



# HORIZON EUROPE

## THE EU RESEARCH & INNOVATION PROGRAMME

2021 – 2027

Horizon Europe Information Days – Cluster 4

11-12 October 2024

Destination 2 “Increased autonomy in key  
strategic value chains for resilient industry”



# CLUSTER 4 – 6 Destinations

Destination 1: Climate neutral, circular, and digitised production

**Destination 2: Increased Autonomy in Key Strategic Value Chains for Resilient Industry**

Destination 3: World leading data and computing technologies

Destination 4: Digital and emerging technologies for competitiveness and fit for the green deal

Destination 5: Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data

Destination 6: A human-centred and ethical development and industrial technologies

**WORK PROGRAMME 2023-2024 – DESTINATION 2**  
**“Increased Autonomy in Key Strategic Value Chains  
for Resilient Industry”**

**Call HORIZON-CL4-2024-RESILIENCE-01**

**Opening: 19 Sep 2023**  
**Deadline(s): 07 Feb 2024**

**Call HORIZON-CL4-2024-RESILIENCE-01-TWO-STAGE**

**Opening: 19 Sep 2023**  
**Deadline(s): 07 Feb 2024 (First Stage), 24 Sep 2024 (Second Stage)**

# Strategic innovation markets driven by advanced materials

## Call - RESILIENT VALUE CHAINS 2024 TWO STAGE

- HORIZON-CL4-2024-RESILIENCE-01-35: Biodegradable polymers for sustainable packaging materials (IA)
- HORIZON-CL4-2024-RESILIENCE-01-36: Advanced biomaterials for the Health Care (IA)

## Call - RESILIENT VALUE CHAINS 2024

# HORIZON-CL4-2024-RESILIENCE-01-35: Biodegradable polymers for sustainable packaging materials (IA)

## Expected outcome:

- The packaging industry will have access to the next generation of biodegradable polymer materials, which will also be recyclable materials. Plastic materials producers will switch from PP, PE, and PET to bio-degradable materials with reduced GHG emissions along the value chain.
- The packaging industry will apply business model of circularity-by-design and sustainable end-of-life (EoL) solutions for plastic packaging materials. This has the potential to lead to a reduction in landfill waste volume of packaging materials; and to a reduction of littering of plastics, coherent with the ambition of the Horizon Europe Ocean and Waters mission, to reduce the plastic pollution of the oceans. Projects are expected to contribute to the Plastics strategy, the Single-use Plastics Directive and the EU Circular Economy Action plan (CEAP).
- Standards and labels for specific applications will be further defined based on the development of testing of biodegradability of plastics in open environments

**Indicative budget of the call: EUR 31 million**

**EU contribution per project: EUR 6-8 million**

**Type of Action: Innovation Action**

**TRL: start at TRL 4 and achieve TRL 6-7**

# HORIZON-CL4-2024-RESILIENCE-01-36: Advanced biomaterials for the Health Care (IA)

## Expected outcomes:

- Develop the swiftly growing innovation market of medical applications, which is dependent on advanced biocompatible materials that can be printed or injected, including 4D materials that change their 3D structures following external impact (e.g. thermic, electric, mechanical or radiation treatment).
- Medical and/or surgical procedures will benefit from injectable materials for non-invasive surgical procedures.
- Some of their advantages include easy deliverability into the body, increased implantation precision, controllable release of therapeutic agents, antimicrobial properties and the possibility of monitoring or stimulating biological events.

**Indicative budget of the call: EUR 31 million**

**EU contribution per project: EUR 6-8 million**

**Type of Action: Innovation Action**

**TRL: start at TRL 3-4 achieve TRL 5-6**

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## Call – RESILIENT VALUE CHAINS 2024

### Raw Materials for EU open strategic autonomy and successful transition to a climate neutral and circular economy

- HORIZON-CL4-2024-RESILIENCE-01-01: Exploration of critical raw materials in deep land deposits (RIA)
- HORIZON-CL4-2024-RESILIENCE-01-04: Technologies for processing and refining of critical raw materials (IA)
- HORIZON-CL4-2024-RESILIENCE-01-08: Rare Earth and magnets innovation hubs (IA)
- HORIZON-CL4-2024-RESILIENCE-01-10: Addressing due diligence requirements in raw materials supply chains (CSA)
- HORIZON-CL4-2024-RESILIENCE-01-11: Technologies for extraction and processing of critical raw materials (IA)



# List of Critical Raw Materials for the EU 2023

Aluminium/Bauxite

Antimony

Arsenic

Baryte

Beryllium

Bismuth

Boron

Cobalt

Coking Coal

Copper

Fluorspar

Feldspar

Gallium

Germanium

Hafnium

Helium

Heavy Rare Earths

Light Rare Earths

Lithium

Magnesium

Manganese

Natural Graphite

Nickel

Niobium

Phosphate Rock

Phosphorus

Platinum Group Metals

Scandium

Silicon metal

Strontium

Tantalum

Titanium

Tungsten

Vanadium

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020

**COM/2023/160 final**

**ANNEX II**

# Eligibility conditions – Strategic Partnerships on Raw Materials

*Participation in this topic **is limited to** legal entities established in Member States, associated countries, OECD countries, African Union Member States\*, MERCOSUR, CARIFORUM, Andean Community and countries with which the EU has concluded strategic partnerships on raw materials.*

Argentina

Canada

Chile

Kazakhstan

Namibia

Ukraine

**New partnerships that will be signed before the call deadline will be counted as eligible.**

# HORIZON-CL4-2024-RESILIENCE-01-01: Exploration of critical raw materials in deep land deposits (RIA)

## Expected outcomes:

- Develop innovative technologies for exploration of critical raw materials in deep land deposits in the EU and non-EU countries;
- Increase the resources and reserves of various primary critical raw materials within the EU and non-EU countries;
- Accelerate development of EU domestic critical raw materials exploration projects integrating innovative technologies;
- Strengthen EU autonomy and ethical sourcing of raw materials by developing socially and environmentally acceptable means of discovery of primary raw materials.
- Improve responsible supply of raw materials to the EU in line with the EU principles for sustainable raw materials, which are a non-regulatory set of principles based on the EU acquis. They set out requirements for sustainable raw materials and extraction and processing in Europe in terms of social, environmental and economic performance.
- Promote the utilisation of UNFC (United Nations Framework Classification for Resources) and UNRMS (United Nations Resource Management System) in the raw materials sector.
- Actions are expected to contribute to the implementation of the EU action plan on Critical Raw Materials

**Indicative budget of the call: EUR 20 million**

**EU contribution per project: EUR 5 million**

**Type of Action: RIA**

**TRL: Achieve TRL 3-5**

# HORIZON-CL4-2024-RESILIENCE-01-04: Technologies for processing and refining of critical raw materials (IA)

## Expected outcomes:

- Increase recovery rates of valuable raw materials, particularly critical raw materials from low grade or complex ores and/or from extractive waste;
- Significantly increase economic performance in terms of higher material-, water-, energy- and cost-efficiency and flexibility in minerals processing and metallurgical processes;
- Significantly improve the health, safety and environmental performance of the operations throughout the whole life cycle which is considered, including a reduction in waste, wastewater and emissions generation and a better recovery of resources from generated waste;
- Improve responsible supply of raw materials to Europe in line with the EU principles for sustainable raw materials, which are a non-regulatory set of principles based on the EU acquis. They set out requirements for sustainable raw materials and extraction and processing in Europe in terms of social, environmental and economic performance. Actions are expected to contribute to the implementation the EU action plan on Critical Raw Materials.

**Indicative budget of the call: EUR 22 million**

**EU contribution per project: EUR 7.30 million**

**Type of Action: Innovation Actions**

**TRL: Achieve TRL 6-7**

# HORIZON-CL4-2024-RESILIENCE-01-08: Rare Earth and magnets innovation hubs (IA)

## Expected outcomes:

- Significantly improve supply security and reduced environmental footprint of rare earth value chains in the EU
- Broad access to materials development facilities and services across Europe through a single entry point – innovation hub;
- Accelerate development of products and processes for a faster market entry;
- Reduce costs for both industry and users and increased return on investment in research;
- Improve access to end users and easier marketability of products in Europe;
- Improve responsible supply of raw materials to Europe in line with the EU principles for sustainable raw materials, which are a non-regulatory set of principles based on the EU acquis. They set out requirements for sustainable raw materials and extraction and processing in Europe in terms of social, environmental and economic performance.
- Actions are expected to contribute to the implementation the EU action plan on Critical Raw Materials and the action plan on Rare Earth Magnets and Motors from the European Raw Materials Alliance.

**Indicative budget of the call: EUR 32 million**

**EU contribution per project: EUR 16 million**

**Type of Action: Innovation Actions**

**TRL: Achieve TRL 6-7**

# HORIZON-CL4-2024-RESILIENCE-01-10: Addressing due diligence requirements in raw materials supply chains (CSA)

## Expected outcomes:

- Improve responsible sourcing of raw materials and responsible business conduct initiatives with regard to raw materials;
- Equip the raw materials sector with tools to enable implementation of relevant regulatory initiatives;
- Identify and address gaps in the raw materials supply chains due diligence;
- Improve responsible supply of raw materials to Europe in line with the EU principles for sustainable raw materials, which are a non-regulatory set of principles based on the EU acquis. They set out requirements for sustainable raw materials and extraction and processing in Europe in terms of social, environmental and economic performance.
- Actions are expected to contribute to the implementation the EU action plan on Critical Raw Materials

**Indicative budget of the call: EUR 2.2 million**

**EU contribution per project: EUR 2.2 million**

**Type of Action: Coordination and Support Actions**

# HORIZON-CL4-2024-RESILIENCE-01-11: Technologies for extraction and processing of critical raw materials (IA)

## Expected outcomes:

- Strengthen EU cooperation with resource rich countries;
- Provide new relevant life cycle inventory data sets based on requirements for Environmental Footprint compliant datasets and in line with the 2021 Recommendation on the use of the Environmental Footprint methods, particularly focusing on the existing knowledge gaps (e.g., new technologies for open pit and underground mining).
- To evaluate the environmental performance of the technologies a Product Environmental Footprint (PEF) study will be produced.
- Improved industrial viability, safety and environmental impacts of the operation in a way that leads to measurable improvements;
- Improved diversification EU sourcing of critical raw materials from third countries;
- Improved responsible supply of raw materials to Europe in line with the EU principles for sustainable raw materials, which are a non-regulatory set of principles based on the EU acquis. They set out requirements for sustainable raw materials and extraction and processing in Europe in terms of social, environmental and economic performance.

**Indicative budget of the call: EUR 15 million**

**EU contribution per project: EUR 7.5 million**

**Type of Action: Innovation Actions**

**TRL: Achieve TRL 6-7**

# HORIZON-CL4-2024-RESILIENCE-01-11: Technologies for extraction and processing of critical raw materials (IA)

## *Procedure*

The procedure is described in General Annex F. The following exceptions apply:

To ensure a balanced portfolio covering the partners from the two partner countries mentioned in the scope below, grants will be awarded to applications in order of ranking but also to **at least one project per each partner country**, provided that the applications attain all thresholds.

## *Scope*

Actions have to collaborate with **Canada or Ukraine**, following the strategic partnership on raw materials established in 2021 between the EU and Canada and with Ukraine. The consortia **should contain raw materials industry from at least one of the partner countries** and raw materials users from the EU. **Technology should be demonstrated on the resources of the partner country.**



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## Call – RESILIENT VALUE CHAINS 2024

### Safe and Sustainable by Design (SSbD) chemicals and materials

- HORIZON-CL4-2024-RESILIENCE-01-24: Development of safe and sustainable by design alternatives (IA)

# HORIZON-CL4-2024-RESILIENCE-01-24: Development of safe and sustainable by design alternatives (IA)

## Expected outcomes:

- European industry will have access to safer and more sustainable innovative alternatives of chemicals and materials with reduced substitution barriers (e.g., performance, cost and supply demand);
- Industry will be able to test and demonstrate the applicability of the Safe and Sustainable by Design framework to develop innovative chemicals or materials to substitute substances of concern;
- The EU climate ambitions will be supported by contributing to a decrease of greenhouse gas emissions through a more sustainable production and use of Safe and Sustainable by Design chemicals and materials;
- The EU strategies/policies and regulation, such as the proposal for the Ecodesign for Sustainable Products Regulation[4], the EU Ecolabel, REACH or CLP will be supported with safe and sustainable alternatives of chemicals and materials;
- The proof of concept of developing new Safe and Sustainable by Design chemicals or materials will bring evidence for new skills needed to apply the Safe and Sustainable by Design framework;
- Market uptake of the Safe and Sustainable by Design chemicals and materials will be encouraged by citizens better understanding their benefits.

**Indicative budget of the call: EUR 59 million**

**EU contribution per project: EUR 12-15 million**

**Type of Action: Innovation Action**

**TRL: TRL 4-5 to TRL 6-7**

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## Call – RESILIENT VALUE CHAINS 2024

### Improving the resilience of EU businesses, especially SMEs and Startups

- HORIZON-CL4-2024-RESILIENCE-01-41: 'Innovate to transform' support for SME's sustainability transition (CSA)

# HORIZON-CL4-2024-RESILIENCE-01-41: 'Innovate to transform' support for SME's sustainability transition (CSA)

## Expected outcomes:

- Support objectives of the European Green Deal and of the EU SME Strategy for a sustainable and digital Europe;
- Increased resilience of SMEs, by fostering technological and social innovation in SMEs to support their transition to more sustainable business models and more resource[1]efficient and circular processes and infrastructures;
- Increased competitive sustainability of SMEs through the uptake of advanced technologies;
- Stronger innovation support ecosystems supporting the green, social and economic transition of SMEs, by leveraging synergies between existing EU networks and SME support initiatives.

**Indicative budget of the call: EUR 10 Million**

**EU contribution per project: EUR 5 Million**

**Type of Action: CSA**

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# Thank you for your questions

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BREAK

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To be  
continued...

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in a few minutes

