SSbD Summit

Optimizing implementation of SSbD to better enable Sustainable Innovation

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Safe and Sustainable by Design (SSbD):

building safety & sustainability into product innovation

- We ensure that our products are safe for consumers and workers and help minimise their environmental impacts

- Unilever Safety, Environmental & Regulatory Science (SERS) experts provide input at every stage of a product's life:
  - New discover and design new concepts
  - New technologies in product innovations
  - Anticipate product use & disposal scenarios

- By being involved throughout the innovation process, SERS experts help design safety and sustainability into our products




Safe & Sustainable Products without Animal Testing

What we believe

- **Every Unilever product must be safe for people and our environment**
- **Animal testing is not needed to assess ingredient & product safety** –wide range of non-animal approaches available
- **We work to accelerate the global adoption of animal-free cosmetic safety assessment approaches**

How we do it

40+ years of developing non-animal safety science

90+ collaborations

600+ publications

Novel Biosurfactant / Hand Dishwash Case Study to illustrate Unilever SSbD framework

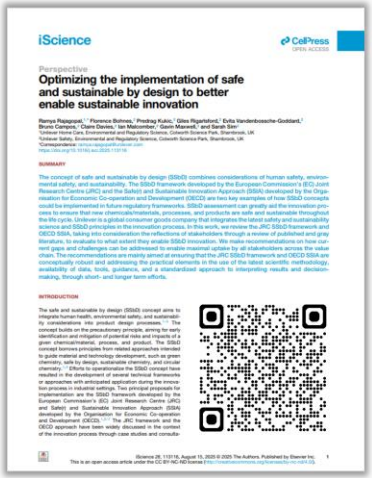
- Real consumer product innovation example using SSbD principles
- Renewable, biodegradable biosurfactant for inclusion in a hand dishwash product
- Novel, non-animal Next Generation Risk Assessment (NGRA) approach used to assess consumer, occupational, and environmental safety
- Environmental impact of novel biosurfactant assessed against existing hand dishwash surfactant ingredients.

Novel Biosurfactant / Hand Dishwash Case Study to illustrate Unilever SSbD framework

Ingredient Discovery	Ingredient Evaluation	Development & Testing	Production & Launch
• **Several ingredient options:** early-stage supplier information	• **One or few ingredient options:** quantitative material and process data (ingredient pilot plant)	• **Commercial specification of ingredient & product formulation:** product pilot plant	• **Full-scale production of final formulation** with markets & volume targets
• Evaluation of ingredient options • Preliminary prognosis & screening assessment • Limited safety & sustainability data	• Evaluation of lead ingredient option • Identification of significant risks and impacts • Data generation on ingredient performance, safety & sustainability	• Refined evaluation of lead ingredient option in formulation • Implementation of safety strategy • Data gap filling	• Final evaluation of lead ingredient in formulation • Safety & sustainability assessments support market launch • Integration of info & insights from all stages

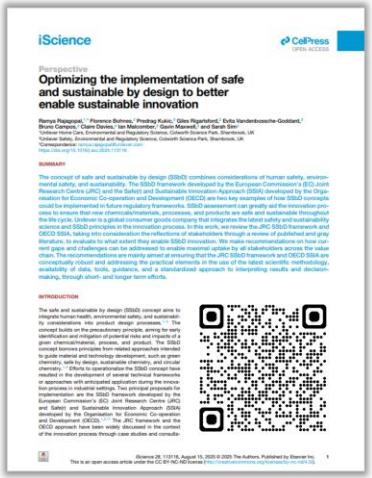
Insights from evaluation of available SSbD frameworks for consumer goods

- Our aim was to evaluate published SSbD frameworks & concepts to understand their utility for consumer goods product innovation
- For today, I'll focus on the European Commission DG JRC SSbD framework & guidance



Recommendations to ensure SSbD frameworks support sustainable innovation:

1. Enable risk-based approaches & exposure assessment
2. Support use of latest non-animal safety & sustainability science
3. Explicitly address & manage trade-offs

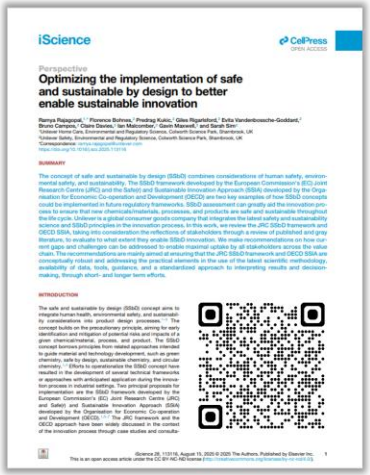


Proposed revision of EU Commission SSbD framework

	European Commission Safe & Sustainable by Design (SSbD) framework & guidance	European Commission SSbD framework Draft 2025 Revision
Policy context	European Green Deal & Chemical Strategy for Sustainability	EU industrial competitiveness & Chemicals Industry Action Plan
Types of Innovations	Substitution of existing chemicals	Existing, incremental & breakthrough innovations
Safety approach	Hazard-based approach, aiming for absolute Safety	Risk-based & hazard-based approaches
Sustainability approach	Absolute Sustainability is the ultimate goal	Benchmark-based approach - each chemical/process compared to virtual representative average-impact
Use of latest science?	None or limited to early stages of innovation	Yes, built to let practitioners adopt state-of-the-art safety and sustainability science as it emerges.
Data requirements	Extensive data requirements throughout the innovation process	Extensive data requirements throughout the innovation process
Trade-offs	No provision	Recognises & operationalises trade-offs

Recommendations to accelerate adoption of SSbD frameworks:

1. Build global data ecosystem & digital infrastructure
2. Develop more sector- and technology-specific case studies
3. Create additional guidance & training for SSbD assessment



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SERS Partners

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Thank you

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