SAFE AND SUSTAINABLE BY DESIGN AT OECD

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OECD
BETTER POLICIES FOR BETTER LIVES

OECD Working Party on Manufactured Nanomaterials

- Since 2006 WPMN has been addressed human and environmental risk assessment of nanomaterials

Testing and Assessment (EU)
assessing the need for and supporting the developing TGs/GDs for Nanomaterials and Advanced Materials; Further Guidance for hazard testing & assessment

Exposure Measurements and Exposure Mitigation (US)
Guidance on release and exposure testing & assessment

Risk Assessment and Regulatory Programmes (CA)
Reviewing needs and priorities

- 2021 new Steering Groups were established

Advanced Materials (GER and NL)

Safe(r) Innovation Approach for more Sustainable Nanomaterials and Nano-enabled Products (SSIA) (NL, CA and BIAC)

Steering Group on SSIA

- 22 Delegations: 17 countries, European Commission, Industry (BIAC), Env NGOs, ISO TC229

- Tasks
  - Working Description on Sustainability and Safe-and-Sustainable-by-Desing (SSbD)
  - Operationalisation of SSIA: Inventory of SSbD and Regulatory Preparedness (RP) tools and Methods + case studies
  - Bringing SSIA closer to practical applicability: Addressing Barriers and incentives for SSIA
  - Trusted Environments: Platform for Sharing knowledge, learning from industry and regulator's experiences

Safe and Sustainable by Design (SSbD) at OECD

Working Description: Safe and Sustainable by Design (SSbD)

Safe and sustainable by design (SSbD) can be described as an approach that focuses on providing a function (or service), while avoiding onerous environmental footprints and chemical properties that may be harmful to human health or the environment.

In essence, the SSbD approach aims to identifying and minimizing, at an early phase of the innovation process, the impacts concerning safety for humans and the environment and for sustainability, minimizing the environmental footprint, in particular regarding climate change and resource use and, protecting ecosystems and biodiversity, taking a lifecycle perspective. The SSbD approach addresses the safety and sustainability of the material/ chemical/ product and associated processes along the whole life cycle, including all the steps of the research and development (R&D) phase, production, use, recycling and disposal.

For **safe and sustainable by design** in nanotechnology, three pillars of design can be specified:

I. *Safe and Sustainable material/ chemical/ product:* minimizing, in the R&D phase, possible hazardous properties and sustainability issues (promoting traceability, sustainable sources of raw materials/natural resources, minimizing resource consumption and sources, promoting social responsibility) of the designed material/ chemical/ product while maintaining its function.

II. *Safe and Sustainable production*: ensuring industrial safety during the production of materials/ chemicals/ products, more specifically occupational, environmental and process safety aspects. The pillar should also ensure processes for the production of materials /chemical/ products minimize emissions (to air, water and soil) and resource consumption (e.g. energy, water), and optimizing waste management; and

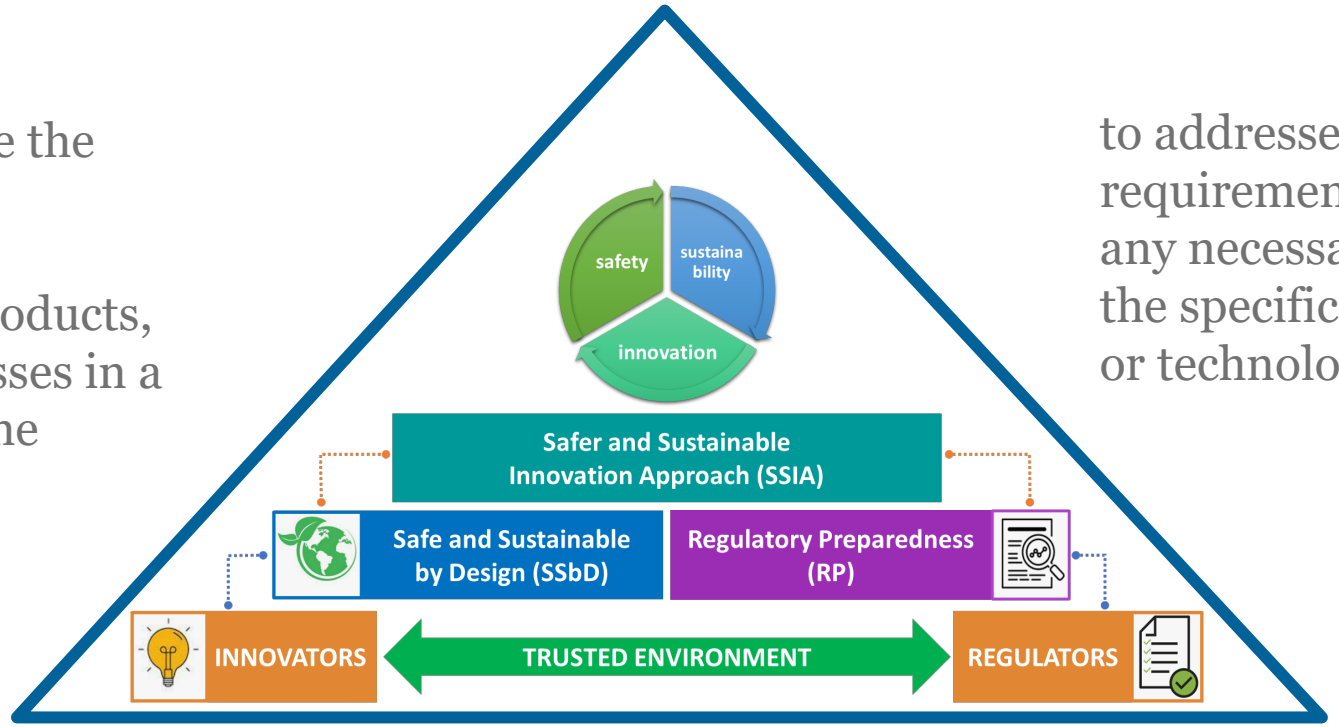
III. *Safe and Sustainable use and end-of-life:* minimizing exposure and associated adverse effects through the entire use life, recycling and disposal of the material/ chemical/ product. Materials/chemicals/products should be designed in a way that demand of resources is minimized during the use phase as well as during recycling, and that the material/ chemical/ product supports the waste hierarchy and circular economy.

OECD (2022) Sustainability and Safe and Sustainable by Design: Working Description for the Safer (and Sustainable) Innovation Approach.

Safe(r) and Sustainable Innovation Approach

Combines SSbD and RP concepts

to identify and minimize the possible health and environmental risks of innovative materials, products, applications, and processes in a timely manner during the innovation process



to addresses regulatory requirements for safety, including any necessary adaptations to cover the specific properties of materials or technologies

SSIA 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.

Steering Group on Advanced Materials

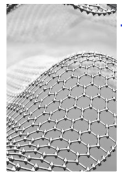
- 21 Delegations: 15 countries, European Commission, Industry (BIAC), Env NGOs, Animal Wellfare ISO TC229

- Tasks
  - Working Description on Advanced Materials
    https://one.oecd.org/document/ENV/CBC/MONO(2022)29/en/pdf
  - Strategic Approach for an early identification of signals of possible concern and knowledge gaps related to safety and sustainability of selected advanced materials to support RP and SSbD
  - Case studies to apply the strategic approach

Steering Group on AdMa

NanoCarriers

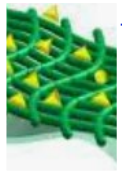
3D Printing



Graphene

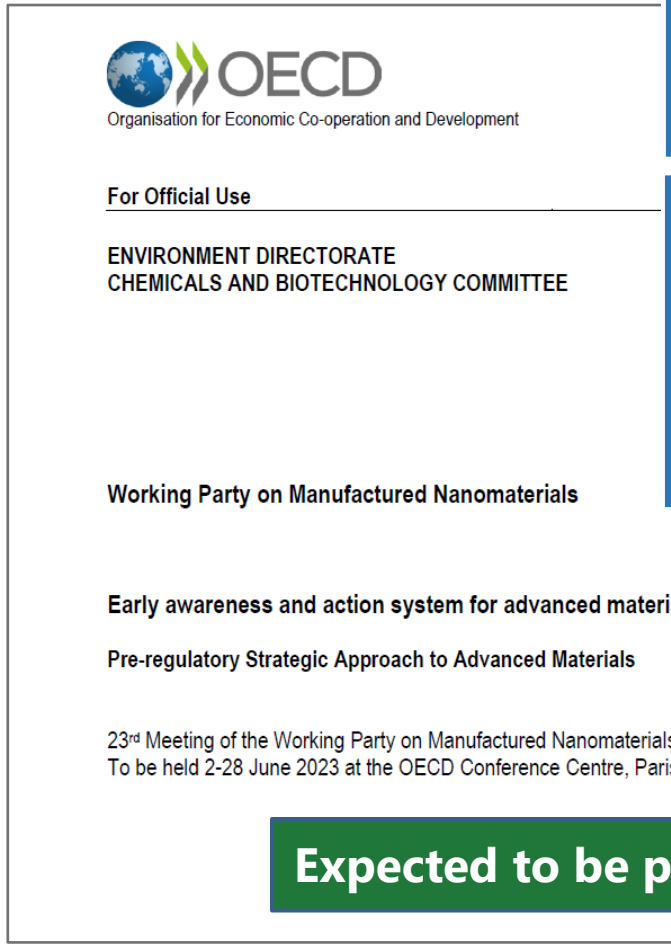
Fibre-aerogel-mats for façade insulation

Harmless



Silver cellulose articles/encapsulate cosmetic

ASINA



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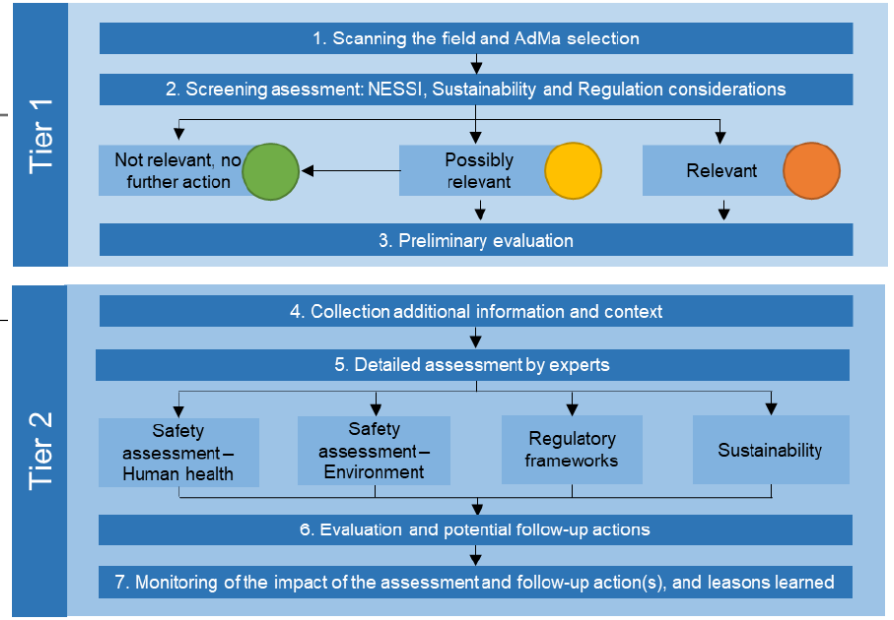
ENVIRONMENT DIRECTORATE
CHEMICALS AND BIOTECHNOLOGY COMMITTEE

Working Party on Manufactured Nanomaterials

Early awareness and action system for advanced materials (Early4AdMa)

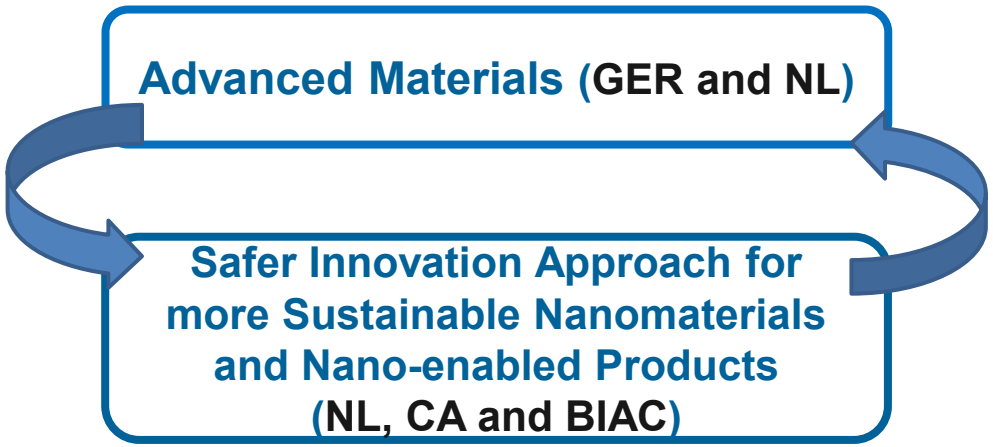
Pre-regulatory Strategic Approach to Advanced Materials

23rd Meeting of the Working Party on Manufactured Nanomaterials.
To be held 2-28 June 2023 at the OECD Conference Centre, Paris, France.



Expected to be publicly available September 2023!

Outlook



Identified needs for **SSbD** and **RP** for **Nano/AdMa**

- Closing knowledge gaps
- Methods & Tools to asses Safety and Sustainability
- Guidance for the assessment of Safety and Sustainability
- Knowledge exchange
- ....

Stay tuned!

UPCOMING WEBINAR
Early awareness and action system for advanced materials (Early4AdMa)
to be held 4th October 2023

https://www.oecd.org/chemicalsafety/nanosafety/oe.cd/nanomet

social media:

YouTube

http://bit.ly/youtube-chemical-safety

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