

Brussels, 10 March 2026
(OR. en)

7158/26

MI 223
IND 175
CHIMIE 24
COMPET 297
RECH 113
ENV 209
CONSOM 71

COVER NOTE

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
date of receipt:	9 March 2026
To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union

No. prev. doc.:	15867/22 + ADD 1
Subject:	Commission Recommendation on revising the European assessment framework for 'safe and sustainable by design' chemicals and material

Delegations will find attached document C(2026) 1438 final.

Encl.: C(2026) 1438 final



Brussels, 6.3.2026
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COMMISSION RECOMMENDATION

of 6.3.2026

**on revising the European assessment framework for ‘safe and sustainable by design’
chemicals and materials**

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 292 thereof,

Whereas:

- (1) The Competitiveness Compass⁽¹⁾ emphasises the importance of closing the innovation gap in order to drive sustainable and long-term growth. It highlights the importance of innovation in boosting the competitiveness of the EU’s chemical industry, together with the protection of human health and the environment. The Competitiveness Compass also underlines the need to look at the supply of critical chemicals and to invest in technologies that will matter in tomorrow’s economy, such as advanced materials.
- (2) The Clean Industrial Deal⁽²⁾ presented a joint roadmap for competitiveness and decarbonisation. The roadmap aims to increase sustainable and resilient production in Europe to go beyond traditional silo solutions by taking into account the entire value chain. It also promotes lead markets, circularity and access to materials as essential drivers for competitiveness.
- (3) In its ‘chemicals strategy for sustainability – towards a toxic-free environment’⁽³⁾, the Commission announced a long-term vision for EU chemicals policy, which includes the promotion of innovation for **safe and sustainable by design (SSbD) chemicals⁴ and materials**. The strategy sets specific actions on chemicals production and use, to strengthen the protection of human health and the environment, while boosting innovation for safe and sustainable chemicals. The strategy also calls on Member States, industry and other stakeholders to prioritise innovation for substituting, as far as possible, substances of concern⁽⁵⁾ across sectors.
- (4) Europeans are concerned about the impact of chemicals and materials on health and the environment. A 2024 Eurobarometer survey⁽⁶⁾ showed that 84% of Europeans are worried about the impact on their health of harmful chemicals present in everyday

¹ A Competitiveness Compass for the EU (COM(2025)30 final).

² The Clean Industrial Deal : A joint Roadmap for Competitiveness and Decarbonisation (COM(2025) 85 final).

³ Chemicals Strategy for Sustainability (COM(2020)667 final).

⁴ The term ‘chemical’ is used in several pieces of EU legislation, sometimes with important or subtle differences in meaning. Some pieces of EU chemicals legislation use more specific terms to describe subgroups of chemicals, such as ‘substances’ and ‘mixtures (of substances)’. In the context of this Recommendation, the term chemical is to be interpreted in its broadest sense. To reinforce that, the scope of the SSbD framework explicitly includes also materials, even if, for some pieces of EU legislation, materials are considered as mixtures of substances, i.e., chemicals in their own right.

⁵ As defined for the purposes of the Chemicals Strategy for Sustainability (COM(2020)667 final)

⁶ Eurobarometer survey (2024) Attitudes of Europeans towards the Environment – May 2024

products, and the same proportion is worried about the impact of harmful chemicals on the environment.

- (5) Several hundred substances have already been identified as substances of very high concern under the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (EC) No 1907/2006⁽⁷⁾. For most of these substances, the basis for identification is a harmonised classification in line with the Classification, Labelling and Packaging (CLP) Regulation EC 1272/2008⁽⁸⁾, which harmonises criteria to classify substances and mixtures that present physical, health, environmental and additional hazards. This Regulation was revised in 2024 to include new hazard categories. The Ecodesign for Sustainable Products (ESPR) Regulation No 2024/1781⁽⁹⁾ also defines a larger group as substances of concern based on their harmonised classification for certain hazards with chronic effects, as well as concerns regarding their effects on recycling, reuse and other Circular Economy considerations
- (6) The Ecodesign for Sustainable Products Regulation (ESPR¹⁰) states that performance requirements set on product parameters, should take into consideration existing chemical safety assessments performed by the relevant Union bodies for the substances concerned, as well as safe and sustainable by design criteria for chemicals and materials, as developed by the Commission.
- (7) The Communication on Advanced Materials for Industrial Leadership⁽¹¹⁾ refers to the safe and sustainable by design (SSbD) concept as the core of the materials transformation process.
- (8) The European chemicals industry action plan⁽¹²⁾ highlights the role of this Commission Recommendation revising the European assessment framework for SSbD chemicals and materials to reinforce EU chemical industry competitiveness by making the innovation process towards safer and more sustainable alternatives more efficient. The action plan announces the launching of EU innovation and substitution hubs as voluntary tools to accelerate and scale up chemical innovation and highlights the role of the SSbD concept, providing technical guidance from early-stage innovation.
- (9) The life science strategy⁽¹³⁾ stresses the importance of a coordinated deployment and uptake of safe and sustainable products. It highlights the role of the European assessment framework for SSbD chemicals and materials in the pursuit of the EU's

⁷ Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, *OJ L 396, 30.12.2006, p. 1*, ELI: <http://data.europa.eu/eli/reg/2006/1907/oj>

⁸ Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, *OJ L 353, 31.12.2008, p. 1*, ELI: <http://data.europa.eu/eli/reg/2008/1272/oj>

⁹ Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC, *OJ L, 2024/1781, 28.6.2024, ELI: http://data.europa.eu/eli/reg/2024/1781/oj*

¹⁰ in its Annex II - product parameters described in its Annex I, especially point (f)

¹¹ Communication on Advanced Materials for Industrial Leadership, (COM(2024) 98 final)

¹² Communication in Chemicals Industry Action Plan (COM(2025)530 final)

¹³ Communication on Choose Europe for life sciences A strategy to position the EU as the world's most attractive place for life sciences by 2030 (COM(2025)525 final)

sustainability and competitiveness objectives, and in the clean industrial transition, encouraging industry to replace substances of concern with safer, more sustainable alternatives.

- (10) The European strategy for artificial intelligence (AI) in science⁽¹⁴⁾ highlights how AI can facilitate breakthroughs for advanced materials design including in functionality, safety and sustainability.
- (11) The Horizon Europe programme has provided dedicated support for research activities focused on operationalising the SSbD Framework as well as applying the Framework to boost innovation towards safer and more sustainable chemicals and advanced materials. Support has been provided, through specific calls from Cluster 4 of Horizon Europe ('Digital, Industry and Space'), as well as via the European partnership on advanced materials (IAM4EU), the innovative health initiative, batteries for EU, and circular bio-based Europe partnerships.
- (12) As a key part in delivering on the Competitiveness Compass' call to boost innovation, the EU startup and scaleup strategy⁽¹⁵⁾ aims to restart a virtuous innovation cycle by creating a favourable investment and business environment for young and innovative companies to start, expand and thrive. This includes reducing barriers for the translation of research into marketable products and a wider innovation uptake.
- (13) Against this background, this Recommendation proposes a revised European assessment framework for SSbD chemicals and materials (the SSbD Framework). This revised Framework will act as a new point of reference for Member States, industry, higher education institutions, research and technology organisations (RTOs) to use as a methodology for assessment and decision making.
- (14) The SSbD Framework aims to become a voluntary decision-making approach to steer innovation towards chemicals and materials that are safer and more sustainable over their whole life cycles. It supports decision-making throughout the innovation process and provides a common understanding of SSbD principles across value chains. It reinforces competitiveness by making the innovation process towards safer and more sustainable alternatives more efficient, while simultaneously advancing knowledge and science for safety and sustainability.
- (15) This revised Recommendation builds on the Commission Recommendation (EU) 2022/2510, establishing a European assessment framework for 'safe and sustainable by design' chemicals and materials. The 2022 Recommendation set out a framework to support the design, production, and use of safer, more sustainable chemicals and materials to protect human health and the environment, when considering their impacts all along their life cycle. The revision is largely based on the results of the two testing phases that allowed feedback from stakeholders to be taken into consideration⁽¹⁶⁾. The aim of the testing phases was to inform an update of the SSbD Framework to improve its relevance, reliability and operability.
- (16) While maintaining the elements of the initial SSbD Framework, namely a (re)design phase and an assessment phase, a newly developed scoping analysis serves as a

¹⁴ Communication on A European Strategy for Artificial Intelligence in Science (COM(2025) 724 final)

¹⁵ Communication on 'The EU Startup and Scaleup Strategy. Choose Europe to start and scale' (COM(2025) 270 final)

¹⁶ Abbate E., Garmendia Aguirre I., Bracalente G., et al. Safe and Sustainable by Design chemicals and materials. Methodological Guidance, Publications Office of the European Union, Luxembourg, 2024, ISBN 978-92-68-16357-3, doi:10.2760/28450.

starting point to identify and prioritise the key elements to be addressed. The scoping analysis assists in defining the system under study, considering the selected design principles and engaging with the life cycle actors. This phase allows for the implementation of the SSbD Framework to be more tailored to the needs of the innovators.

- (17) In addition to the safety and the environmental sustainability aspects, the Framework now includes the social and economic dimensions of sustainability. It considers socio-economic risks and opportunities of the system under study, with a view to support longer-term decision making.
- (18) The SSbD Framework now also offers various entry points for assessment, enabling innovators to make decisions that consider both safety and sustainability aspects at different levels of innovation maturity and data availability. By reiterating the SSbD cycle as innovation matures and/or additional information becomes available, the SSbD Framework promotes comprehensive assessment as basis for robust decision-making.
- (19) Introducing simplified approaches for safety and sustainability assessments, as starting points for informed decision-making, can be of particular benefits to smaller businesses when resources are limited, such as during early innovation stages.
- (20) The SSbD Framework will aim to contribute to more efficient innovation processes, making business easier and faster while improving the coherence of innovation ecosystems in line with Commission's simplification efforts, outlined in the Communication on a Simpler and Faster Europe⁽¹⁷⁾.
- (21) In accordance with the data regulation⁽¹⁸⁾, an EU common data platform on chemicals is under development. It will integrate chemicals data from multiple contributors in accordance with the findable, accessible, interoperable and reusable (FAIR) principles. The Commission will promote, on the one side, the incorporation of high-quality FAIR data on chemicals generated by the SSbD research and innovation (R&I) activities into the EU common data platform on chemicals and, on the other side, the availability of such data to implement the SSbD Framework to its fullest capacity.
- (22) When considering safety and sustainability of innovation within particular value chains, specific situations might require further assumptions and deviation from some of the approaches described in the Framework. For instance, assessment of defence, aerospace, and dual-use technologies¹⁹ need to respect the security aspects.
- (23) The Commission will continue to promote the application of the SSbD Framework under Union programmes targeting relevant research objectives. This will support the roll-out of safety and sustainability considerations and decision-making over the innovation process. The Commission will continue to monitor how the SSbD Framework is incorporated in EU-funded (R&I) activities.
- (24) This Recommendation respects the principle of subsidiarity, since the revised SSbD Framework serves the needs of the European Research Area and the EU single market

¹⁷ European Commission: Secretariat-General, Making Europe simpler and faster, Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2792/5923929>

¹⁸ COM(2025) 2455 final. Regulation of the European Parliament and of the Council establishing a common data platform on chemicals, laying down rules to ensure that the data contained in it are findable, accessible, interoperable and reusable and establishing a monitoring and outlook framework for chemicals.

¹⁹ Dual-use technologies refer to technologies which can be used for both civilian and defence purposes

for chemicals and materials, where there is a need for common understanding of safety and sustainability for chemicals and materials. It also respects the principle of proportionality, since it promotes the application of the framework by legally non-binding means, i.e. being voluntary without prejudging any existing Union legislation on chemicals and materials.

HAS ADOPTED THIS RECOMMENDATION:

1. PURPOSE and SCOPE
 - 1.1. This Recommendation promotes a European framework for ‘safe and sustainable by design’ (SSbD) chemicals and materials (the SSbD Framework) for R&I activities in the practice of researchers and innovators. The **details of the SSbD Framework**, based on technical reports from the Commission’s Joint Research Centre^(16,20) **are set out in the Annex** to this Recommendation. This Annex explains features underpinning the SSbD Framework, which includes and brings together a set of SSbD criteria. The Annex also refers to the SSbD methodological guidance^(16,21) providing detailed guidance, templates and updated overview of relevant methods, tools and data sources.
 - 1.2. The SSbD Framework defines a voluntary decision-making approach where safety and sustainability considerations throughout the life cycle of chemicals and advanced materials are incorporated in the development of new chemicals, innovative materials, or improved production processes. It aims to become a European reference for an innovation process in pursuit of the clean industrial transition, in parallel promoting greater Union competitiveness, which should also be promoted at the international level. It promotes the use of sustainable resources and feedstock, aims to minimise the impact of the production and use of chemicals and materials, throughout their life cycle with respect to the climate, the environment, and their effects on human health. The SSbD Framework also supports the substitution of substances of concern by finding safer and more sustainable alternatives and should accordingly guide public and private R&I investments.
 - 1.3. While the SSbD Framework does not interfere with, nor creates new, Union legal obligations for chemicals and materials, it can guide anticipatory actions and decisions within the innovation process, including actions going beyond minimum legal compliance.
 - 1.4. This Recommendation is addressed to Member States, industry (including small and medium-sized enterprises (SMEs), including startups and scaleups and spin offs) higher education institutions, organisations managing research and technology infrastructures, and research and technology organisations that contribute to or work on the design, development, production and uptake of chemicals and materials. It invites them to use the SSbD Framework in projects funded in whatever form, whether by companies’ own research and development means, or for example under Union or international programmes targeting R&I and its deployment, and activities related to chemicals or materials, with the objective to apply safety and sustainability

²⁰ Garmendia Aguirre, I, Abbate, E, Bracalente, G, Mancini, L, Cappucci, G.M, Tosches, D, Rasmussen, K, Sokull-Kluettgen, B, Rauscher, H, Sala, S. (2025) European Commission - Joint Research Centre. Safe and Sustainable by Design Chemicals and Materials. Revised framework (2025), Publication Office of the European Union, Luxembourg, 2025, ISBN 978-92-68-30330-6, doi: 10.2760/5103785

²¹ Methodological guidance further updates: https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/chemicals-and-advanced-materials/safe-and-sustainable-design_en

considerations systematically. The above-mentioned actors are also encouraged to refer to the SSbD Framework in relevant documents, including strategic research and innovation agendas.

- 1.5. Member States, industry, higher education institutions, research and technology infrastructures and research and technology organisations should also ensure that the methods, models and data produced and used when applying the SSbD Framework align with the findable, accessible, interoperable and reusable (FAIR) guiding principles.

2. USES OF THE SSbD FRAMEWORK BY INDUSTRY

Industry actors (including SMEs, startups scaleups and spinoffs) are encouraged to:

- 2.1. Use the SSbD Framework in their R&I processes for developing chemicals or materials, or improved production processes, techniques and technologies, considering safety and sustainability at each stage of the life cycle.
- 2.2. Make available high-quality FAIR data for assessing safety and sustainability, without prejudice to intellectual property rights and, if relevant, security considerations.
- 2.3. Engage with other actors when operating across the value chain to ensure comprehensive data collection and multidisciplinary approaches for a robust assessment, notably to support SMEs, including startups, scaleups and spin-offs, which may have limited resources.
- 2.4. Communicate regarding their use of the SSbD Framework in their corporate, safety and sustainability assessment activities, in a transparent and open way without compromising intellectual property rights and, where relevant, security considerations.
- 2.5. Share information that supports the application of the Framework and informs the assessment, particularly information that directly identifies potential safety and sustainability issues, while safeguarding confidentiality and competitiveness, where necessary.

3. USE OF THE SSbD FRAMEWORK BY MEMBER STATES.

Member States are encouraged to:

- 3.1. Use and promote the SSbD Framework in their national and regional R&I programmes, thereby supporting the design and development of safe and sustainable chemicals and materials, including advanced materials, in Europe.
- 3.2. Use and promote the SSbD Framework in local, regional and national initiatives supporting the development of safer and more sustainable chemicals and materials, by providing guidance as from early-stage innovation.
- 3.3. Increase the availability of high-quality FAIR data for assessing safety and sustainability by incorporating this concept and promoting it into their national R&I programmes and related policies where relevant.
- 3.4. Support the improvement of assessment methods, models and tools, and make new ones available, to integrate into the SSbD Framework in order to improve the assessment of safety and sustainability.
- 3.5. Support the development of cross-sectoral skills and expertise required to apply the framework, and ease access to these skills and expertise, in particular for SMEs.

3.6. Support the establishment and operation of the EU Chemicals Innovation and Substitution Hub(s), as announced in the European Chemicals Industry Action Plan, and support national organisations responsible for chemical safety and sustainability assessment to collaborate with each other and with relevant EU initiatives, networks, and bodies, and to boost innovative ecosystems that accelerate the transition towards safer and more sustainable chemicals and materials.

3.7. Communicate publicly on their use of the SSbD Framework.

4. USES OF THE SSbD FRAMEWORK BY HIGHER EDUCATION INSTITUTIONS, RESEARCH AND TECHNOLOGY INFRASTRUCTURES, and RESEARCH AND TECHNOLOGY ORGANISATIONS.

Higher education institutions, research and technology infrastructures, and research and technology organisations are encouraged to:

4.1. Use the SSbD Framework in their R&I activities for developing chemicals and materials, including advanced materials, or in improved production processes, techniques and technologies, taking into account safety and sustainability at each stage of the life cycle.

4.2. Make available high-quality FAIR data for assessing safety and sustainability, without prejudice to intellectual property rights and, where relevant, security considerations, in line with the Council Recommendation of 23 May 2024 on enhancing research security. Such data should be shared via the Common Data Platform for Chemicals and its services, in collaboration with relevant Union agencies (ECHA, EEA, EFSA), as appropriate.

4.3. Communicate regarding their use of the SSbD Framework in their corporate, safety and sustainability assessment activities, in a transparent and open way without prejudice to intellectual property rights and, where relevant, security considerations.

4.4. Engage in the development, promotion and uptake of new assessment methods, models and tools that can be integrated into the SSbD Framework to improve the assessment of safety and sustainability of chemicals and materials.

4.5. Support the development of professional training and educational curricula to ensure the teaching of the skills required to implement the SSbD Framework and related cooperation between wider national or EU-wide activities in this area.

5. DOCUMENTING THE IMPLEMENTATION OF THE RECOMMENDATION:

5.1. The Commission will make a template available for all actors (from Member States, industry, higher education institutions, research and technology infrastructures, and research and technology organisations), accompanied also by methodological guidance to facilitate the dissemination of information across the various value chains regarding the implementation of the SSbD Framework.

- 5.2. By those documentation activities, the Commission will aim to ensure more transparency, whilst in parallel encouraging the reuse of data across the value chain, to reduce duplicative reporting, in line with simplification principles. The documentation activities should also provide evidence for the improvement of the SSbD Framework's tools and the progressive development of safety and sustainability of chemicals and materials' criteria.

Done at Brussels, 6.3.2026

For the Commission
Ekaterina Zaharieva
Member of the Commission

