



Alliance for Materials (A4M) Memorandum:

Materials provide solutions for tomorrow's challenges

Dear EU Commissioners, Members of the European Parliament and Member States Representatives:

.....a European Green Deal, an economy that works for people, a Europe fit for the digital age, protecting our European way of life, a stronger Europe in the world, a new push for European democracy....Why do we need Materials of tomorrow for answering such needs and achieving such goals?

1. The goals:

The objective of this position paper is to highlight how **materials** can contribute to reduction of CO₂ emissions to make Europe **the first Climate Neutral Continent**. How can materials help to reach **zero pollution** in air, water, oceans, and industrial emissions, while preserving competitiveness and biodiversity? How can materials contribute to the **digital age, protecting the European well-being** and health, while building a stronger Europe, ready to serve the needs of our citizens?

2. Materials are at the heart of our daily life

Materials enable the technologies that support our economy, society, health and life. From nanotechnology to ceramics, from metallurgy to biomaterials, through physics, chemistry, and biology. Materials permeate our daily life, enabling and guaranteeing the durability, environmental compatibility, and smooth functioning of devices, machinery and services, across all sectors of our lives. Materials can evolve and change, and even the so-called conventional materials—metals, concrete, plastics—have been revolutionized in new composites, coatings, and applications, helping us to better meet sustainability needs.

3. About the authors:

The **Alliance for Materials (A4M)** promoted by the **European Materials Platform (EUMAT)**, is a joint initiative of technology platforms, academia, research institutes, and industry, working in the field of MATERIALS. A4M represents the **largest materials R&D&I community of Europe**, promoting the **leading global position and competitiveness** of the European technology in the area of **Advanced Engineering Materials**. The ambition is to make evident why investing in materials research is key to find solutions to the great societal challenges of today and tomorrow and to promote the consolidated and unified R&D&I European policy in this area.

4. The Materials community commitment to a great European future

- We firmly believe in the relevance of materials research, because of its cross-cutting nature and its presence in many tangible forms in our daily life.** The R&D&I investments in Europe have produced an impressive volume of knowledge about materials. To turn this knowledge into benefits for a sustainable Europe, materials-based innovation and development of solutions need to be expanded, **confirming materials research as a foundational element of Pan-European innovation and prosperity.**



- **We want to lead the way towards imagining a newly European industry**, where new sectors—such as additive manufacturing or bio-based manufacturing—take off through disruptive research and breakthrough materials innovation.
- **We strive for new sustainable and environmentally friendly materials**, such as bio-based and safely biodegradable materials, to develop and scale up their production, to reach energy and cost efficiency, durability, sustainability, and credibility for our citizens, drawing new avenues and opportunities for the EU industry of tomorrow.
- **We want Europe to make the most out of next-generation materials-based technologies**. Advanced materials are the basic and foundational ingredients for building the transition towards next-generation hyper-trends, such as Quantum Devices and Graphene.
- **We will support European efforts against cancer and other diseases**, by massively enhanced diagnostics, and by providing novel, highly efficient ways to deliver therapies to the right place in the body. Also, nano-enabled biomaterials for fighting against infectious diseases and implants for regenerative medicine will be provided.
- **We believe in the promise of Circular Economy, and in making *circularity and sustainability* foundational values of the European continent**. Sustainability is about protecting materials and environment, about the responsible extraction and use of natural resources; the large-scale recycling and re-use of existing materials “enabled by design”. We want to reduce land and sea pollution by plastic waste, enabling eco-design, re-collection, re-cycling and re-use.
- **We will contribute to sustainable energy** through new composites and highly efficient energy-saving materials, used for buildings or for the mobility of tomorrow. Electric batteries, fuel cells, photovoltaics, building insulation materials... are only a few examples of energy applications where materials represent more than 50% of the final product value.
- **We will work to tailor the Materials at the design phase**, precisely matching the properties and performance of materials for each application via advanced modelling and characterization tools, to reduce the cost for durable and energy efficient design of products and processes
- **We take the lead in expanding skills, education, life-long learning** for well-trained materials experts and innovators, young people and adults alike.
- **We want to preserve the European quality of life and living standards by integrating people's voice in our work**, since the spirit of co-creation and citizen involvement has gained more and more importance in our democratic community.

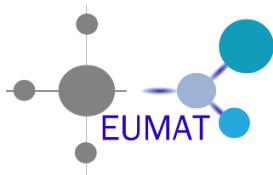
5. Concrete proposals:

We propose that Horizon-Europe (H-EU) shall maintain, enhance the support for, and strongly invest in materials research, development, and innovation. We believe that a comprehensive governance of the many materials applications in H-EU (in whatever instrument, pillar, or mission) enables synergies and a maximized impact to be reached. For these reasons, the Alliance for Materials offers to support the European Commission in governance, strategic planning, and co-creation of publicly funded Materials Research in Horizon Europe¹.

1. A4M Position paper (April 2019) in <http://www.eumat.eu/>



ANNEX 1: 26 MATERIALS RELATED EUROPEAN ASSOCIATIONS



(as Observer)





ANNEX 2: 67 MATERIALS INTERESTED RESEARCH INSTITUTIONS



Materials Science and Technology



INTERNATIONAL IBERIAN
NANOTECHNOLOGY
LABORATORY





ceinnmat
Emerging technologies



cidetec>



LEiTAT
managing technologies



IOM³
The Institute of Materials,
Minerals and Mining

**institute
IMdea
materials**



aimen
TECHNOLOGY CENTRE

ICAMCYL
Centro Internacional de materiales avanzados
y materias primas

Elastopôle
Pôle de compétitivité caoutchouc et polymères



ciber-bbn
Centro de Investigación Biomédica en Red
Bioingeniería, Biomateriales y Nanomedicina

IDONIAL
TECHNOLOGY CENTRE

AIMPLAS

CVR | Research Centre Rež

CIC energigune
energy cooperative
research centre

CYBERNANO
COMPUTATIONAL SOLUTIONS FOR BIOPHARMA & NANOMEDICINE

jtc
AICE

UNIVERSITAT
JAUME I

Plastipolis
PLASTICS AND COMPOSITES COMPETITIVENESS CLUSTER

M2I materials
innovation
institute

bay
Bay Zoltán
Nonprofit Ltd
for Applied Research

ctp
centre technique
du papier

Fraunhofer
MATERIALS

AIT
AUSTRIAN INSTITUTE
OF TECHNOLOGY
TOMORROW TODAY

NPL
National Physical Laboratory

UNINOVA
Instituto de Desenvolvimento de Novas Tecnologias

aitex®
textile research institute

ANNEX 3: 72 COMPANIES INTERESTED IN MATERIALS



costaverde



ADVANCED
MATERIAL
SIMULATION



makinggenetics



BUILDING TRUST





REGEMAT 3D



FCA
FIAT CHRYSLER AUTOMOBILES



revigres



revigres

AXEL
AXEL CHRISTIERNSSON

TMCOMAS
GROWING TECHNOLOGY

acciona



MATRILUB
Materials, Tribology, Lubrication

BAX
& COMPANY/
VALUE FROM SCIENCE AND TECHNOLOGY



LISTEMANN
perfecting materials



METEC NETWORK
funding & innovation

ANNEX 4: 35 MATERIALS RELATED UNIVERSITIES





ANNEX 5: 17 NATIONAL ASSOCIATIONS



ORDEM
DOS
ENGENHEIROS



ADVANCED MATERIALS
AND NANOMATERIALS
SPANISH TECHNOLOGICAL PLATFORM



INNOVATION NETWORK



ANNEX 6: MATERIALS INTERESTED COMMUNITY

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