We would like to present you our AMULET newsletter.

As you know, **AMULET project is a a cross-regional partnership** with ten EU countries involved that includes **seven clusters, four RTOs and 2 SMEs.** AMULET will **focus on the following three advanced materials: light metal alloys, ceramic matrix composites, polymer-based composites** and their implementation **in four sectors: building, aerospace&aeronautics, energy and automotive**.

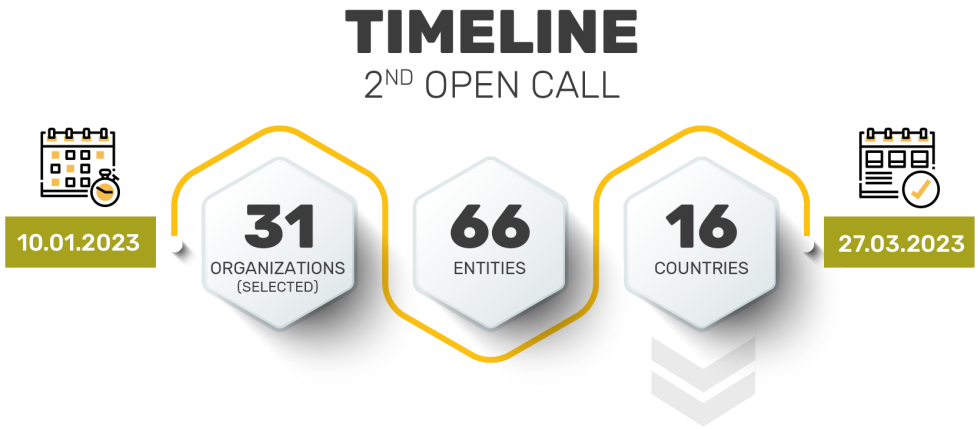
Manufacturing is nowadays striving for a wiser change into a more sustainable future for post-pandemic world. As environmental concerns become increasingly important to consumers, many market sectors are shifting toward greater energy consciousness and sustainability.

The scope of the newsletter is to provide updates on project progress and inform you about highlights.

All **AMULET partners would like to thank you** for your interest in our project, your support on each activity, and your active involvement.

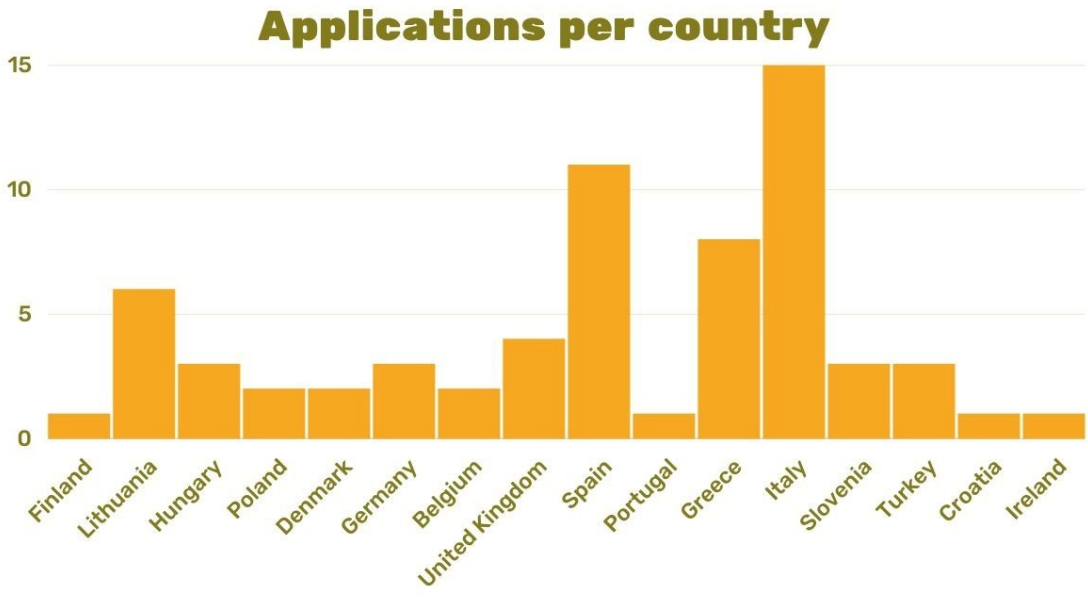
The AMULET Consortium.

AMULET 2nd OPEN CALL RESULTS!

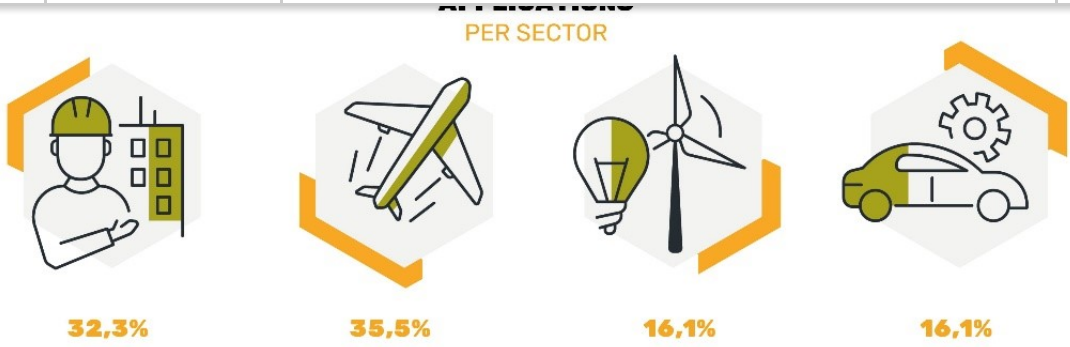


European SMEs have been numerous to apply, with 37 submitted application and selected 31 involving 66 entities from 16 countries. 3 countries stand out among others – Italy (15 applicants) as one of the top source countries, then Spain (11 applicants) and Greece (8 applicants).

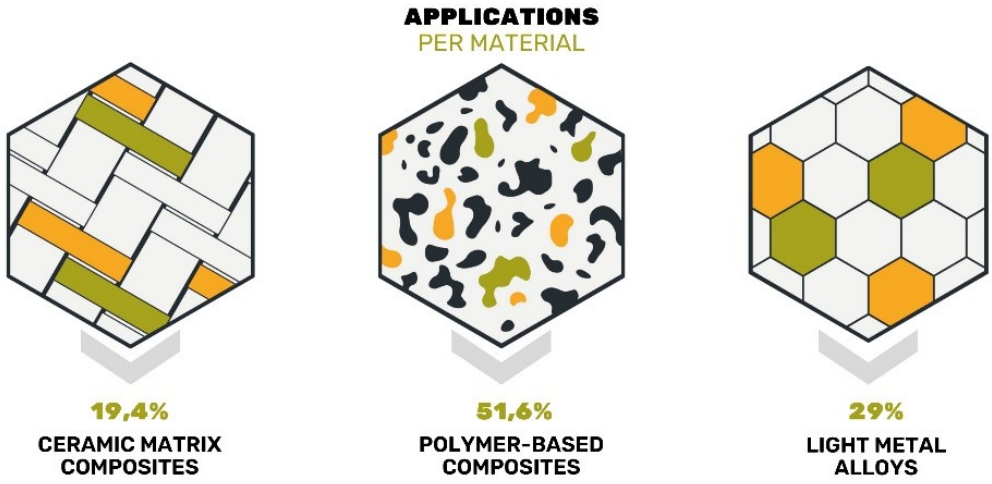
Other countries: Finland (1), Lithuania (6), Hungary (3), Poland (2), Denmark (2), Belgium (2), United Kingdom (4), Portugal (1), Germany (3), Slovenia (3), Turkey (3), Ireland (1), Croatia (1).



Two sectors dominated among the applicants and preselected applications concern challenges of aerospace&aeronautics sector - 11 applications (35,5%) and building – 10 applications (32,3%). Less popular were challenges of energy - 5 applications (16,1%)) and automotive - 5 applications (16,1%) sectors.



Among materials selected by preselected applicants one stands out among others: polymer-based composites material constitutes the largest percentage 51,6% of applications (16 applications). The second is light metal alloys – 29% (9 applications). Third material –ceramic matrix composites – gathered 6 applications which is 19,4% of all applications.



AMULET 2nd Open Call Finalists

Energy

ADAPTANK
Adaptable compressed hydrogen storage tank system for vehicle space optimization
Coordinator: Go Ahead Engineering SL (Spain)
Partner: ADENTE İLERİ MÜHENDİSLİK TEKNOLOJİLERİ AS (Turkey)
Material: Polymer-based composites
Challange: 18

ADAPTANK aims to develop a hydrogen storage system with an innovative shape that parametrically optimises the storage of hydrogen on-board of aircrafts and other mobility applications, allowing for longer operational range and/or lighter vehicles.

H2sandwich
Synergistic material design of H2 tanks
Coordinator: Composite Designers Ltd (United Kingdom)
Partner: Addcomposites Oy (Finland), M Bruijn Consult bv (Belgium)
Material: Polymer-based composites
Challange: 18

We redesign conventional high-pressure H2-gas tanks to reduce tank weight per volume. We achieve this by optimising and redistributing non-linear stress distributions inside tank walls through material re-design and use of novel production methods."

CarbonWeave
Recycled carbon fiber non-woven for a lightweight composite
Coordinator: PANGAIA GRADO ZERO S.R.L (Italy)
Partner: SEASCAN MARINE S.R.L (Italy)
Material: Polymer-based composites
Challange: 20

Creation of a lightweight composite with high-performance. Recycled carbon fibers will be used to produce a non-woven adapting textile techniques. This material will be suitable for further processing to create a composite for various applications.

AMULET 2nd Open Call Finalists

Energy

TiTEC
3D-Printed Ti-Turbopumps at Extreme Conditions
Coordinator: Pangea Aerospace S.L. (Spain)
Partner: Aenium Engineering S.L. (Spain), Diondo GmbH (Germany)
Material: Light Metal Alloys
Challange: 6

Novel application of the lightweight titanium alloy Ti-5Al-2.5Sn to turbopump components for cryogenic liquid rocket engines through LASER-AM process and materials engineering that allows cross-sectoral use of titanium to hydrogen-based sectors.

AIR-HGEN
Optimization of hydrogen storage tank with control over manufacturing uncertainties
Coordinator: DELTA-MPIS (Greece)
Partner: B&T Composites (Greece)
Material: Polymer-Based Composites
Challange: 18

AIR-HGEN will deliver an optimal design of the Type 4 composite pressure vessel, targeting on reducing weight, taking into account defects, coming from real case manufacturing scenarios monitored by a digital twin.

AMULET 2nd Open Call Finalists

Automotive

ZinAl
Zinc removal from Al-melt
Coordinator: InsPyro NV (Belgium)
Partner: konzept GmbH - Engineering Services (Germany)
Material: Light Metal Alloys
Challange: 12

The project will apply existing zinc removal processes in non-ferro industry to aluminum for which the presence of Zn is problematic. The solution will use the metallurgical properties of both zinc and aluminium to refine the aluminium melt.

COSADA
COmposite Solid structural ADhesive for Automotive
Coordinator: TMBK Partners Sp. z o. o. (Poland)
Partners: ADAMANT AERODIASTIMIKES EFARMOGES EPE (Greece)
Material: Polymer-based composites
Challange: 12

COSADA is a combination of Adamant Composites' adhesive films and TMBK's thermoplastic nonwovens into ready-to-use solid adhesive for joining composites and metals allowing for consistent, lighter designs, and enhanced new functionalities.

Duolight
Duolight - Aluminum foams with 3D printed technopolymer
Coordinator: NIKA s.r.l. (Italy)
Partner: Consorzio MUSP (Italy)
Material: Polymer-based composites
Challange: 39

Duolight project combine flexibility and sustainability of 3D addictive polymers printing with capability of aluminum foam in terms of lightweight and absorption (insulation, impact, dynamic stiffness) to create new opportunities for EV.

AMULET 2nd Open Call Finalists

Building

3DFit4Connectors
3D Manufacturing of Fit4Purpose Connections
Coordinator: Efficiencyerising, Lda. (Portugal)
Partners: KIESELSTEIN International GmbH (Germany)
Material: Light Metal Alloys
Challange: 24

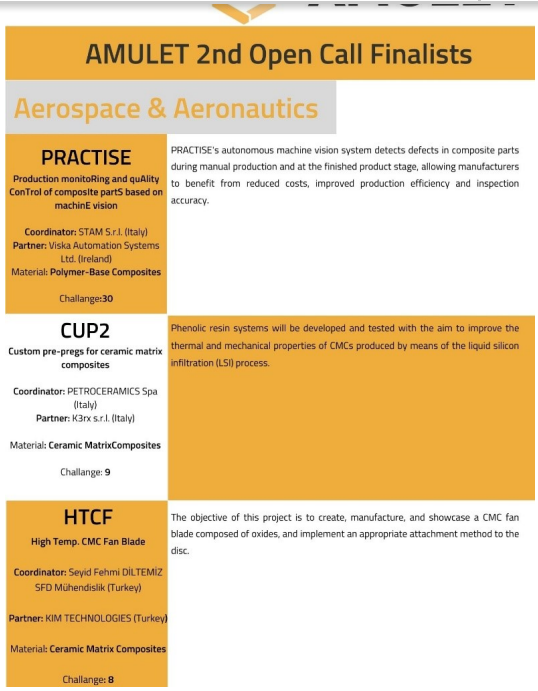
The project aims to demonstrate the Product-Service 3DFit4Connectors: designing fit-for-purpose connectors and selection the best 3DP process, based on economic, environmental and technical assessment, with connectors manufacturing and parts supply.

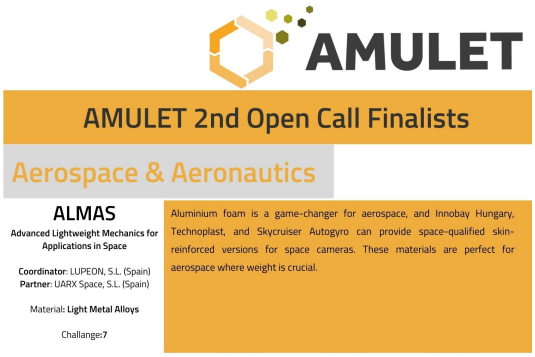
ReMaREFRACT
Reuse of Magnesium-based by-products and slags for refractory materials
Coordinator: ADDITIO D.O.O. (Slovenia)
Partner: EKSTERA d.o.o (Slovenia)
Material: Ceramic Matrix Composites
Challange: 26

Project ReMaREFRACT aims to reuse Mg by-products and slags from the steel industry by pulverizing them into dust, removing residues, and pressing/binding dust into a new product (or alternatively 3D printing with MgO dust-based filament) and sintering it.

RecuMgased
Recuperation of Mg-based wastes in new materials
Coordinator: Fundación Innovarcilla (Spain)
Partners: KFundación CIAC (Spain)
Material: Ceramic Matrix Composites
Challange: 26

This project aims to explore the utilization of industrial waste in construction materials. The goal is to reduce waste generation and environmental impact while creating new value-added products.





Get to know our beneficiaries:

https://amulet-h2020.eu/2nd-open-call/

PARTNERS

For more information, contact:

Project Coordinator: Annabelle Sion (POLYMERIS)

Email: annabelle.sion@polymeris.fr

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101005435