

Major EU initiative launched to accelerate the transition to safe and sustainable materials, products and processes

To ensure that materials are sustainable for humans and the environment, to increase recycling and use resources in a more efficient way, efforts are required from an early stage of design and manufacturing. Thus, the EC has launched a major initiative, IRISS, which will accelerate the transition to safe and sustainably designed materials, products and processes. The consortium, led by IVL, will create a global network of experts and stakeholders. Six value chains represented in the project will provide a clear picture of the industry's ongoing and future transformation.

"The chemical industry and all value chains that manufacture materials and products are facing major transformations to create safe, circular flows. To achieve this, optimised processes and products based on sustainable raw materials that are safe for humans and the environment are needed," says Emma Strömberg, researcher and project coordinator at IVL Swedish Environmental Research Institute.

The EU is investing more than €3.5 million in the IRISS project, which will build a network of stakeholders, including companies, researchers, authorities, and other societal actors, to support this transition. Fundamental to the whole effort is the concept of Safe-and-Sustainable-by-Design, SSbD, which includes focusing early in the supply chain on providing products that are part of circular models while avoiding properties that may be harmful to human health or the environment. It integrates circularity, climate neutrality, functionality and safety of materials, products and processes throughout the life cycle.

"These are four important building blocks that must all be included when designing new materials and products. By taking action and making improvements already at the design stage, we can reduce resource consumption and climate emissions and at the same time design products and materials that can be more easily circulated and recycled. This is a prerequisite for us to achieve the goals that have been set in the EU Chemicals Strategy for Sustainability and the UN's Sustainable Development Goals," says Emma Strömberg.

IRISS, which stands for *The International ecosystem for accelerating the transition to Safe-and-Sustainable-by-design materials, products and processes*, will support companies, both with knowledge and through the implementation of research, and contribute to guiding principles for the development of life cycle thinking in material and product design. In collaboration with industry, a number of roadmaps will be developed to implement research and innovation, but also to demonstrate needs that exist in the policy area. Six value chains are in the focus of the work: textiles, construction, electronics, energy, automotive and packaging.

"The implementation of the SSbD concept is an important area where we will support the industry to meet the challenges that exist and achieve set goals," says John Munthe, Director of Research at IVL. "In addition to the fact that the EU Chemicals Strategy for Sustainability includes the implementation of SSbD, there is pressure on the development of future materials and products that will meet the goals of EU Green Deal for the transition to climate neutrality and sustainability. We hope that IRISS will contribute with an important piece of the puzzle."

The consortium consists of European research institutes, trade associations, companies, authorities and universities, as well as National Technology Platforms within SusChem. The Austrian partner BNN (BioNanoNet Forschungsgesellschaft mbH) is in charge of leading the workpackage designed for Communication, Dissemination and Consultation support of IRISS. BNN is a non-profit oriented organisation specialised in international R&D&I collaboration to support and guide towards sustainable development of connected technologies. BNN is the operative unit of the BioNanoNet Network, an international association that gather both, private and public R&D&I organisations from different sectors dealing with nanotechnology and its applications.

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IRISS, *The international ecosystem for accelerating the transition to Safe-and-Sustainable-by-design materials, products and processes*, is a three-year project, start date 1st of June 2022, funded by the EU's framework programme for research and innovation, Horizon Europe. It has a budget of €4.3 million, of which approximately €3.5 million come from the EU, as well as additional funding through the University of Birmingham and Swiss Federal Laboratories for Materials Science and Technology. The consortium consists of 20 partners:

IVL Swedish Environmental Research Institute

Leuphana University of Lueneburg

BNN, BioNanoNet Forschungsgesellschaft mbH

RIVM, National Institute for Public Health and the Environment

University of Birmingham

Fundación Tekniker

Cefic, European Chemical Industry Council

EMPA, Swiss Federal Laboratories for Materials Science and Technology

ETP, EU Technology Platform for the Future of Textiles & Clothing

CLEPA, European Association of Automotive Suppliers

EMIRI, Energy Materials Industrial Research Initiative

EFCC, European Federation for Construction Chemicals

INL, International Iberian Nanotechnology Laboratory

IPC, Industrial Technical Centre for Plastics and Composites

KI, Kemijski Institut

VTT, Teknologiska Forskningscentralen

IKEM, Innovation and Chemical Industries in Sweden

APRE, Agenzia Per la promozione della Ricerca Europea

Czech Technology Platform for Sustainable Chemistry

National Technical University of Athens

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