



## Program

### Sunday, 10 November

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| From 15:00    | Arrival – registration and check-in   |
| 16:00 – 16:30 | <i>Welcome drink</i>  |
| 16:30 – 16:45 | <b>Bernd Nowack, Empa, Switzerland</b><br>Opening session   |
| 16:45 – 17:15 | <b>Keynote</b><br><b>Emma Strömberg, IVL, Sweden</b><br>Implementation of SSbD – identified challenges and possibilities within IRISS project                                       |
| 17:15 – 17:45 | <b>Keynote</b><br><b>Serenella Sala, JRC Ispra, Italy</b><br>Safe and sustainable by design chemicals, materials and products: how science can boost innovation and competitiveness |
| 17:45 – 18:15 | <b>Keynote</b><br><b>Marting Scheringer, ETH Zurich, Switzerland</b><br>What is new in "Safe and Sustainable by Design" (SSbD)?   |
| 18:15 – 18:30 | <b>Eva Schillinger, CEFIC, Belgium</b><br>Safe and Sustainable-by-Design – A guidance to unleash the transformative power of innovation   |
| 19:00         | <i>Dinner</i>   |

# Monday, 11 November

## SSbD frameworks and concepts

- 8:30 – 8:45 **Paul Steffen**, *Deputy Director, Federal Office for the Environment (FOEN), Switzerland*  
FOEN's perspective on Safe & Sustainable by Design
- 8:45 – 9:15 **Keynote**  
**Lya Soeteman-Hernandez**, *RIVM, the Netherlands*  
Safe-and-Sustainable-by-Design: State of the art and lessons learned in design thinking
- 9:15 – 9:30 **Panagiotis Isigonis**, *Luxembourg Institute of Science and Technology, Luxembourg*  
Early-stage application of the SSbD framework – Successes, considerations and obstacles
- 9:30 – 9:45 **Mona Arnold**, *VTT Technical Research Centre of Finland, Finland*  
Drivers for the Substitution of Chemicals of Emerging Concern
- 9:45 – 10:00 **Arianna Livieri**, *Ca' Foscari University of Venice, Italy*  
Safe and Sustainable by Design strategies to support advanced nano-enabled material development
- 10:00 – 10:30 *Coffee break*
- 10:30 – 10:45 **Carmen Brenig**, *Congressi Stefano Franscini*  
Welcome address by CSF

## Safe by design of materials

- 10:45 – 11:15 **Keynote**  
**Annemarie van Wezel**, *Uva, NL*  
Speeding up SSbD
- 11:15 – 11:30 **Oona Freudenthal**, *Luxembourg Institute of Science and Technology, Luxembourg*  
Unlocking the potential of chemicals data for sustainable product design: challenges and opportunities within risk assessment
- 11:30 – 11:45 **Ana Arias Calvo**, *Leiden University, the Netherlands*  
A composite indicator to assess SSbD and circularity of emerging bio-based systems
- 11:45 – 12:00 *Poster Spotlight*
- 12:00 – 13:30 *Lunch*

- 14:00 – 16:00 Poster session 1 (posters 1-15)
- 14:00 – 16:00 **Workshop**  
Sunshine e-infrastructure Safe and Sustainable by Design  
*30-people workshop in parallel with the poster session – First come / first-serve*
- 16:00 – 16:30 *Coffee break*

### **Safe by design of chemicals / Green Chemistry**

- 16:30 – 17:00 **Keynote**  
**Klaus Kümmerer**, *Leuphana University, Germany*  
Chemistry on the Path to Sustainability-The Importance of Design
- 17:00 – 17:15 **Caroline Moermond**, *RIVM, the Netherlands*  
Trade-offs between safety and sustainability aspects – the case of pharmaceuticals
- 17:15 – 17:30 **Jasmin Hafner**, *University of Zurich, Switzerland*  
Towards predicting the persistence of micropollutants in the environment
- 17:30 – 17:45 **Sarah Partanen**, *Eawag, Switzerland*  
Towards a streamlined environmental persistence assessment for trace organic contaminants: Results from miniaturizing biodegradation tests
- 17:45 – 18:00 **Elisabetta Abbate**, *JRC Ispra, Italy*  
From HC<sub>20</sub> to HC<sub>5</sub> for the freshwater ecotoxicity? Bridging chemical safety assessment and Life Cycle Assessment in the context of the Safe and Sustainable by Design
- 19:00 *Dinner*

## Tuesday, 12 November

### Safety assessment in the early innovation phase

- 8:30 – 9:00 **Keynote**  
**Claudio Screpanti**, *Syngenta, Switzerland*  
Novel Approaches to guide Chemical Design for Biodegradability in Crop Protection R&D
- 9:00 – 9:30 **Keynote**  
**Miriam Diamond**, *University of Toronto, Canada*  
Towards developing and adopting SSbD innovations
- 9:30 – 9:45 **Beatrice Brugger**, *Empa, Switzerland*  
Advancing the safety assessment of chemicals and materials through new approach methodologies (NAMs) for bio-barrier transport and effects
- 9:45 – 10:00 **Kerstin Von Borries**, *Technical University of Denmark, Denmark*  
Increasing confidence in chemical toxicity predictions through uncertainty aware machine learning
- 10:00 – 10:30 *Coffee break*

### Sustainability assessment in the early innovation phase

- 10:30 – 11:00 **Keynote**  
**Christopher Oberschelp**, *ETH Zurich, Switzerland*  
LCA data as a guide for present and future chemicals manufacturing
- 11:00 – 11:30 **Keynote**  
**Igor Linkov**, *US Army Corps of Engineers, USA*  
Safety, Sustainability, and Resilience – Definitions and Approaches for Quantification
- 11:30 – 11:45 **Alba Matamoros**, *Kveloce, Spain*  
Setting a SSbD framework that harmonises social and economic dimensions within the general SSbD framework - ViSS project
- 11:45 – 12:00 Poster Spotlight
- 12:00 – 13:30 *Lunch*
- 14:00 – 16:00 Poster session 2 (posters 16-31)
- 16:00 – 16:30 *Coffee break*

## Environmental, Social and Economic Sustainability

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|---------------|--|
| 16:30 – 17:00 | <b>Keynote</b><br><b>Mark Huijbregts</b> , <i>Radboud Universiteit, the Netherlands</i><br>Assessing Biodiversity Impacts in Safe and Sustainable by Design                  |
| 17:00 – 17:15 | <b>Ana Lago</b> , <i>Holoss, Portugal</i><br>Bridging environmental and economic impact assessment frontiers in Safe and Sustainable by Design (SSbD)                        |
| 17:15 – 17:30 | <b>Hedwig Braakhuis</b> , <i>TNO, the Netherlands</i><br>Enabling Safe and Sustainable Innovation: transparent decision support  |
| 17:30 – 17:45 | <b>Bruna Moura</b> , <i>Instituto de Soldadura e Qualidade, Portugal</i><br>Sustainability of metal additive manufacturing – a comparative study with conventional machining |
| 17:45 – 18:00 | <b>Lasse Steffens</b> , <i>BOKU, Austria</i><br>Sustainability Assessment in SSbD Frameworks: The Missing Comprehensive Integration of Social and Economic Aspects           |
| 18:00 – 18:15 | <b>Jing Huo</b> , <i>ETH Zurich, Switzerland</i><br>Designing a future plastic industry under the triple planetary crisis  |
| 19:00         | <i>Dinner</i>  |

## Wednesday, 13 November

### SSbD case studies 1

8:30 – 9:00

**Keynote**

**Ad Ragas**, *Radboud Universiteit, the Netherlands*  
SSbD of pharmaceuticals

9:00 – 9:30

**Keynote**

**Katarzyna Cenian & Rie Tsuchiya**, *Novozymes, Denmark*  
Implementation of SSbD – challenges at the industry (Learning from Novonesis)

9:30 – 9:45

**Cyrille Durand**, *TEMAS Solutions GmbH, Switzerland*

Application of the SSbD framework in bio-based plastics: lessons learnt from the BIORING case studies

9:45 – 10:00

**Sebastien Artous**, *University Grenoble Alpes, France*

Integrated Safe, Sustainable and Recyclable by Design (SSRbD) approach applied to new polyurethane window frame

10:00 – 10:30

*Coffee break*

### SSbD case studies 2

10:30 – 11:00

**Keynote**

**Anne Chloe Devic**, *SSbD Consulting, Spain*

Towards Implementing Safe and Sustainable by Design in Industry with value chains perspective

11:00 – 11:15

**Irini Furxhi**, *CNR-ISSMC, Italy*

Safe and sustainable by design. A glimpse of the ASINA case studies

11:15 – 11:30

**Massimo Perucca**, *Project HUB360, Italy*

Towards a nano-specific, quantitative based and human centric-SSbD Approach: Antibacterial nanocoatings case study

11:30 – 11:45

**Rocio Pena**, *AIMEN, Spain*

Recyclability by Design analysis of a new recyclable polymer

11:45 – 12:00

**Kathrin Fenner**, *Eawag, Switzerland*

Cumulative and persistent toxicity - An innovative concept for high-throughput hazard assessment

12:00 – 13:30

*Lunch and Early Career Lunch*

13:30

*Excursion to Bellinzona*

18:30

*Conference dinner at Grotto Broggin, Losone*

## Thursday, 14 November

### Absolute sustainability

- 8:30 – 9:00 **Keynote**  
**Gonzalo Guillen Gosalbez**, *ETH Zurich, Switzerland*  
A chemical sector within planetary boundaries
- 9:00 – 9:30 **Keynote**  
**Peter Fantke**, *USEtox team, Denmark*  
Assessing Absolute Environmental Sustainability of Chemicals
- 9:30 – 9:45 **Sarah Devecchi**, *Green decisions, Italy*  
From relative to absolute life cycle assessment within the SSbD framework: the case of advanced and biobased materials
- 9:45 – 10:00 **Marissa Kosnik**, *Eawag, Switzerland*  
Absolute environmental sustainability assessment of chemical pollution to enable sustainable chemical design
- 10:00 – 10:30 *Coffee break*
- 10:30 – 12:00 **Early career scientist session**  
Make SSbD happen in the real world
- 12:00 – 13:30 *Lunch*

### SSbD Tools and methods 1

- 14:00 – 14:30 **Keynote**  
**Emma Schymanski**, *University of Luxembourg, Luxembourg*  
The importance of open and FAIR data for SSbD
- 14:30 – 14:45 **Fotini Nikiforou**, *University of Thessaloniki, Greece*  
Towards the development of the PARC SSbD toolbox: concept, insights and current progress
- 14:45 – 15:00 **Lisa Pizzol**, *Green decisions, Italy*  
The SUNRISE module as part of the SUNSHINE e-infrastructure
- 15:00 – 15:15 **Agnes Oomen**, *UvA/RIVM, the Netherlands*  
Towards regulatory preparedness and SSbD of advanced materials: the OECD Early4AdMa system
- 15:15 – 15:30 **Leo Posthuma**, *RIVM, the Netherlands*  
A science-based innovative dashboard to operationalise Safe & Sustainable-by-Design
- 15:30 – 15:45 **Sunan Dekkers**, *TNO, the Netherlands*  
SSbD Approach and Decision Support System for Advanced Nanomaterials

15:45 – 16:30 *Coffee break*

## **SSbD Tools and methods 2**

16:30 – 17:00 **Keynote**  
**Tomas Rydberg**, *IVL, Sweden*  
Mistra SafeChem methods and tools for safe and sustainable chemistry

17:00 – 17:15 **Nina Melander**, *RISE, Sweden*  
SSbD-workshop for optimizing SME manufacturing processes

17:15 – 17:30 **Virginia Cazzagon**, *Leitat Technology Center, Spain*  
Release hotspot identification guiding the selection of experiments to assess exposure during the manufacturing of a halogen free fire-retardant additivated composite for railway applications

17:30 – 17:45 **Geraldine Cabrera**, *IPC, France*  
The SSbD approach applied to SURPASS project : study of a PE-based multilayer film for food packaging applications

17:45 – 18:00 **Michael Saidani**, *Luxembourg Institute of Science and Technology, Luxembourg*  
Operationalisation of the Safe and Sustainable by Design Framework: Towards an Integrated Sustainable by Design Toolbox

18:00 – 18:15 **Martin Himly**, *Paris Lodron University, Austria*  
Computational models and integration approaches to satisfy the industry needs in SSbD-guided research and innovation on advanced materials and chemicals

18:15 – 18:30 **Akshat Sudheshwar**, *Empa, Switzerland*  
Probabilistic Multi-perspective Application Selection for Safe and Sustainable-by-Design: A Case Study on Biochar

19:00 *Dinner*



## Friday, 15 November

### SSbD case studies 3

|               |  |
|---------------|--|
| 8:30 – 8:45   | <b>Carla Martins</b> , <i>Instituto de Soldadura e Qualidade, Portugal</i><br>Addressing the SSbD steps to the development of hybrid formulations of MXenes and Graphene                                 |
| 8:45 – 9:00   | <b>Wendel Wohleben</b> , <i>BASF, Germany</i><br>Design, Tiered Assessment, Benchmarking and Re-design of Advanced Materials: Four HARMLESS Case   |
| 9:00 – 9:15   | <b>Alberto Katsumiti</b> , <i>GAIKER Technology Center, Spain</i><br>The SEARCULAR approach for the development of SSbD solutions for fishing gears  |
| 9:15 – 9:30   | <b>Socorro Vazquez</b> , <i>Leitat Technological Center, Spain</i><br>Roadmap for the application of the SSbD framework in the safety evaluation of the biosurfactants developed in the SURFs UP project |
| 9:30 – 9:45   | <b>Anna-Karin Hellström</b> , <i>RISE, Sweden</i><br>1 <sup>st</sup> SSbD iteration: Early formulation design of PFAS-free coatings for textiles   |
| 9:45 – 10:00  | <b>Katri Behm</b> , <i>VTT, Finland</i><br>Oxidoreductase enzymes as safe and sustainable alternatives for conventional chemicals  |
| 10:00 – 10:30 | <i>Coffee break</i>  |

### Stakeholder Involvement

|               |  |
|---------------|--|
| 10:30 – 10:45 | <b>Antonios Konstantas</b> , <i>European Commission, Belgium</i><br>The HaDEA Executive Agency and the Horizon Programme Grants Life Cycle   |
| 10:45 – 11:00 | <b>Dario Perfigli</b> , <i>TU Delft, the Netherlands</i><br>An SSbD societal perspective on the structural issues in the chemical domain   |
| 11:00 – 11:15 | <b>Ksenia Groh</b> , <i>Eawag, Switzerland</i><br>Advancing Science-Based Innovations for the SSbD concept: Key Research Needs Identified by SETAC in Collaboration with the European Commission |
| 11:15 – 11:30 | <b>Christina Apel</b> , <i>Leuphana University of Lueneburg, Germany</i><br>Safe-and-Sustainable-by-Design Roadmap: Identifying Research, Competencies, and Knowledge Sharing Needs              |
| 11:30 – 11:45 | Closing  |
| 12:00         | <i>Lunch and departure</i>   |

## Poster session 1

Monday 11 November, 14:00 – 16:00

### 1. Elisabetta Abbate

Methodological Guidance to enable the implementation of the Safe and Sustainable by Design (SSbD) framework for chemicals and materials

### 2. Ann-Kathrin Amsel

Modelling biodegradability based on OECD 301D data for the design of mineralising ionic liquids

### 3. Dorota Bartkowiak

Sustainability of perovskite solar cells

### 4. Philomena Chu

Applying the SSbD framework to safe and innovative environmentally-friendly commodities based on novel oxidoreductase enzymes

### 5. Hannah Flerlage

Redesigning Organophosphate Flame Retardants for Safety and Sustainability

### 6. Ksenia Groh

Implementation of aquatic toxicity assessment in the early stages of materials development: Case study with flame retardant vitrimers

### 7. John Hader

SSbD Space Exploration: Towards "Safe" Chemicals and Materials for use in Exploring the Martian Environment

### 8. Barry Hardy

Safe and Sustainable by Design Framework supporting Product Design, Risk Assessment and Life Cycle Analysis

### 9. Rebecca Holtmann

Academic Education in the Field of Sustainable Chemistry

### 10. Hyunjoo Hong

Development of a Benefit Assessment Matrix for Nanomaterials and Nano-enabled Products—Toward Safe and Sustainable by Design

### 11. Arianna Livieri

Towards Safe-and-Sustainably-by-Design toolboxes for AdMa: comparison between the SUNSHINE and Early4AdMa approaches

**12. Eleonora Longhin**

Hazard assessment methodologies applicable to the SSbD framework: where we are

**13. Phatchari Mankong**

The role of chemical substitution for SSbD of pesticides

**14. Antonio Nogueira**

Towards zero waste: Safe and Sustainable by Design (SSbD) coatings and their end-of-life pathways

**15. Antonio Nogueira**

Integrating SSbD and eco-design principles into fresh meat packaging solutions

## Poster session 2

Tuesday 12 November, 14:00 – 16:00

### **16. Elise Morel**

Safety assessment in early phase of innovation of PFAS alternatives for textile and packaging sector

### **17. Mauricio Ortiz-Galvez**

Pan-European training partnership on safe and sustainable nano- and advanced materials innovation

### **18. Rocío Pena Rois**

Development of sustainability strategies for the research of new oil repellent biobased coatings

### **19. Fiorella Pitaro**

The Safe and Sustainable by Design Framework applied to Graphene-based Materials

### **20. Lisa Pizzol**

The SUNRISE SSbD integrated impact assessment framework for advanced materials

### **21. Lisa Pizzol**

Enhancing Safety and Sustainability in Art Restoration: The GREENART Approach

### **22. Ramya Rajagopal**

Insights towards Pragmatic Application of the 'Safe and Sustainable by Design' Framework for Fast-Moving Consumer Goods

### **23. Johanna Scheper**

The Safe-and-Sustainable-by-Design approach for alternative metal-free wound dressings in NABIHEAL

### **24. Carolin Seller**

High-throughput experimental and computational tools for safe-by-design chemicals – Applied to the case of antioxidants

### **25. Gianluca Selvestrel**

ToxEraser Cosmetics: A New Tool for Substitution, Towards Safer Cosmetic Ingredients

### **26. Jacopo Sorani**

Safe and Sustainable by Design of Nanomedicine and Pharmaceuticals

### **27. Nadin Ulrich**

PAULY – an effective tool to analyze and validate the effects of chemicals along the lifecycle of a product

**28. Karoline Wowra**

An Industrial-based Journey Towards a Flexible Solution-Focused SSbD

**29. Marc Majó**

Accessible Innovative Methods for the Safety & Sustainability Assessment of Chemicals & Materials (CHIASMA) - Focus on WP6 – Method Integration & Application

**30. Carlos Gomez**

Integrating Social Perspectives in SSbD: A Look at Current Methods and Tools

**31. Vicenç Pomar-Portillo**

Methods and tools to assess exposure and risk for Steps 2-3 of the SSbD framework for Advanced Materials