentation process depends on the strategic focus of the responsible business unit and its regional structure (regional vs. global). In general, the following responsibilities and/or expertise are eligible for involvement (depending on companies’ structure and organization) as described in *Table 2: Functions involved in the segmentation process*:

Function	Expertise
*Corporate Sustainability	Method owner, cross-business division view, cross-market and region sustainability expertise
*(BU/SBU) Sustainability Representative	Sustainability knowledge of the division and its markets
*Product Steward/Regulatory	Product-specific ecological, toxicological, regulatory (country-, region specific) stakeholder knowledge
*Strategic Marketing and/or *Technical Marketing and/or *Product Management and/or *Regional Product Management	Expertise on product performance, mid-term and long-term business division strategy and economic data, industry- and market overview
Controlling	Mid-term and long-term business division strategy and economic data
Sales/Key Account Management	Expertise on product performance and market and customer demands
Research and Development	Expertise on development of new products or improvements
Procurement	Expertise on topics related to procurement of raw materials
Corporate Product Safety	Expertise on corporate sustainability concerns regarding (human- and eco-) toxicity and regulatory trends
Operations/Technology	Expertise on technology performance and benchmark
Regional Representative	Expertise on regional market requirements, portfolio, regulations and customer requests

*Mandatory involvement in the review process.

4.4. Segmentation Proposal

The proposal phase of products to be reviewed or assessed for the first time can vary depending on the availability of data in the IT environment, the resources of participants or the organizational setup. The four-eye principle – meaning the strategic business unit and Corporate Sustainability – is mandatory, irrespective of whether the proposal phase is started by the strategic business unit, Corporate Sustainability or, in the case of an automated environment, IT logic.

Corporate Sustainability provides the strategic business unit with the portfolio overview at product and regional level either as an Excel workbook or via IT frontend. Sustainability information are included either from former reviews or via IT environment. To support the strategic business unit, Corporate Sustainability is entitled to propose a segmentation or to modify a segmentation proposal by the system and additionally indicate required data updates or checks. Corporate Sustainability can delegate its roles and tasks to the Sustainability Organization of an Operating Division. The strategic business unit must commit to check that each product is part of the official segmentation results and fulfill the criteria of <10% unassessed products as described in chapter 4.1. The assessment of products with no or very low sales in the running fiscal year can be omitted if the criteria described in the Preamble are fulfilled.

4.5. Segmentation and Data

The final segmentation of a product in its application and region is always an agreement between the strategic business unit and Corporate Sustainability.

Once a proposal has been made, all mandatory data need to be completed, either from the IT system or by one or more of the participants mentioned in chapter 4.3. Completion of all relevant data is the responsibility of the strategic business unit. The Sustainability Manager of the division is responsible for ensuring that all mandatory functions are able to participate in the segmentation and comment on or update required relevant assessment data during the review process. As soon as all products are segmented (max. 10% not assessed, see chapter 4.1) and relevant data are completed, Corporate Sustainability screens the input given. In case of

- *incomplete data*
- *unacceptable or wrong data*
- *disagreement on segmentation*

Corporate Sustainability requests updates and, if necessary, conducts an alignment workshop with relevant functions and regions of the strategic business unit. Nevertheless, Corporate Sustainability reserves the right to adjust or complete data to fulfill the quality criteria as described in the Preamble. In the unlikely event that the strategic business unit and Corporate Sustainability cannot agree, the final decision on the segmentation is made by Corporate Sustainability.

In practice: The sales of a solution shall be split if a solution is applied in different regions, applications, market segments or technologies that are segmented differently in terms of the solution's sustainability contribution, where material. Hence, a sales split is only required if a solution is attributed to more than one segment.

4.6. Segmentation Results

As soon as the review (or first segmentation) is completed and the data and segmentation fulfill the quality criteria of the present method, the related IT system is updated. Only confirmed data should be updated (see chapter 4.4), whereby neglectable or illogical data points can be modified by Corporate Sustainability. In all cases, the Sustainability Manager as well as Corporate Sustainability will be informed about the update by the IT system the day after the update.

4.7. Segmentation Documentation

After the portfolio assessment, as described under chapter 3, the finalized segmentation results are updated in the respective IT system and summarized in an Executive Summary. The Executive Summary covers statements about strengths and weaknesses of the reviewed portfolio, with respective analysis charts. Furthermore, measures and milestones are being defined where needed based on the segmentation result. For products identified as Monitored and Challenged a description of mitigation options and actions is mandatory in the related IT system (SMART). For products identified as Challenged, a separate Action Plan is required. For Pioneer solutions exemplary One Pagers should be provided for internal and external communication.

Note: With the transfer of the agreed and finalized Executive Summary from the Sustainability Representative (BU) to Corporate Sustainability, the Sustainability Representative confirms irrevocably the updated TripleS data in the IT system as well as the data and information written in the Executive Summary.

4.8. Roles and Tasks

As a rule, the following tasks are to be performed by the designated functions (Table 3):

Function	Task
Corporate Sustainability	○ *Start portfolio assessment with segmentation proposal Conduct briefing session* ○ *Challenge, check, (complete), review and confirm system and SBU data, mark with "yes"* ○ *Upload segmentation results of finalized Excel file or frontend mask in IT system* ○ *Decide on final segmentation*
(BU/SBU) Sustainability Representative	○ *Appoint (obligatory) participants in segmentation process* ○ *Organize, control and steer review process within the SBU according to present method* ○ *Schedule alignment workshop if necessary* ○ *Confirmation on proposals, provide rationales and consolidate SBU input* ○ *Update non-CSS related concerns if required* ○ *Mark each reviewed line (product/solution with a "yes"* ○ *Document all relevant information of review and its process* ○ *Provide finalized Excel file (or frontend mask) to Corporate Sustainability* ○ *Acknowledge data after updated in IT system* ○ *Finalize Executive summary including Action plans and Pioneer One Pager (if necessary) after final segmentation*
Product Steward/Regulatory	○ *Check data regarding regulatory relevance (substances of concern) given by IT system, add and/or update if required* ○ *Initially propose/ develop mitigation options for solutions with substances of concern (mandatory for Challenged)* ○ *Provide rationales regarding issues* ○ *Provide information to required documentation, especially Action Plan (mandatory for Challenged)*
Strategic Marketing and/or Technical Marketing and/or Product Management and/or Regional Product Management	○ *Screen portfolio on market/industry requirements* ○ *Provide rationales for all non-Standard solutions* ○ *Propose / develop actions and mitigation options for solutions with concern (Monitored or Challenged)* ○ *Provide and check market information, i.e., Benchmark, prio-sustainability category and other qualifiers (controversial business area, profitability, etc.)*

Note: Due to further developments within the IT environment, changes to the process, role and tasks may be adjusted without further notice. A reduction of manual data generation and segmentation by increasing automated data proposals (qualitative and quantitative) and even segmentation is seen as a mid-term goal by BASF.

5. TripleS Business Approach

Since 2013, TripleS allows the evaluation, interpretation and segmentation of the business portfolio on a regular basis. Generally, the results are included in the Strategic Controlling Report, the strategy of the strategic business unit as well as in the annual report of BASF. In addition, the strategic business units use TripleS to steer their portfolio towards a greater sustainability and actively promote the Sustainable-Future Solutions to BASF's customers.

5.1. Assessment Update or First-time Assessment

A review of the categorization of the portfolio shall be done at least every four years. Deviations from this review period in exceptional circumstances (e.g., due to upcoming or ongoing strategy review in a business unit's strategy development or structural changes, see also chapter 4.1), must be discussed and confirmed by Corporate Sustainability to ensure that BASF's portfolio is steered according to the company's strategic path.

Within the four-years timeframe, up-dates and/or first-time assessments of single solutions, part of the portfolio or the entire portfolio can be done at any time. Assessment proposals and/or data from the IT environment and/or Corporate Sustainability need to be confirmed by the strategic business unit before being validating as part of the year-end results. In any case, the Sustainability Manager of the strategic business unit is responsible for involving the relevant SBU functions as described in chapter 4.8.

New products/solutions that are assessed during the R&D phase (see appendix 1) are either part of the above-mentioned review process – if not yet assessed – or their R&D assessment needs to be confirmed by Corporate Sustainability. Missing but relevant data are to be completed by the Sustainability Manager of the strategic business unit or/and by the IT environment.

The obligation to document according to chapter 4.7 "Executive Summary" becomes valid if ≥50% of the portfolio in scope was reviewed or the last Executive Summary is more than four years old (fiscal year); exceptions are possible (see chapter 4.1).

Note: In the case of acquisitions, the first segmentation will be conducted in the fiscal year following closing if technically feasible. If this is not possible Corporate Sustainability, the respective business unit and Corporate Finance will align on an appropriate timeline.

5.2. Upgrade of Assessed Products

An expert meeting is required if the Check for Basic Sustainability Requirements was not passed because either a violation of the BASF Code of Conduct or a reputational risk was identified. The expert meeting is initiated by the strategic business unit that requests an upgrade. Corporate Sustainability is entitled to request confirmation that the reason for not passing the Check for Basic Sustainability Requirements has been solved to a level that would be accepted by local communities and NGOs. Depending on the reason, Corporate Sustainability is supported by the Chief Compliance Officer or other internal or external experts. A final upgrade confirmation is required from the Vice President level in Corporate Strategy or higher.

If the Check for Basic Sustainability Requirements was not passed is product/solution, specific, e.g., because it contains a concern substance above a certain threshold, the upgrade process can be conducted as part of a portfolio review. The strategic business unit confirms reformulation or a change of the regulatory or market environment, for example.

6. Appendix

BASF SE
Corporate Sustainability
written by: Dr. Wibke Lölsberg
Peter Kölsch
Ludwigshafen, May 30, 2023

Appendix 1 – TripleS Assessment in Research & Development

As TripleS was introduced at BASF with the aim of increasing our portfolio of innovative and sustainable solutions and the sustainability performance of the value chains we serve, it plays a fundamental role as a steering instrument towards innovation. As a consequence, we embed TripleS in our research and development process to foster innovation to develop new solutions supporting our portfolio sustainability ambition. The assessment process described below is closely aligned with the portfolio assessment method, ensuring consistency in the segmentation results. In addition, external stakeholder ambitions such as the Safe and Sustainable by Design (SSbD) concept as part of the EU Commission's Chemicals Strategy for Sustainability have been reflected to increase the future-proofing of our innovation pipeline.

The Innovation Process

The Innovation Process is applied to all innovation projects. It structures the innovation process into defined phases. Each phase is characterized by specific activities, and phases are separated by Gates. A Gate is a go or stop/kill decision point, guarding entrance into a (new) phase of the Innovation Chain.

Figure 5: High-level view of the innovation PhaseGate process.

The innovation activities in each phase are described below:

1. ***Opportunity Fields Phase****: identification of customer needs or strategic positioning challenges of BASF. Ideas turned into concepts (new technologies, partnerships, and business models).*
2. ***Business Case Phase****: the concepts generated are further refined and evaluated including technical aspects (regulatory and intellectual property aspects) as well as an economic evaluation. A project plan is developed, including, e.g., Milestones, Team Members, Gates, R&D Expenditures, Capital Expenditures (if applicable).*
3. ***Lab Phase****: new products, technologies, technical capabilities, or processes are developed in lab scale and cross-checked with all relevant internal or external stakeholders. The project plan is executed.*
4. ***Pilot Phase****: Transfer from lab to production scale. Launch concept is developed. The investment process for a new production plant or engineering changes has started. Data and assumptions prepared in previous phases are updated. The project plan is executed.*
5. ***Launch Phase****: launch plan implementation (introduction of the innovation into the market and/or implementation of process improvements).*

Various Innovation Processes, also called Process Models, are applied depending on the aspect, type, and scope of the individual innovation project. The sustainability assessment is required for all relevant the Process Models.

Roles and Responsibilities for Data Management

The sustainability assessment follows the four-eyes principle, with the involvement of the Project Manager, OD Sustainability Manager, representatives from IT and Corporate Sustainability.

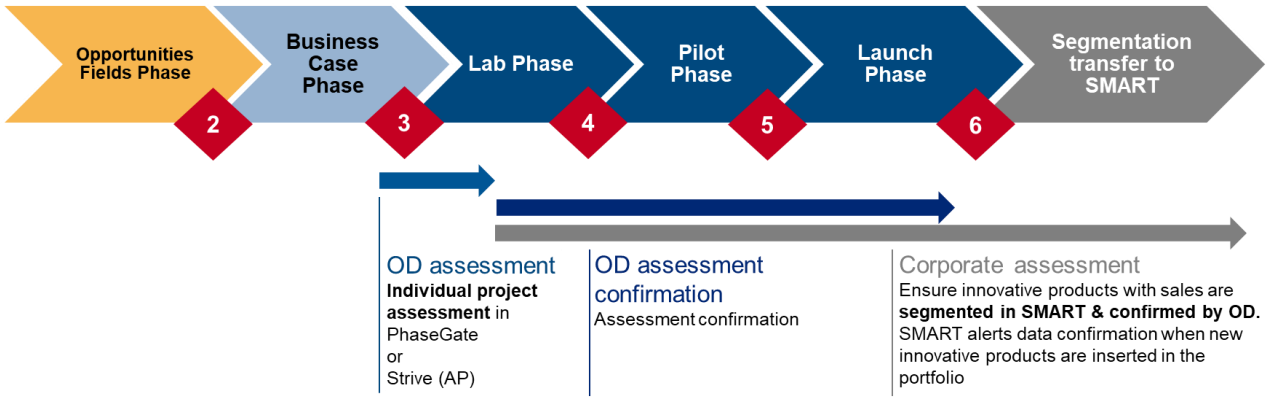

Figure 6: Roles and responsibilities for the TripleS sustainability assessment along the innovation chain.

For Gate 3 and onwards, the OD Project Manager is accountable for the sustainability evaluation, which is then to be entered and maintained as sustainability data in PhaseGate. The OD Sustainability Manager must be involved in the assessment, ensuring objectivity of the evaluation with the four-eyes principle.

For the whole project duration, the Project Manager or the Sustainability Manager shall review and update the assessment. At the last Gate of the process model, prior to launch, the Sustainability Manager is required to finally confirm the sustainability assessment in PhaseGate, which will then be frozen. Once the first sales of the PRD or PBG are generated, the sustainability assessment is transferred to SMART. In order to qualify the transferred information in SMART, data input is checked and confirmed by Corporate Sustainability and the OD Sustainability Manager. After this check (data completeness and correctness), the innovation product of the respective PRD or PBG is officially reviewed according to TripleS criteria.

TripleS-based Sustainability Assessment Process in R&D

The two-stage assessment is to be applied for all R&D activities where a TripleS-based sustainability assessment is conducted and reported.

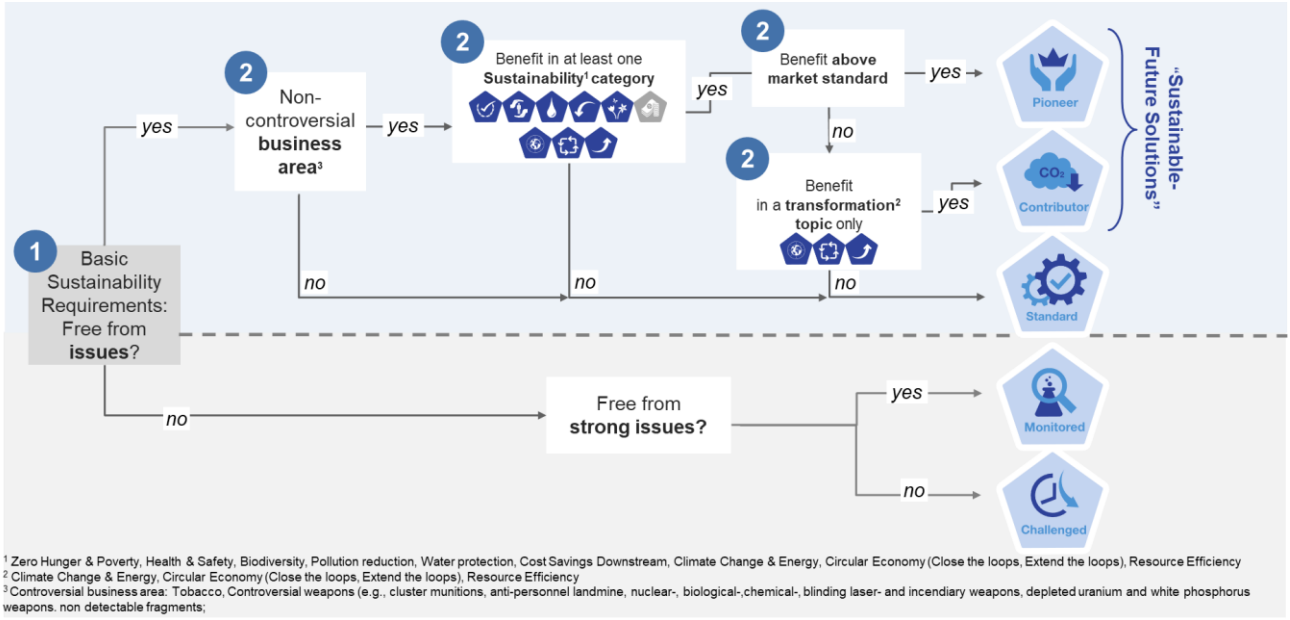

Figure 7: TripleS-based R&D assessment – process flow.

First the “check for basic sustainability” requirements should be conducted to identify whether an issue is associated with an R&D activity. Two dedicated decision trees are provided that differ according to the type of innovation (product or process):

Product Innovation

New or improved products, new applications or breakthrough products (not available within or outside BASF) that are an outcome of R&D budget spend are considered as Product Innovations. If several applications are in scope of the innovation, the assessment should be done based on the most sensitive intended user group, i.e., where the strictest measures for safety apply.

Process Innovation

New or improved production processes for existing products that are an outcome of R&D budget spend are considered as Process Innovations. In case several configurations of the process are in scope of the innovation, the assessment should be done based on the most sensitive configuration, i.e., where the strictest measures for safety apply.

If the project contributes to both innovation types, the decision tree for the most relevant innovation type should be used for the check for basic sustainability requirements. The sustainability assessment is transferred to SMART only for projects resulting in a new product with a related PRD.

The two decision trees presented below should be used to support the sustainability assessment of R&D activities. In early R&D phases, some aspects to be considered in the assessment may remain uncertain. Therefore, expert judgement, e.g., based on assumptions on structural similarities, modelling or initial screening results, can be used to answer the questions in the decision trees. Questions which cannot be answered yet, shall be addressed as soon as possible. The sustainability assessment in PhaseGate remains open for modification until the launch of the activity, thus allowing for up-dates once additional knowledge has been gained.

Check for Basis Sustainability Requirements

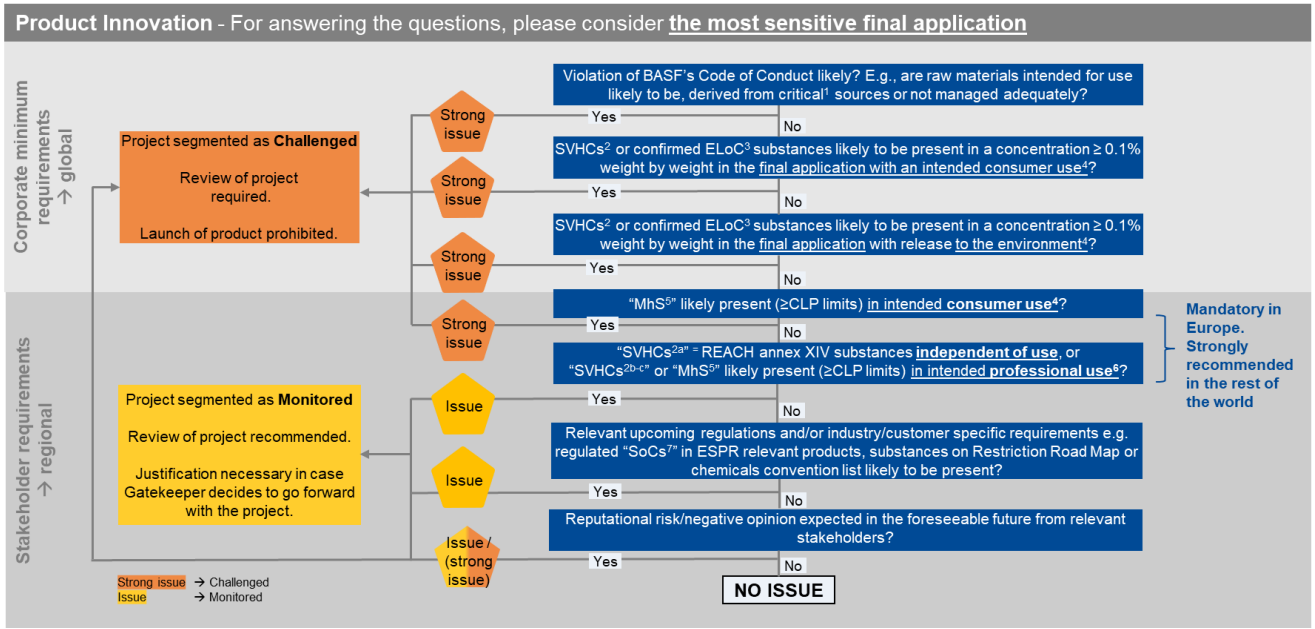

Figure 8: Decision tree towards “check of basic sustainability requirements” for product innovations.

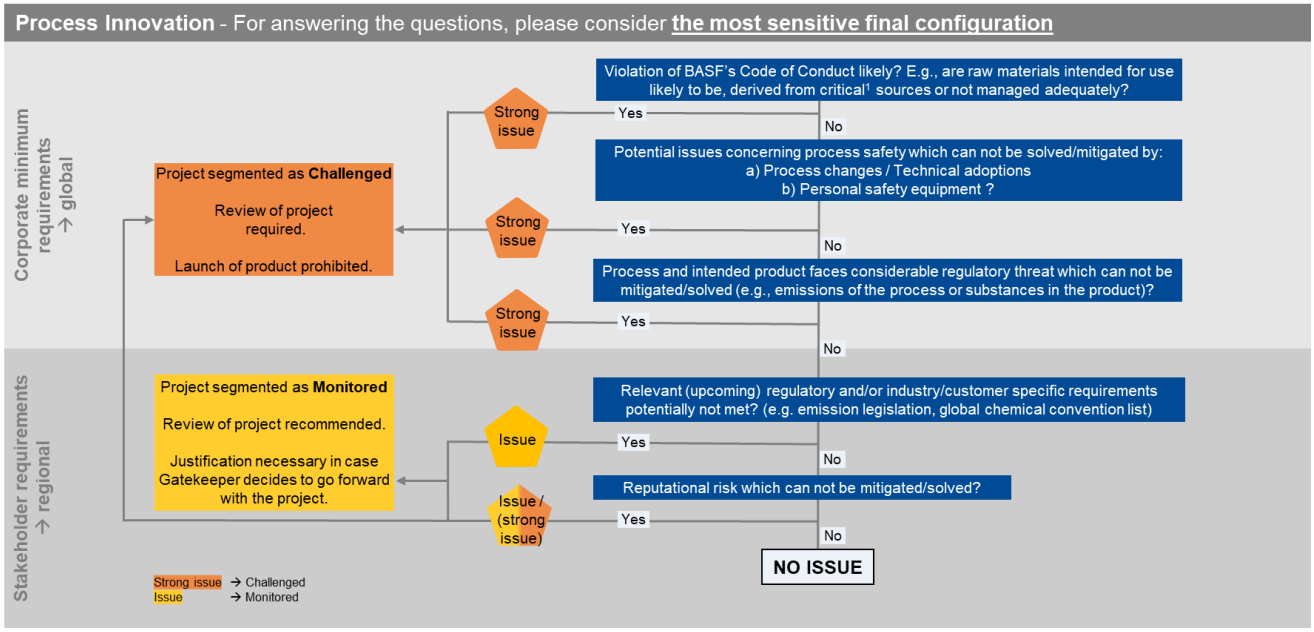

Figure 9: Decision tree towards "check of basic sustainability requirements" for process innovations.

**If Challenged in one region, strongly advised segmentation as Monitored in other regions at best*

1) E.g. "non sustainably sourced renewable raw materials (e.g. castor oil, palm oil and derivatives, etc.) and 'conflict minerals'
2) For this assessment of Substances of Very High Concern (SVHC) the following clusters are considered:
a) SVHC according to REACH authorization list (Annex XIV)
b) SVHC according to REACH candidate list
c) SVHC substances as defined by CSS and anticipated to be valid in 2027, covering the following hazards:
- *Substances classified as carcinogenic, mutagenic or toxic to reproduction (CMR) according to hazard categories 1A and 1B of the Harmonized Classification, Labelling and Packaging (CLP) Regulation.*
- *Substances classified as persistent, bio-accumulative and toxic (PBT) or very persistent and very bio-accumulative (vPvB) according to the CLP Regulation.*
- *Substances determined as persistent, mobile and toxic (PMT) or very persistent and very mobile (vPvM) according to the CLP Regulation.*
- *Substances fulfilling criteria as endocrine disruptors cat. 1 (ED) according to the CLP regulation.*

3) Substances with confirmed equivalent level of concern (EloC) to CMR cat. 1A and 1B, PBT/vPvB, PMT/vPvM or ED cat. 1 according to Article 57(f) of the REACH Regulation.
4) Relevance according to REACH Use Descriptor System; solution intended for consumer uses and solution with potential release into the environment.
5) MhS: Group of so-called Most harmful Substances. For details see chapter 3.4.3
6) Relevance according to REACH Use Descriptor System; solution intended for professional uses.
7) SoC: Group of so-called Substances of Concern. For details see chapter 3.4.3

For Agricultural Solutions:
Agrochemical products consist of active ingredients (ai) and non-active ingredients. The classification of agrochemical projects regarding their chemical risk is a combination of the assessment of the active ingredients and non-active ingredients.
The registrability and the long-term marketability is the clear goal of each R&D project. Along the different stages of the R&D process, only results of indicator studies are available in early phases and in the advanced phases results of guideline studies can be used. To guide decision making, for the a.i. a list of criteria is used to assess human and environmental safety.
For Co-formulants the "Sustainable Co-Formulant Guidance" is applied as guiding principles. They contain the most relevant aspects allowing BASF to register sustainable products worldwide. In case not all criteria are fulfilled for decision making registrability in the target markets is checked with internal assessments based on risk assessment schemes from high regulation countries like e.g. USA.

Figure 10: Footnotes related to Figures 8 and 9.

If an issue is identified, a segmentation as Monitored and Challenged results, depending on the severity of the issue. Regarding the reputational risk: topics posing a threat to the company's business in all regions can be defined by the BASF Board of Directors. In such cases, a down-grade as Challenged of respective products is possible. In all other cases a classification as Monitored would result.

For all projects where no issue was identified, the "Check for Sustainability Contribution" will support deriving the respective segmentation as well as the most relevant areas of sustainability contribution.

Check for Sustainability Contribution

Innovations for which no issue is identified, will qualify as "Standard" at a minimum. Through the "Check for Sustainability Contribution" the innovation is checked for its potential sustainability benefit, if viable. As a first step, it is excluded that an innovation is intended to serve a controversial business area (see chapter 3.5.1).

As a next step, the potential contribution of the innovation to the sustainability categories is evaluated. Eight sustainability categories are defined as relevant (see chapter 3.5.3.): Climate Change & Energy, Resource Efficiency, Circular Economy, Pollution Reduction, Water Protection, Biodiversity, Zero Hunger & Poverty, Health & Safety. The ninth category, "Cost savings downstream," covers the economic aspect of sustainability and can only be selected in combination with one of the eight relevant categories (see also chapter 3.5.3).

Three out of the eight relevant sustainability categories, categories I, II and III (see table in chapter 3.5.3.), contribute to the transformation topics that are currently of highest relevance to balance the use of available carbon-based resources within the planet's boundaries to regenerate. Consequently, emphasis of contributions to these three categories is increased by evaluating them for solutions entitled to be segmented as Contributor and Pioneer. Sustainability categories IV to VIII will only be evaluated for solutions entitled to be segmented as Pioneer.

A sustainability contribution is generally regarded as substantial if it is essential for enabling the sustainability benefit in the life cycle. A sustainability category is generally considered relevant if it addresses a sustainability issue that may reasonably be considered important in the solution's life cycle. If a solution has significant negative impacts in at least one relevant sustainability category along the value chain, the solution should be segmented as Standard (chapter 3.5.4).

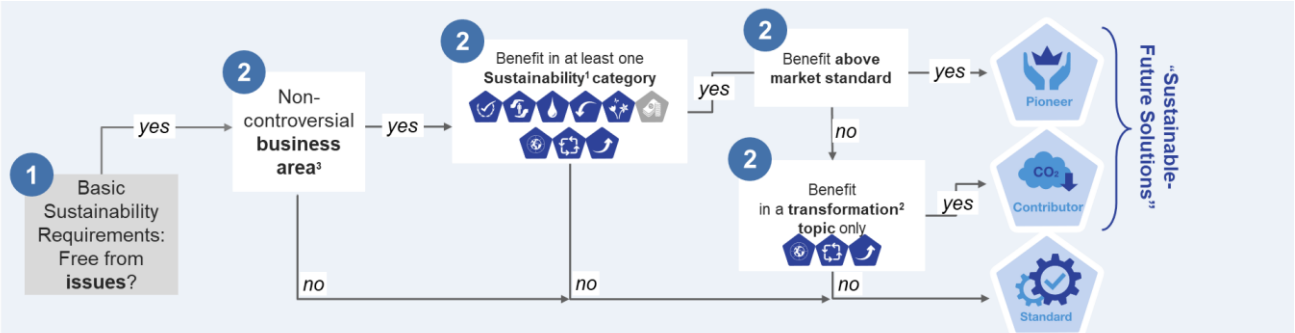

Figure 11: Check for Sustainability Contributions.

Mandatory Data for Sustainability Steering of Projects in PhaseGate

PhaseGate is the single point of truth for all data and information about Innovation Projects funded by R&D Budget. For all Gate decisions, the status of the sustainability assessment needs to be transparent

for the respective Gatekeeper, allowing for informed decision taking regarding the proceeding of the innovation project.

With Gate 3, a set of mandatory “Corporate Data for Sustainability” are required, aiming at strategic steering, corporate reporting, and budgeting. For compliance, the following are needed:

- *All data that identify/describe the project as, e.g., Project Number, Title, Goal*
- *The relevant people, e.g., Project Manager, Gatekeeper*
- *All data providing information on the status of the project, e.g., start/end date, gate(s), gate date(s), gate decision(s), current phase, process model*
- *All relevant sustainability data for steering and reporting, e.g., sustainability segmentation, innovation Type, etc.*

The documentation in PhaseGate is limited to data input needed for Group-wide reporting and budgeting. This includes summing up multiple Innovation Projects in one PhaseGate project.

Year-end Closing Procedures

Key figures from TripleS are included in BASF’s annual report.

In addition to the total annual R&D expenses at BASF Group level, BASF discloses the share of R&D expenses used to develop solutions with a sustainability contribution in alignment with the definition of “Sustainable-Future Solutions.”

The related R&D expenses on individual project level are consolidated with net expenses or share of Sustainable-Future Solutions. The distribution of expenses to the different operating divisions can be part of the Management’s Report, allowing for respective innovation steering.

Appendix 2

Code of Conduct

All languages - Find out more - Code of Conduct - Compliance (basf.net)

Supplier Code of Conduct

Supplier Code of Conduct - Compliance - How we work - About us - FP Portal (basf.net)

Appendix 3 - Human Health Criteria According to CLP Regulation

Carcinogens, hazard categories 1A and 1B

Category 1A: known to have carcinogenic potential for humans, classification is largely based on human evidence, or

Category 1B: presumed to have carcinogenic potential for humans, classification is largely based on animal evidence.

Germ cell mutagens, hazard categories 1A and 1B

Category 1A: The classification in Category 1A is based on positive evidence from human epidemiological studies. Substances to be regarded as if they induce heritable mutations in the germ cells of humans.

Category 1B: The classification in Category 1B is based on:

- positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals; or
- positive result(s) from in vivo somatic cell mutagenicity tests in mammals, in combination with some evidence that the substances have potential to cause mutations to germ cells. It is possible to derive this supporting evidence from mutagenicity/genotoxicity tests in germ cells in vivo, or by demonstrating the ability of the substance or its metabolite(s) to interact with the genetic material of germ cells; or
- positive results from tests showing mutagenic effects in the germ cells of humans, without demonstration of transmission to progeny; for example, an increase in the frequency of aneuploidy in sperm cells of exposed people.

Reproductive toxicants, hazard categories 1A and 1B

Category 1A: Known human reproductive toxicant. The classification of a substance in Category 1A is largely based on evidence from humans.

Category 1B: Presumed human reproductive toxicant. The classification of a substance in Category 1B is largely based on data from animal studies. Such data shall provide clear evidence of an adverse effect on sexual function and fertility or on development in the absence of other toxic effects, or if occurring together with other toxic effects the adverse effect on reproduction is considered not to be a secondary non-specific consequence of other toxic effects. However, when there is mechanistic information that raises doubt about the relevance of the effect for humans, classification in Category 2 may be more appropriate.

Endocrine disruptors for human health, hazard category 1

Category 1: Known or presumed endocrine disruptors for human health. The classification in Category 1 shall be largely based on evidence from at least one of the following:

(a) human data;
(b) animal data;
(c) non-animal data providing an equivalent predictive capacity as data in points a or b.

Such data shall provide evidence that the substance meets all the following criteria:

(a) endocrine activity;
(b) an adverse effect in an intact organism or its offspring or future generations;

(c) a biologically plausible link between the endocrine activity and the adverse effect.

However, where there is information that raises serious doubt about the relevance of the adverse effects to humans, classification in Category 2 may be more appropriate.

Appendix 4 - Environmental Criteria According to CLP Regulation

Endocrine disruptors for the environment, hazard category 1

Category 1: Known or presumed endocrine disruptors for the environment. The classification in Category 1 shall be largely based on evidence from at least one of the following:

(a) animal data;

(b) non-animal data providing an equivalent predictive capacity as data in point (a).

Such data shall provide evidence that the substance meets all the following criteria:

(a) endocrine activity;

(b) an adverse effect in an intact organism or its offspring or future generations;

(c) a biologically plausible link between the endocrine activity and the adverse effect.

However, where there is information that raises serious double about the relevance of the adverse effects at the population or at subpopulation level, classification in Category 2 may be more appropriate.

PBT substances

A substance shall be considered a PBT substance when it fulfils the persistence, bioaccumulation and toxicity criteria.

Persistence:

A substance shall be considered to fulfil the persistence criterion (P) where any of the following conditions is met:

(a) the degradation half-life in marine water is higher than 60 days;

(b) the degradation half-life in fresh or estuarine water is higher than 40 days;

(c) the degradation half-life in marine sediment is higher than 180 days;

(d) the degradation half-life in fresh or estuarine water sediment is higher than 120 days;

(e) the degradation half-life in soil is higher than 120 days;

Bioaccumulation:

A substance shall be considered to fulfil the bioaccumulation criterion (B) where the bioconcentration factor in aquatic species is higher than 2000.

Toxicity:

A substance shall be considered to fulfil the toxicity criterion (T) in any of the following situations:

(a) the long-term no-observed effect concentration (NOEC) or ECx (e.g., EC10) for marine or freshwater organisms is less than 0,01 mg/l;

(b) the substance meets the criteria for classification as carcinogenic (category 1A or 1B), germ cell mutagenic (category 1A or 1B), or toxic for reproduction (category 1A, 1B, or 2);

(c) there is other evidence of chronic toxicity, as identified by the substance meeting the criteria for classification: specific target organ toxicity after repeated exposure (STOT RE category 1 or 2);

(d) the substance meets the criteria for classification as endocrine disruptor (Category 1) for humans or the environment

vPvB substances

A substance shall be considered a vPvB substance when it fulfils the persistence and bioaccumulation criteria.

Persistence:

A substance shall be considered to fulfil the ‘very persistent’ criterion (vP) where any of the following conditions is met:

(a) the degradation half-life in marine, fresh or estuarine water is higher than 60 days;
(b) the degradation half-life in marine, fresh or estuarine water sediment is higher than 180 days;
(c) the degradation half-life in soil is higher than 180 days.

Bioaccumulation:

A substance shall be considered to fulfil the ‘very bioaccumulative’ criterion (vB) where the bioconcentration factor in aquatic species is higher than 5 000.

PMT substances

A substance shall be considered a PMT substance when it fulfils the persistence, mobility and toxicity criteria.

Persistence:

A substance shall be considered to fulfil the persistence criterion (P) in any of the following situations:

(a) the degradation half-life in marine water is higher than 60 days;
(b) the degradation half-life in fresh or estuarine water is higher than 40 days;
(c) the degradation half-life in marine sediment is higher than 180 days;
(d) the degradation half-life in fresh or estuarine water sediment is higher than 120 days;
(e) the degradation half-life in soil is higher than 120 days.

Mobility:

A substance shall be considered to fulfil the mobility criterion (M) when the log K_{oc} is less than 3. For an ionizable substance, the mobility criterion shall be considered fulfilled when the lowest log K_{oc} value for pH between 4 and 9 is less than 3.

Toxicity:

A substance shall be considered to fulfil the toxicity criterion (T) in any of the following situations:

(a) the long-term no-observed effect concentration (NOEC) or ECx (e.g., EC10) for marine or freshwater organisms is less than 0,01 mg/l;
(b) the substance meets the criteria for classification as carcinogenic (Category 1A or 1B), germ cell mutagenic (Category 1A or 1B), or toxic for reproduction (Category 1A, 1B, or 2);
(c) there is other evidence of chronic toxicity, as identified by the substance meeting the criteria for classification as specific target organ toxicity after repeated exposure (STOT RE category 1 or 2);
(d) the substance meets the criteria for classification as endocrine disruptor (Category 1) for human health or the environment.

vPvM substances

A substance shall be considered a vPvM substance when it fulfils the persistence and mobility criteria.

Persistence:

A substance shall be considered to fulfil the ‘very persistent’ criterion (vP) in any of the following situations:

(a) the degradation half-life in marine, fresh or estuarine water is higher than 60 days;

(b) the degradation half-life in marine, fresh or estuarine water sediment is higher than 180 days;

(c) the degradation half-life in soil is higher than 180 days.

Mobility:

A substance shall be considered to fulfil the ‘very mobile’ criterion (vM) when the log K_{oc} is less than 2. For an ionizable substance, the mobility criterion shall be considered fulfilled when the lowest log K_{oc} value for pH between 4 and 9 is less than 2.

Appendix 5 – Materiality Analysis

In 2022, we updated our materiality analysis, which was conducted for the first time in 2007. Based on the latest analysis, our material topics were still in accordance with the sustainability categories of the TripleS methodology.

To identify the topics that are material for BASF, we developed a new process in 2022 that reflects the recent changes in frameworks and regulations. We are using the concept of double materiality, which acknowledges the two dimensions of impact materiality and financial materiality and considers positive and negative impacts along the value chain. To follow BASF's strategic path and to focus even more closely on the transformation toward less or net-zero CO_2 emissions, we separated the sustainability categories "Resource Efficiency," "Climate Change & Energy" and "Circular Economy" and also used them as qualifiers for products classified as "Contributor" instead of "Standard."

Details of our sustainability categories as an outcome from the above-mentioned materiality analysis can be found in chapter 3.5.3.

Appendix 6 – Year-end Closing and Reporting

Year-end Closing Procedures (Sales Portfolio)

Key figures from TripleS are part of BASF's annual report. BASF's third-party auditor conducts an assurance engagement on all disclosures on Sustainable-Future Solution sales, one of BASF's nonfinancial key performance indicators. Sustainable-Future Solution sales are a steering-relevant indicator, and their forecast can be part of the Management's Report and are thus covered by the annual audit.

For the year-end closing procedure for R&D activities, see Appendix 1.

Scope

The scope of the relevant non-financial reporting figures for TripleS is described in chapter 3.3.1

In comparison to the BASF Group consolidated financial statements in accordance with International Financial Reporting Standards (IFRS), which also apply to the TripleS statement, the consolidated statement of net sales of Sustainable-Future Solutions is on product rather than company level.

The related net sales volume data on product level are summarized and reported for each category (Pioneer, Contributor, Standard, Monitored and Challenged), whereby the net sales or percentages of Sustainable-Future Solutions that are defined as KPI are the focus for strategic steering measures. The segmentation and the respective sales to third parties by the year closing of the relevant IT system are relevant as fiscal year-end results and for annual reporting and not the solutions sales and their segmentation within the fiscal year.

Reporting Content

Besides the total sales (or their percentage of total sales in scope) of solutions classified as Sustainable-Future Solutions, BASF discloses the sales (or their percentage of total sales in scope) for all categories defined in the present manual.

In addition, BASF discloses the total sales (or the percentage of total sales) in scope which, as described above, can differ from the sales of BASF Group, the number of assessed products in their applications as well as the percentage assessed compared with the sales in scope (relevant portfolio for TripleS).

The disclosed data of the year-end TripleS results are on BASF Group level. External reporting on BASF segment or regional level is not required. A forecast for total sales of Sustainable-Future Solutions can be provided at BASF Group level.