



Safe-and Sustainable-by-design (SSbD): *Motivación Política y Estratégica*

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Agenda:

- Defining SSbD
- Policy initiatives
 - **OECD** -WPMN *Safe and Sustainable Innovation Approach Steering Group*
 - **OECD** -WPMN *Advanced Materials Steering Group*
 - **SPINE** - *The Safe-and-Sustainable-by-Design Policy International Network*
- SSbD relevant projects with policy implications
 - **IRISS** - *International ecosystem for accelerating the transition to Safe-and-Sustainable-by-Design materials, products and processes*
 - **PARC** - *European Partnership for the Assessment of Risks from Chemicals*



What is SSbD?

At this stage, **safe-and-sustainable-by-design** can be defined as a **pre-market approach** to chemicals that focuses on providing a function (or service), while **avoiding** volumes and chemical properties that may be **harmful to human health or the environment**, in particular groups of chemicals likely to be (eco) toxic, persistent, bio-accumulative or mobile.

Overall **sustainability** should be ensured by **minimizing** the **environmental footprint** of chemicals in particular on **climate change**, **resource use**, **ecosystems** and **biodiversity** from a **lifecycle perspective**.

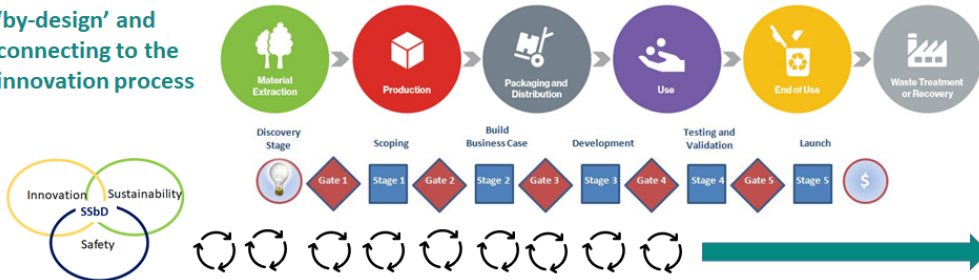


Marco de la Estrategia para la Sostenibilidad Química

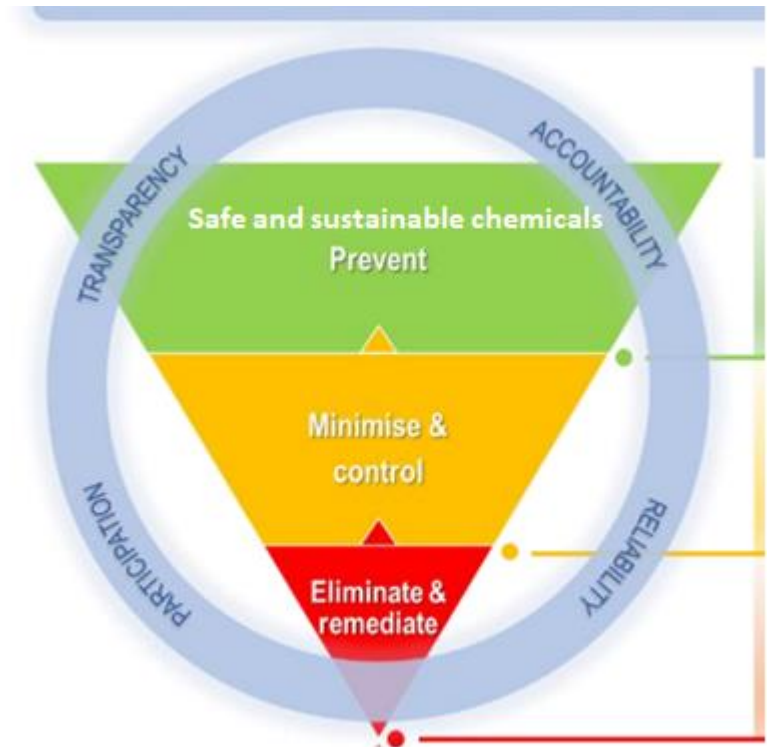
A change in mindset



'by-design' and connecting to the innovation process



Safe-and-Sustainable-by-Design: focus on safety and sustainability from the design phase

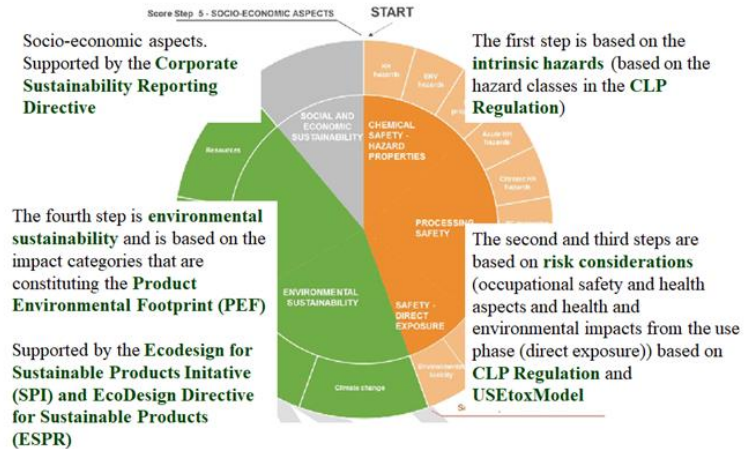


EC-JRC SSbD Framework

1. (Re)design Phase in which design guiding principles and indicators are proposed to support the design of chemicals and materials



2. Safety and Sustainability Assessment Phase



The first reporting period of the SSbD framework testing phase is now open for eight weeks, until 30 June 2023

Feedback can be provided on:

- SSbD promoting activities
- Possible case studies to test the framework
- General feedback on SSbD framework
- Feedback on the reporting template

https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/key-enabling-technologies/chemicals-and-advanced-materials/safe-and-sustainable-design_en



EC JRC framework, 2022

<https://data.europa.eu/doi/10.2760/487955>

SSbD relevant policy initiatives



What is the Safe(r) and Sustainable Innovation Approach (SSIA)?



- **SSIA** combines the **Safe-and-Sustainable-by-Design** and **Regulatory Preparedness** concepts in order to **identify and minimize** the possible **health and environmental risks**, and **sustainability impacts** of innovative materials, products, applications, and processes in a **timely manner** during the innovation process.

- **SSIA** addresses regulatory requirements for safety and sustainability, including any necessary adaptations to cover the specific properties of materials or technologies. SSIA thus relies on **dialogue between industry and regulators** and, **as appropriate, other stakeholders**. This dialogue ideally starts at an **early stage of the innovation process** and is facilitated by a Trusted Environment.

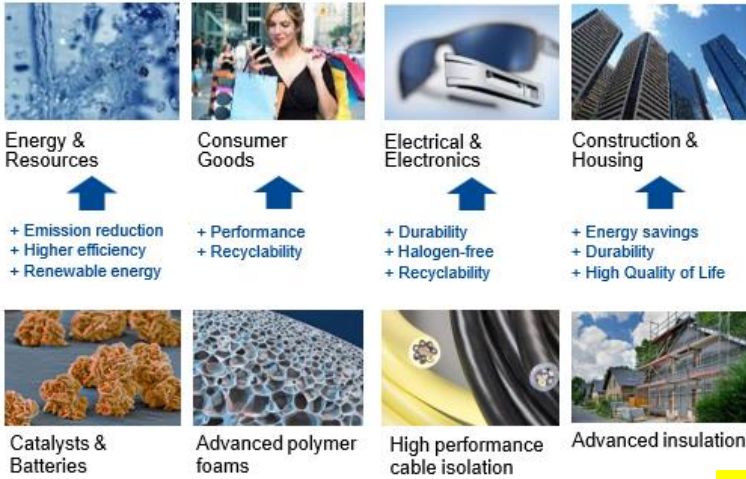
➤ **Public Webinar on SSbD Tools of Nano**

• Following the completion of the inventory of integrative tools and assessment: organise a public webinar (2nd half 2023)



<https://oe.cd/ssia>

Regulatory Preparedness in practice – Advanced Materials



Energy & Resources
+ Emission reduction
+ Higher efficiency
+ Renewable energy

Consumer Goods
+ Performance
+ Recyclability

Electrical & Electronics
+ Durability
+ Halogen-free
+ Recyclability

Construction & Housing
+ Energy savings
+ Durability
+ High Quality of Life

Catalysts & Batteries

Advanced polymer foams

High performance cable isolation

Advanced insulation

Image from AMI2030, www.ami2030.eu

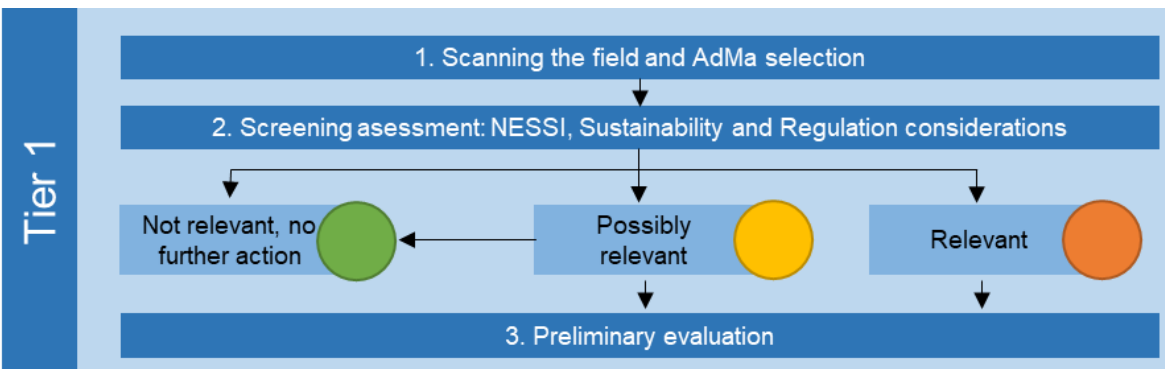
- Backbone and source of prosperity of an industrial society
- Crucial role for enabling green and digital transition.
- Key driver for innovation and creating new opportunities on multiple dimensions and sectors.



Early4AdMa:

- tool in **anticipatory risk governance** approach to allow for **timely identification of potential safety and sustainability issues**, and decision-making

OECD seminar Wed 4th of October 2023, time and details TBD

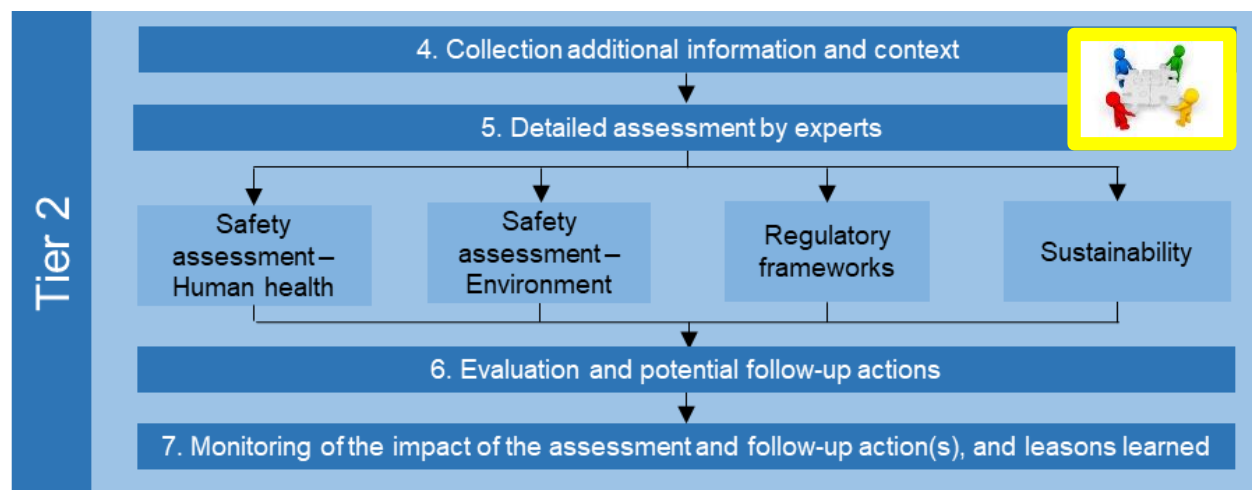


Early4AdMa Brochure: a thought starter developed by RIVM, BfR, BAuA and UBA

References: Early4AdMa - <https://www.rivm.nl/documenten/Early4AdMa-brochure>

NESSI: Novelty, Exposure, Severity, Scope, Immediacy; (Schwirn et al. 2021;

<https://www.umweltbundesamt.de/en/publikationen/risk-governance-of-advanced-materials>



SPINE Network

What is SPINE?

- Safe-and-Sustainable-by-Design (SSbD) Policy International Network
- Informal network for European policy makers
- Share knowledge and exchange expertise about SSbD concept development and implementation for new and emerging technologies
- SPINE is a consultative body for the promotion and support of safe and sustainable new technological developments and materials
- **Objective: Contribute to a safe and sustainable economy**

Participating Countries

- Austria
- Denmark
- Estonia
- Germany
- Netherlands
- Spain
- Sweden
- Switzerland
- UK



Spain: Maria Luisa Fernández Cruz - Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria
For more information please contact Rene Korenromp (rene.korenromp@minienw.nl) or Cornelle Noorlander (cornelle.noorlander@rivm.nl)



SSbD relevant projects with policy implications



IRISS: EU-led SSbD International Network



Towards an efficient science-policy-industry interface

Building structural and efficient information sharing process and network



Science:

- Initial steps on operationalization of SSbD
- IRISS-NSC collaboration
 - IRISS-PARC collaboration
 - IRISS-ongoing H2020 and HE projects
- Bringing science to harmonization and standardization
- IRISS-OECD synergies



Policy:

- IRISS structural dialogue with:
- EC RTD
 - EC JRC



Industry:

Cefic coordinates SusChem NTPs and 6 value chains representatives

- **Packaging** (IPC; Industrial Technical Centre for Plastics and Composites)
- **Textiles** (ETP; EU Technology Platform for the Future of Textiles & Clothing)
- **Construction chemicals** (EFCC; European Federation for Construction Chemicals)
- **Automotive** (CLEPA; European Association of Automotive Suppliers)
- **Energy materials** (EMIRI; Energy Materials Industrial Research Initiative)
- **Electronics** (INL; International Iberian Nanotechnology Laboratory)
- **Fragrances** (IFRA; The International Fragrance Association)

Development of VC-specific SSbD supportive roadmaps with agendas for:

- research needs
- skills, competences and education needs, and
- knowledge and information sharing needs

Translate the VC specific SSbD supportive road maps to a generalized roadmap.

- Mapping Value Chain Stakeholders,
- Identifying main safety and sustainability challenges
- Providing recommendations on how to bring SSbD to practical applicability



IRISS: EU-led SSbD International Network



Workshop - on the application of Safe and Sustainable by Design in materials and chemicals
9:00-13:00 CET

The project receives funding from the European Union's HORIZON EUROPE research and innovation programme under grant agreement n° 101058245
UK participants in Project IRISS are supported by UKRI grant 10038816*



<https://events.blackthorn.io/0Y35EBM7/4a1h07wqWX>

- An overview of mapping on SbD in chemicals and materials
- Information on SbD tools can be used to define SSbD
- How sustainability can be evaluated at design phase of the products and process development
- Value chain perspective on implementation of SSbD



IRISS: EU-led SSbD International Network

Main safety and sustainability challenges & opportunities

IRISS SME SSbD Training
Friday, 22 September 2023



www.iriss-ssbd.eu



Value Chain	Criticality/ resources	Safety	Environmental Impact	Social Impact	Circularity/ Recyclability
Packaging		X (hazardous additives)	X (microplastics)		X (effective sorting and production of monomaterials)
Textiles	X (soil and water; traceability)	X (dyeing natural fibres; PFAS, and flame retardants; microplastics)	X (processing chemicals and effluents)	X (basic labour rights)	X (persistence of textile fibres & chemicals; landfill recycling)
Construction	X (CMR superplasticizers)		X (energy-, CO ₂ - and water savings)		X (recycling, circularity)
Automotive	X (material restrictions; traceability)		X (microplastics from tyres; high CO ₂ emissions)		X (trade-off durability vs recyclability)
Energy	X (high demand of critical raw materials)	X (hazardous materials, VC perspective)	X (high CO ₂ emissions, water, chemicals and waste)	X (skilled workforce)	X (securing access to secondary raw materials)
Electronics	X (resource intensive)	X (often toxic gases, solvents, and solutions)	X (high energy, water, e-waste)	X (low-income countries for dismantling and processing)	X (difficult separating for recycling; high consumer demand)

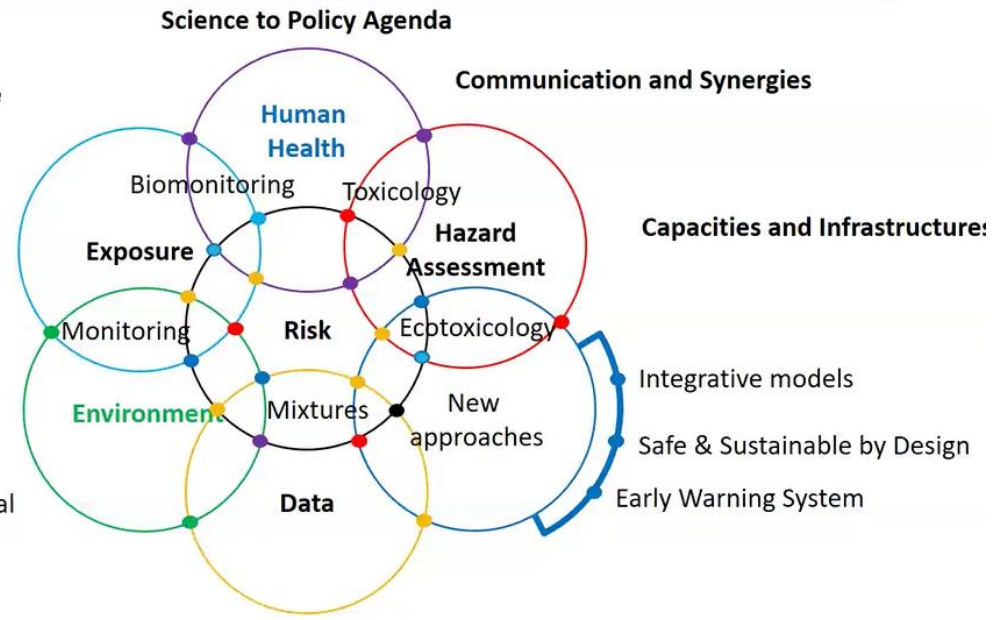


Next Generation Risk Assessment

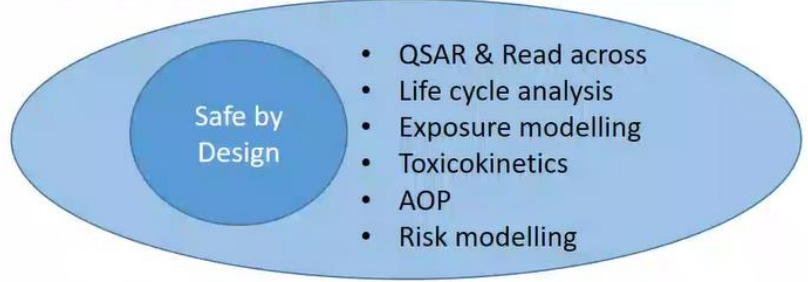
European Partnership for the Assessment of Risks from Chemical

Spirit of PARC

- To develop **strong networks**
- To **co-create** and **collaborate**
 - Projects
 - Case studies
- To **enhance communication**
- To **share** common
 - Data
 - Methods
 - Tools
 - Knowledge
- To **participate** in international harmonization process



- PARC Activities**
- Translate EC SSbD criteria & methodology towards operationalisation
 - SSbD Toolbox development, testing and implementation



- Sustainability Assessment**
- ✓ Values and principles
 - ✓ Targets : science & Policy based
 - ✓ Decision context
 - ✓ Methodological choices



SSbD toolbox





Next Generation Risk Assessment

European Partnership for the Assessment of Risks from Chemical

MAKING CHEMICALS AND MATERIALS SAFE AND SUSTAINABLE TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT.

SAFE AND SUSTAINABLE BY DESIGN BOOT CAMP

The Joint Research Centre (JRC) - the European Commission's (EC) science and knowledge service - in collaboration with the Partnership for the Assessment of Risks from Chemicals (PARC) are pleased to announce the first edition of the 'Safe and Sustainable by Design' (SSbD) Boot Camp programme.



When:
25-27 October 2023
Wednesday 14:30 CEST - Friday 14:30 CEST

Where:
EC Joint Research Centre,
Ispra, Italy

Who should attend?
Researchers and Practitioners
with relevant technical-
scientific background

Language:
English



Why this Training School?

The development of 'safe and sustainable by design' (SSbD) chemicals and materials is key for the transition towards climate neutrality, a circular economy and zero pollution/toxic free ambition of the European Green Deal. In December 2022, the EC published a Recommendation establishing a European assessment framework for SSbD chemicals and materials. The framework for the first time puts together safety and sustainability dimensions. It presents the aspects and indicators to be considered, as well as the methods and tools that can be used in the different steps of the SSbD assessment. In addition, the framework proposes a tiered approach to consider these dimensions from the beginning of the R&I and with a life cycle perspective.

The European Partnership PARC aims to develop scientifically robust assessment methods and tools in order to promote innovation in chemical risk assessment, including the development of a toolbox to support implementation of the EU SSbD framework. Representatives of PARC will share their experiences on method and tools development relevant for SSbD during the event.

This Boot Camp will provide you with a unique opportunity to get fundamental insights in SSbD thinking, learn about the EU SSbD framework from experts in the field, share knowledge and experience, and become part of the growing SSbD community.

What is on offer for you?

Two full days of a highly engaging and interactive programme including presentations by experts in key SSbD fields and with breakout sessions for discussion on specific topics.

The programme will focus on the SSbD framework. The programme will build on the SSbD thinking, starting with the background of the EU framework. The participants will learn about the concepts and assessment methods described in the framework (i.e. hazard assessment, exposure assessment, risk assessment, environmental sustainability assessment, and social and economic sustainability assessment). In the break out sessions participants will have the opportunity to engage in discussions on real case studies, exchange knowledge and critically reflect on the different aspects of the SSbD concept to propose solutions to the identified challenges.

Who can participate?

The attendance is open to anyone interested in the SSbD framework implementation with a **technical-scientific background** (considering the emphasis on the technical elements of the framework).

*Background in one of the areas is required: hazard assessment (human health and/or environment), exposure assessment, risk assessment, environmental sustainability assessment (Life Cycle Assessment), social sustainability assessment, economic sustainability assessment.

The **maximum number** of participants is **30**.

How to apply?

By sending:

- a short CV demonstrating your scientific/technical background and
- a motivation letter.

To: jrc-ssbd@ec.europa.eu

Deadline for submissions: 30 June 2023

Applications will be evaluated by field experts and decisions on successful applicants will be announced via email by the end of **July 2023**. As much as possible organisers will also strive to gather participants with different backgrounds and expertise.

Costs and logistics

Participation in the JRC SSbD Boot Camp is **free of charge**. However, participants will need to cover the costs of their travel and accommodation.

The JRC will provide practical assistance in booking reasonably priced accommodation in the local area and will arrange free local shuttle transportation according to a fixed timetable (additional information will be provided to the selected participants).

Participation to the entire programme is required by the selected participants.

Join us in testing the **framework** and using the safety and sustainability assessment for your R&I activities on chemicals and materials.

This framework can

- steer **innovation**
- become a global **reference**
- accelerate the development of **alternatives** to substances of concern.

RC Activities

Translate EC SSbD criteria & methodology towards operationalisation
SSbD Toolbox development, testing and implementation

Safe by Design

- QSAR & Read across
- Life cycle analysis
- Exposure modelling
- Toxicokinetics
- AOP
- Risk modelling

- Ability Assessment
- ✓ Values and principles
 - ✓ Targets : science & Policy based
 - ✓ Decision context
 - ✓ Methodological choices



Reflection



Únete a la red IRISS:



www.iriss-ssbd.eu

EU-led SSbD International Network



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Science-Policy-Industry Interphase

IRISS is connected to:

- OECD SSIA SG
- OECD AdMa SG
- SPINE
- PARC plus more...



Please join IRISS Network:



www.iriss-ssbd.eu

Thank-you for
your attention!

Contact:

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