

Annex 1. Contact List of VIBES Stakeholders

VIBES		Contact list of VIBES stakeholders												
Group list	Sub-group list	No	Group (please select from drop down list)	Sub-group (please select from drop down list)	Contact name	Gender (M/F)	Contact email	Organisation (if applicable)	Website (if applicable)	Country	Nominated by VIBES consortium partner	Stakeholders Board Member (YES/NO/MAYBE)	Comments	FOLLOW UP
Industrial developers	Thermoset composite material developers													
Industrial converters, dismantlers & end-users	Composite recyclers													
Technology/ Innovation Experts	Aeronautical													
Impact multipliers	Naval													
Other (please specify in comments)	Construction													
	Energy													
	Waste management													
	Logistics													
	Transport													
	Academics and/or Researchers													
	Technology and/or Innovation consultants													
	Policy makers													
	Media/ journalists or bloggers													
	Other (please specify in comments)													

Annex 2. Declaration of Acceptance and Informed Consent Form

Declaration of Acceptance

(for individuals appointed as members of the VIBES Stakeholders Board in their individual capacity)

I, the undersigned, _____ certify that I have read and agree to abide by the VIBES Stakeholders Board Terms of Reference.

I pledge that I will participate in the VIBES Stakeholders Board in my individual capacity and as such I may not delegate another person to carry out the work or be replaced by any other person without prior written agreement with the VIBES consortium.

I certify that no conflict of interests exists that could be considered as prejudicial to my independence in acting as a member of the VIBES Stakeholders Board.

I undertake not to divulge any information given in the context of the work of the Stakeholders Board, unless the VIBES consortium agrees to release me from this obligation, and to respect the confidentiality requirements.

I declare to accept entirely and with no reservations my appointment as member of the Stakeholders Board as described in the Terms of Reference.

I consent that any input or contribution I provide as member of the VIBES Stakeholders Board may be used by the VIBES consortium for reporting purposes or to align the products and technologies offered by VIBES with the needs of final users to ensure that they make the most out of its value propositions.

Name of participant

Date

Signature

INFORMED CONSENT FORM

Who we are

We are contacting you in the framework of VIBES, a project funded by the Biobased Industries Joint Undertaking (BBI-JU) under the European Union's Horizon 2020 Framework Programme for Research and Innovation.

VIBES aims to develop and demonstrate an innovative, greener, cost-efficient, and non-toxic recycling technology solution to resolve the end-of-life issues of thermoset composite materials, decreasing the amount of non-biodegradable polymers sent to disposal or discharged to the environment by at least 40%.

A detailed description of the project and description of how VIBES handles personal data is available through the project's web site www.vibesproject.eu.

Project:

VIBES – Improving Recyclability of Thermoset Composite Materials through a Greener Recycling Technology, based on Reversible Biobased Bonding Materials.

Project Coordinator:

Organisation name: FUNDACION AITIIP

Address: Polígono Industrial Empresarium, Calle Romero N°12, 50720 Zaragoza, Spain

Communication, Training and Stakeholders Manager:

Organisation name: Q-PLAN INTERNATIONAL ADVISORS P.C.

Address: 11 El. Venizelou str, 55133 Kalamaria, Thessaloniki, Greece.

Responsible persons:

#	Role	Name	E-mail
1	Project Coordinator	Pere Castell	pere.castell@aitiip.com
2	Communication, Training and Stakeholders Manager	Eirini Efthymiadou	info@vibesproject.eu ; efthymiadou@qplan-intl.gr

What we need from you

We need you to participate in the VIBES Stakeholders Board with a view to participate in project activities, including demonstration workshops, roundtables and technological breakfasts, and provide your views and feedback to guide decisions in the project and boost the VIBES concept and its implementation in real economy.

To effectively carry out the activities of the Stakeholders Board, we need to process some of your personal data:

- Your contact details (full name, email, phone number).

- Some basic demographics (gender, nationality).
- Your professional information (organisation, job position, field of expertise).
- Your education information.
- Your opinions on the subject matter(s) of relevant events.

Why we need your data & what we will do with them

We need your data to contact you in order to plan and carry out activities related to the Stakeholders Board and to resolve any ambiguities, questions and other issues that may arise after and as a result of your participation in such activities. We also need to record your data to keep track of the implementation of the activities. The project's deliverables that will be derived by activities in which you participate will not include your personal data or any other information that could identify you.

We will share your data with other project partners that are also involved in this task and will participate in the drafting of the relevant deliverables. We are also obliged to grant access to your data to:

- EU officials such as our Project Officer for purposes related to project's evaluation.
- EU agencies and other authorities for project's auditing purposes.

We would also be very happy if you gave us your consent to contact you in the future to ask you to participate in other project activities and also to inform you about the project's progress (e.g. by sending you a newsletter or similar messages).

How you can withdraw your consent

You should know that you can withdraw your consent at any time by communicating either on the phone or by email with the responsible persons listed in the previous page. With regards to the informational messages and newsletters you can always opt out by simply clicking the link "Unsubscribe" or something similar included at the end of all the relevant messages.

I hereby give my consent to the processing of my personal data needed for:

*(Please, tick the boxes below to confirm that you give us your consent for the respective subject. Any boxes left unticked mean that **you do not consent to the relevant subject.**)*

#	Consent Subject	Tick box
1	My participation in the Stakeholders Board and its related activities, including demonstration workshops, roundtables and technological breakfasts, to provide my views and feedback to guide decisions in the project and boost the VIBES concept and its implementation in real economy.	☐
2	My participation in future activities of VIBES.	☐
3	Receiving newsletters and messages regarding VIBES activities.	☐

Name of participant

Date

Signature

Annex 3. Stakeholders Board Terms of Reference

Introduction

You have been invited to take part in the **VIBES Stakeholders Board (SB)** because you were nominated by at least one of the VIBES consortium partners as a key stakeholder. The following Terms of Reference are aimed at helping you understand what this involves before you decide to participate. Please take the time to read this document carefully and ask for any clarifications you may require.

VIBES in a nutshell

VIBES is a 4-year Research and Innovation Action running from June 2021 to May 2025, funded by the Bio-Based Industries Joint Undertaking (BBI-JU) under the Horizon 2020 Framework Programme for Research and Innovation.

The VIBES project aims to develop and demonstrate an innovative and cost-efficient **green technology solution** to resolve the **end-of-life issues of thermoset composites**, decreasing the amount of non-biodegradable polymers sent to disposal or discharged to the environment by at least 40%. To reach its purpose, VIBES will initially focus on the controlled separation and recovery of composite material components by means of developing customised **100% Biobased Bonding Materials (BBM)**. In addition, the project will design and develop biobased thermoset composites, with the intention to **place industrial biobased and recyclable substituent composite materials in the market**. The developed materials will be validated for optimum performance/ cost ratio in 3 **high-demand industrial sectors**: aeronautical, construction and naval industries. Finally, a **greener, fast, economic, and non-toxic recycling technology** to treat the smart VIBES composites will be developed and implemented at pilot level. As a result, the decomposed materials will be **recovered and valorised as new feedstocks** for the development of new products. The whole system will be defined, from the dismantling of the parts of the composite, to collecting and directing to the recycling plant, receiving, handling and sorting of the materials.

In this context, the Stakeholders Board (SB) of VIBES will consist of experts and representatives of various stakeholder groups in the whole value chain of VIBES, with activity in both local and European settings, who will be strategically involved in key stages of the project to contribute with their expertise and represent the views and interests of their stakeholder groups, in order to better guide decisions in the project and boost the VIBES concept and its implementation in real economy.

The VIBES project brings together a consortium of **13 partners across 7 different EU member states**. You can find more information about VIBES and the consortium by visiting www.vibesproject.eu.

Role and benefits

Role

The SB is set up and operate to share its knowledge and expertise with the consortium of the project in key implementation stages. The role of the SB in the context of the project may be summed up as follows:

- **Provide feedback and insights for the development process of VIBES innovations** such as the bio-based materials and the recycling technology, by participating in discussions and activities as prospective users of the developed materials and technology, to enhance their practical value and usability; as well as

- **Be actively involved in VIBES dissemination activities** to create a multiplier effect in spreading the word on the project's value propositions, knowledge and impact as well as facilitating the market uptake of the project's results.

To fulfil this role, it is foreseen that the SB, during the course of the project, will participate in VIBES demonstration workshops, roundtables and technological breakfasts, and will interact on ad-hoc basis if necessary:

- **Demonstration workshop:** it is expected that the SB will help articulate and lead the organisation of at least one demonstration workshop, addressed to industry and other VIBES stakeholders, in order to get the necessary feedback and engagement in the technology and the soundness of the VIBES concept.
- **Roundtables:** it is expected that the SB will participate in at least two roundtables, to be organised at key turning points of the VIBES project, in order to open debate, share different perspectives and get feedback to boost the VIBES concept and its implementation.
- **Technological breakfast:** it is expected that specific members of the SB will participate in at least one technological breakfast for industrial professionals, to be organised as part of the VIBES training programme, in order to share their views and experience in the fields addressed by the VIBES project.
- **Ad-hoc interactions:** if deemed necessary, the support of the SB (either in its entirety or of specific members based on their particular expertise) will be requested for ad hoc needs.

Benefits

The project provides **several benefits to its SB members**, such as:

- **Networking opportunities and visibility** as an expert stakeholder in a large multi-stakeholder community in the VIBES domain.
- **First access to meaningful insights, knowledge and results** generated exclusively within the context of the project and its activities.
- Unique opportunity to **align the VIBES bio-based materials and recycling technology with the needs of their stakeholders** to ensure that they make the most out of their value propositions.

Terms of membership and Management

Terms of membership

The SB shall be composed of eminent experts coming from diverse backgrounds to offer a blend of expertise that represents various groups of stakeholders from the VIBES whole value chain (such as industrial developers and users, academics and researchers, technology and innovation consultants, policy makers, media representatives etc.) and experts involved in projects and initiatives that are relevant to VIBES. These experts will provide VIBES with valuable feedback aimed at aligning the project's outcomes with the needs of users and stakeholders. Along these lines, at least 10 members of the Stakeholders Board (SB) will be initially selected with the possibility to further expand the SB in the future in order to draw from additional expertise and increase the outreach of VIBES. New members could be appointed to the SB when necessary and as the project evolves.

Although members of the SB may be selected because of their affiliations with key organisations, they serve on the SB in their **individual capacity** to represent the interests and views of their stakeholder

communities. **Members of the SB may not delegate another person to carry out the role expected from them** or be replaced by any other person without prior written agreement with the VIBES consortium. Members of the SB are appointed for the entire duration of the project (48 months, from 1 June 2021 to 31 May 2025). If due to job changes or attrition, an SB member loses links to important networks or constituencies, the consortium may decide to fill in this gap by appointing additional members.

The contribution of SB members is on a **pro bono basis**, apart from the cases in which physical travel is involved and a specific budget for their reimbursement is foreseen in the framework of the project. In such cases, the travel and accommodation expenses of SB members will be reimbursed by the project. Moreover, participation in the SB is **entirely voluntary**. There will be no adverse consequences if an SB member decides not to participate or to withdraw at any stage. In fact, SB members may withdraw their participation at any time by informing the Communication, Training and Stakeholders Manager (see next section). They may also request for their data to be withdrawn without giving a reason and without prejudice. Anonymous data already collected will be used because this information cannot be traced back to a specific person, but no further data or input will be collected, nor any other procedure will be carried out in relation to the specific member.

Management

The SB is managed by the **Communication, Training and Stakeholders Manager** that facilitates the communications and interactions between the SB and the consortium, ensuring that SB members are not overloaded. The Communication, Training and Stakeholders Manager will also ensure that for each task requiring input from the SB, the partners have beforehand prepared an action plan and all necessary briefings and material. Only then, will the Communication, Training and Stakeholders Manager introduce a partner who may directly communicate with the SB in order to achieve the expected goals at each time.

Contact point

Any enquiry, complaint or concern about any aspect of your experience as a member of the Stakeholders Board (SB) can be addressed to the **VIBES Communication, Training and Stakeholders Manager** that oversees the set up and manages the SB. The contact details of the Communication, Training and Stakeholders Manager are provided below:

VIBES Communication, Training and Stakeholders Manager: Q-PLAN INTERNATIONAL ADVISORS P.C.

Contact person: Eirini Efthymiadou

Phone: +30 2310 411 191

Email: info@vibesproject.eu; efthymiadou@qplan-intl.gr

Project website: www.vibesproject.eu

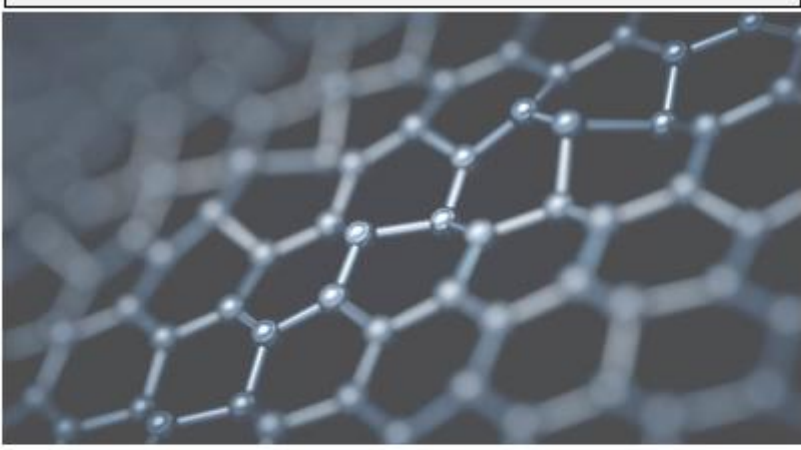
Annex 4. Document and Presentation Templates



Improving Recyclability of Thermoset Composite Materials through a Greener Recycling Technology based on Reversible Biobased Bonding Materials

Research and Innovation Action (RIA)
Grant Agreement 101023190

DX.Y "Title of Deliverable"
Work Package X
Responsible Partner: Name of Partner





Bio-based Industries Consortium

This project has received funding from the Biobased Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.



CONTACT US: info@vibesproject.eu

VISIT: www.vibesproject.eu



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Green
Chemistry
Recycling
Solution

IMPROVING RECYCLABILITY OF THERMOSET
COMPOSITE MATERIALS THROUGH A GREENER
RECYCLING TECHNOLOGY BASED ON REVERSIBLE
BIOBASED BONDING MATERIALS

www.vibesproject.eu

Title

Location

Date

Name

Email

Organisation




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Annex 5. VIBES Presence on Social Media

VIBES Page and Metrics on Twitter



28 day summary with change over previous period

Post impressions

1,445 ↑ 36.2%



Followers

250



VIBES Page and Metrics on LinkedIn



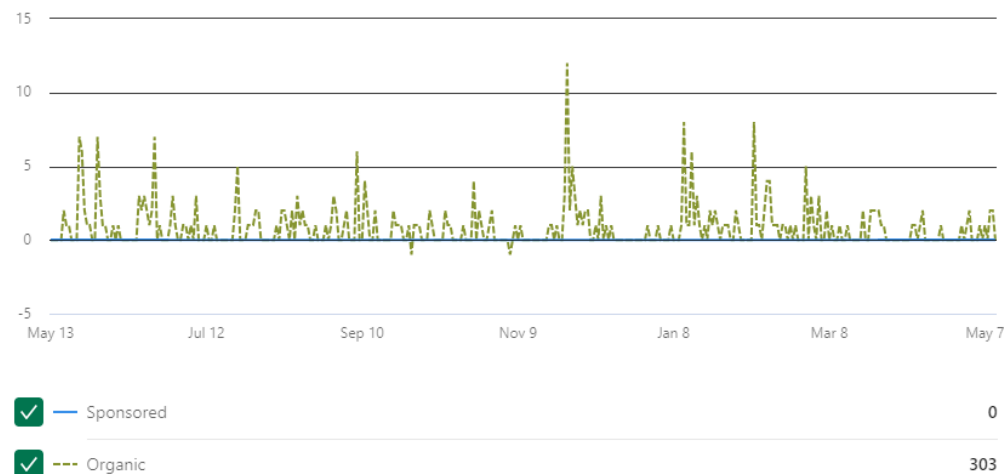
The screenshot shows the LinkedIn profile of the VIBES Project 2021-2025. The header features the VIBES logo and the website URL www.vibesproject.eu. The profile description states: "A green technology solution for thermoset composites' end-of-life. Biotechnology Research · 615 followers · 11-50 employees". Navigation buttons include "Message", "Following", and a menu icon. The "Posts" tab is selected, showing a post from 3 days ago about a meeting at the NIACE Building. The post includes two photos of the event and mentions "You and 17 others" as well as "3 comments · 2 reposts".

Follower highlights ?

615
Total followers

303
New followers in the last 365 days

Follower metrics ?



Highlights

Data for 5/13/2023 - 5/11/2024

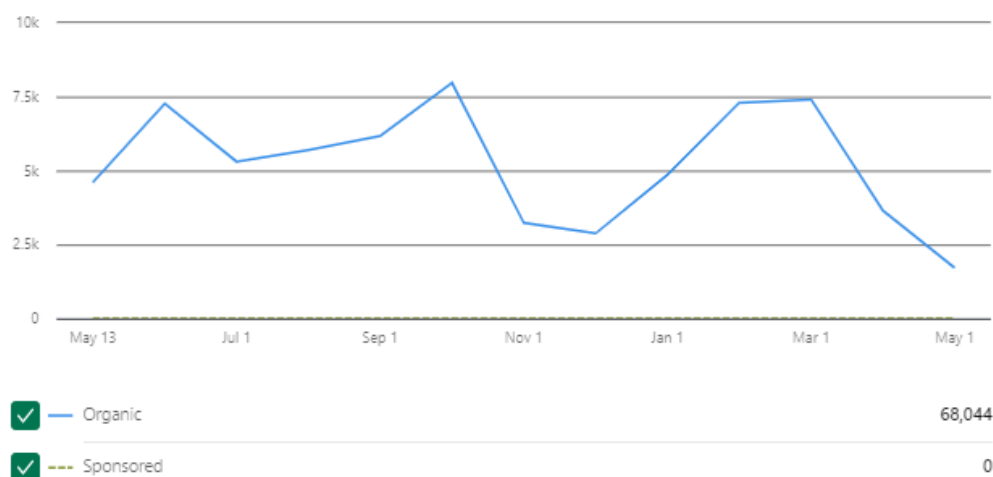
1,510
Reactions

25
Comments

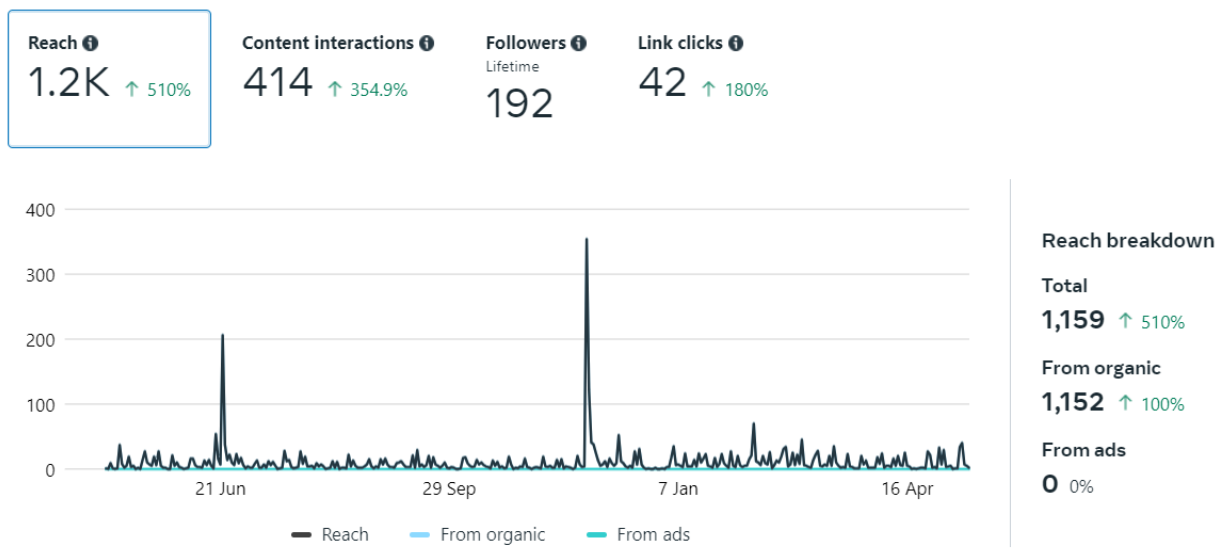
53
Reposts

Metrics

Impressions ▾



VIBES Page and Metrics on Facebook



VIBES Page on YouTube



VIBES Project

@vibesproject2291 · 11 subscribers · 3 videos

The VIBES project aims to develop an innovative and cost-efficient green technology soluti... >

vibesproject.eu

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Videos ▶ Play all



VIBES Summer Course
34 views · 7 months ago



VIBES Project 2021-2025
(with English subtitles)
70 views · 2 years ago



VIBES Project 2021-2025
307 views · 2 years ago

Annex 6. VIBES Fourth Newsletter



Newsletter issue #4

28 June 2023

Welcome to the fourth issue of the VIBES newsletter

Improving Recyclability of Thermoset Composite Materials through a Greener
Recycling Technology.



Embracing 2 Years of Achievement in Barcelona

Marking the milestone of its 24-month journey, the VIBES project consortium convened in Barcelona, Spain, on the 22nd of June 2023, for a highly productive project meeting, hosted at LEITAT's headquarters. The partners showcased and discussed the remarkable progress and achievements made so far. The meeting also served as an opportune moment to outline the forthcoming semester's plans and future developments. While most participants had the privilege of engaging face-to-face and fostering valuable connections, a few members joined the meeting remotely.

At the heart of the VIBES project lies the ambitious goal of transforming the thermoset composite materials industry, paving the way for their seamless integration into a circular economy. Through the development of innovative technologies and approaches, the project partners strive to establish sustainable and bio-based solutions that enable the reuse of thermoset composites beyond their initial lifecycle. With a budget of nearly 5.3 million Euros and a duration of 48 months, the VIBES project is funded by the Bio-Based Industries Joint Undertaking (BBI-JU) under the European Union's Horizon 2020 Framework Programme for Research and Innovation.

Technical Developments and Future Steps



Based on the results of the research activities carried out during a period of ten months, in collaboration between AITIIP, LEITAT and SPECIFIC POLYMERS, synergies within and between three reversible approaches of Bio-based Bonding Materials (BBMs) to ease the controlled separation and recovery of composite material components have been investigated: (i) supramolecular, (ii) vitrimers and (iii) Diels-Alder. Two main possible synergies have been identified, in relation to: a) the ability of selectively recycling one material than another, and b) the improvement of the recycling properties of the reversible technology used.

It has been concluded that vitrimer-based BBMs can be selectively degraded thanks to a careful selection of the degradation bath conditions. Significant synergy combining two vitrimer functions, i.e. disulfides and imines, has been observed showing accelerated dynamic exchanges. It has also been demonstrated that two developed approaches, supramolecular and Diels-Alder, could be joined in a single structure and provide a more versatile solution, which should be applied to the fibre instead of directly into the resin system.

In parallel, research has been carried out to improve the stabilisation step and the carbonisation step of lignin-based carbon fibres at both lab scale (ULIM) and semi-pilot scale (DITF). At lab scale, the mechanical properties of the fibres reached the state of the art. The effort will be continued to upscale the lignin-based carbon fibres.

Plasma surface modification of fibres has been studied by LEITAT to promote different effects that can enhance the interfacial adhesion with matrix and/or coupling agents. In addition, new woven fabrics and non-woven mats in natural flax and carbon fibres have been investigated by F&D.

The effect of the new biobased sizing coupling agents, developed by the project, on the hydrophobicity of commercial carbon fibre weaves has been assessed. Furthermore, the production of coated fabrics with the incorporation of the developed supramolecular-based BBMs has been tested. Carbon fibre treatment will be further explored with the biobased resin developed by the project, and optimised.

Using the results of the above research, the next steps will mainly focus on the design, development and validation of new composite materials with intrinsic recyclability properties, followed by the development of the VIBES recycling technology at a pilot scale.

VIBES Presence at Prominent Events



VIBES partners have been actively engaged in various prestigious events, demonstrating their commitment to sustainable innovation.

BCIRCULAR proudly presented VIBES at the Strategic Immersion Day "[Roadmap 2030 for a Sustainable Economy](#)", organized by the LIGHT MOBILITY CLUSTER in Barcelona, Spain. The event provided an ideal platform for showcasing the project's groundbreaking research and its potential impact on the future of mobility. AITIIP, the project's coordinator, showcased their innovative research line, VIBES, at [the eMobility Expo World Congress](#) and at [Wake Up Spain Forum](#). They further extended their reach by participating in [Transfiere 2023](#), in the "[Excellence Forum-Automotive Cluster](#)" conference, and a scientific seminar held at [the prestigious International University Menéndez Pelayo](#). To foster knowledge exchange, VIBES coordinator also participated in [a workshop titled "The End of a Product, the Beginning of a Material"](#), emphasising the project's focus on sustainable material usage and circular economy principles.

In addition, Specific Polymers made significant appearances at two important conferences: the "14th Advanced Polymers via Macromolecular Engineering" conference and the EUPOC conference, both held in Italy. Furthermore, F&D actively participated in the 4th International Conference on biobased and biodegradable textiles and polymers in Gent. Similarly, the SAMPE Conference in Belfast served as a platform for the University of Limerick to share their findings and research regarding the production of Carbon Fibres utilizing Lignin as the primary material.

Last but not least, ARCHA actively participated as an exhibitor at the Packaging Première & PCD Milan exhibition, while F&D also took part as an exhibitor at the JEC World 2023 Fair, promoting the VIBES project to industry professionals and attendees.

Through their presence at these notable events, VIBES partners have strengthened their network, shared their expertise, and contributed to the advancement of sustainable practices in the industry.

Publications



The VIBES project has made significant contributions to the scientific community through its research publications. Our partners have published several notable papers in prestigious scientific journals, including the following:

- Guggari, S., Magliozzi, F., Malburet, S., Graillot, A., Destarac, M., & Guerre, M. (2023). [Vanillin-Based Epoxy Vitrimers: Looking at the Cystamine Hardener from a Different Perspective](#). ACS Sustainable Chemistry & Engineering, 11(15), 6021-6031.
- Malburet, S., Bertrand, H., Richard, C., Lacabanne, C., Dantras, E., & Graillot, A. (2023). [Biobased Epoxy Reactive Diluents Prepared from Monophenol Derivatives: Effect on Viscosity and Glass Transition Temperature of Epoxy Resins](#). RSC advances, 13(22), 15099-15106.
- Rubio, M.C, Beaucamp, A, Stróżyk, M.A and Collins, M.N. (2022). [Lignin-Based Carbon Fibres for Green Composites Applications](#). Encyclopedia of Green Materials.

The accomplishments of the VIBES project have also been recognised by prominent industrial communication platforms. Our partners were featured in two magazines: [Interempresas' Plastic Channel](#) featuring an interview with BCIRCULAR and [EASY ENGINEERING magazine](#) featuring an interview with AITTIP. These features specifically highlight the innovative research conducted within the project and its potential impact on the industry.

Join us for an unmissable Summer Course



Don't miss the upcoming [VIBES English summer course](#) on “Enhancing Recyclability of Thermoset Composite Materials through Greener Recycling Technology”. This exceptional programme is your chance to acquire the expertise and skills needed to effectively manage and assess information from diverse sources, all while applying it to real-world scenarios. Delve into the fundamental concepts surrounding composite recyclability and witness its practical applications in industries like construction, aeronautics, and naval sectors. By participating in this course, you will not only comprehend the significance of recycling technologies for plastic products but also make a profound impact on the circular economy and overall sustainability.

The VIBES summer course is a 30-hour programme that combines hybrid or blended learning methods. It consists of a 24-hour theoretical component, which will be conducted through AITIIP's e-learning platform, AITEMY (<https://aitemy-learning.com/es/>) and a 6-hour practical part that will take place in person at the headquarters of Teruel Airport (PLATA) in Spain.

Course Availability: The online course is accessible from May 15, 2023, to September 15, 2023, offering flexibility for enrollment and completion at your convenience.

Practical Session: The in-person practical session will be held on September 15, 2023, at PLATA (Teruel Airport) headquarters, located at Polígono de Tiro, 4, 44396 Teruel, Spain.

Create an account and enroll at
<https://aitemy-learning.com/academy/login/index.php>.

[Visit the project's website](#)

Annex 7. VIBES Fifth Newsletter



Newsletter issue #5

11 December 2023

Welcome to the fifth issue of the VIBES newsletter

Improving Recyclability of Thermoset Composite Materials through a Greener
Recycling Technology.



Montpellier Meet-Up: Unveiling the Latest Developments

Commencing the 30th month of its journey, the collaborative assembly of the VIBES project took place in Montpellier, France, on November 28, 2023. Organised by SPECIFIC POLYMERS, the project meeting proved to be exceptionally fruitful. Partners gathered to present and discuss the significant strides and accomplishments achieved thus far. Additionally, the meeting provided an opportune platform to outline plans for the upcoming semester and discuss future developments. Although many participants enjoyed the privilege of in-person engagement and the opportunity to build valuable connections, a few members joined the meeting remotely.

The core objective of the VIBES project is to revolutionise the thermoset composites industry, facilitating their incorporation into a circular economy. The project partners aim to achieve this ambitious goal by developing innovative technologies and approaches, working towards sustainable and biobased solutions that allow for the reuse of thermoset composite materials beyond their initial lifecycle. Funded by the Bio-Based Industries Joint Undertaking (BBI-JU) under the European Union's Horizon 2020 Framework Programme for Research and Innovation, the VIBES project boasts a budget of nearly 5.3 million Euros and is set to span 48 months.



Exploring technical developments and future strategies in the 1st Roundtable with stakeholders

The VIBES project achieved a significant milestone by hosting its first roundtable on November 29th, 2023, in Montpellier and in hybrid mode, moderated by Q-PLAN. [This meeting brought together key project partners and crucial stakeholders, members of the VIBES Stakeholders' Board.](#) Having received feedback from stakeholder representatives on the project's progress and results, we present an overview of our accomplishments since the beginning of the project.



The VIBES project outlines a solution involving the development of Biobased Bonding Materials (BBMs) with controlled reversible properties. In the initial phase, VIBES focused on screening chemistries to identify potential BBMs. Following this, the spotlight was on exploring synergies between reversible technologies, especially in the binding between resins and fibres. The outcomes of this process were 18 BBMs compatible with targeted resins and fibres. The subsequent step was centred around the upscaling of the most promising BBMs, involving the successful synthesis of 1kg of the best BBM to be further utilised for thermoset composites development. The strategy employed by VIBES emphasised the use of BBMs as biobased chemical moieties capable of decomposing under specific external stimuli, facilitating the separation between the matrix and the reinforcing material for efficient recycling. The overview encompassed various resin types, such as epoxy resins (for aeronautical, construction, and marine applications), vinyl ester resins (for construction), and unsaturated polyester resins (for marine), along with bio-carbon and flax fibres (as reinforcing materials).

The project's advancements also included the successful creation of two generations of substitute resins which are being processed very well based on their complete characterisation, and the production of carbon fibres from waste from forestry industry with enhanced mechanical performance. Yet another advancement was the application of surface treatments to activate various fibres and the introduction of new fabrics, emphasising the exploration of suitable flax and biobased carbon fibre weaves for high-performance composite materials.

In particular, the following have been achieved during the last six months of the project. Including BBMs, resins and fibres, and putting them together in several combinations (either carbon, glass or flax fibres with resins), VIBES proceeded with several methods for producing thermoset composites. The produced thermoset composites are addressing engineering applications in three different sectors and will be validated based on their specific requirements, specifically for the construction, aeronautics and marine sectors. The marine sector application exhibited properties surpassing requirements, presenting a highly promising solution. Meanwhile, the construction and aeronautical sector applications achieved positive results with certain challenges identified, slated for further improvement in the upcoming project activities, in particular for improving gel time issues and interlaminar shear strength.

VIBES Presence at Prominent Events



VIBES partners have been actively engaged in recent events, showcasing their cutting-edge research in recycling technologies for composite materials.

AITIIP, our coordinator, made notable appearances at the [Polymer Connect 2023](#), [1st IPPT_TWINN conference](#), and the Packnet conference "Circular Innovation in Packaging: the road to a sustainable future". Over the past six months, LEITAT participated in the [Global Fiber Congress 2023](#), while PLATA joined the "Advances and Development of the Aeronautical and Aerospace Sector" conference by Antonio Gargallo University Foundation, highlighting the impactful strides within the VIBES project. More recently, ARCHA took centre stage at the [ECOMONDO FAIR 2023](#), presenting VIBES' research and innovation activities.

VIBES Summer Course Concluded

On September 15, 2023, VIBES proudly concluded its enriching Summer Course on "Enhancing Recyclability of Thermoset Composite Materials through Greener Recycling Technology" with a dynamic 6-hour hands-on session at PLATA's facilities. The course seamlessly blended a comprehensive 24-hour theoretical module on AITIIP's e-learning platform, AITEMY, covering crucial aspects such as the design and development of circular economy strategies for thermoset composites, the significance of biobased and improved fibres, and practical applications in industry and scaling up.

Our innovative blended learning approach empowered participants to navigate through asynchronous modules at their own pace while immersing themselves in valuable industry insights during in-person sessions.

Watch now the success of this transformative experience in our latest video: <https://t.ly/A-6nV>

Publications

The VIBES project has made significant contributions to the scientific community through its research publications. Our partners have published one more paper in a prestigious scientific journal:

Vidal, J., Hornero, C., Garcia, R., Cuartero, J., Beaucamp, A., Collins, M.N, Garcia, L., Ponce D., Royo, M.C, Sanchez E., Castell, P. [Use of covalent dynamic networks as binders on epoxy-based carbon fiber composites: Effect on properties, processing, and recyclability](#). Polym Compos. 2023; 44(11): 7444-7456.



Amplifying impact through synergies with new sister projects

To promote collaboration and knowledge exchange, while also achieving a more efficient and effective use of resources, VIBES has established three new synergies including [CUBIC](#), [EoLO-HUBS](#) and [BIO-UPTAKE](#) projects.



What's next?

The upcoming phases will primarily concentrate on evaluating the debonding pre-treatment of the developed thermoset composite materials and exploring the use of green solvents for recycling their components. Subsequently, the focus will shift towards advancing the VIBES recycling technology to pilot scale. Additionally, three distinct business models will be developed for the exploitation of key project results, utilising the business canvas model.

[Visit the project's website](#)

ANNEX 8. VIBES Fifth Press Release



CONTACT US: info@vibesproject.eu
VISIT: www.vibesproject.eu

PRESS RELEASE

29/06/2023

VIBES: Embracing 2 Years of Achievement in Barcelona

Celebrating their 2-year milestone, the VIBES project consortium gathered in Barcelona, Spain, on June 22, 2023, for an impactful project meeting held at LEITAT's premises. The meeting proved to be highly productive, with partners showcasing and discussing the remarkable progress and achievements attained thus far. It also provided an ideal platform to outline future plans and upcoming developments for the next semester.

VIBES is centred around revolutionising the thermoset composite materials industry, aiming to seamlessly integrate them into a circular economy. With a budget of nearly 5.3 million Euros and a duration of 48 months, the project is funded by the Bio-Based Industries Joint Undertaking (BBI-JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190.

The project partners have made significant progress in developing bio-based bonding materials (BBMs) for thermoset composites. Working together, the project research team explored synergies in three reversible approaches of BBMs: supramolecular, vitrimers, and Diels-Alder. These research efforts identified potential synergies in the ability of selectively recycling one material than another and the improvement of the recycling properties of the reversible technology used. The project also focused on improving the stabilisation and carbonisation steps of lignin-based carbon fibres, achieving outstanding mechanical properties at lab scale. Additionally, plasma surface modification of fibres was explored, and new fabrics in natural flax and carbon fibres were investigated. Carbon fibre treatment will be further explored with the biobased resin developed by the project, and optimised. Moving forward, the project aims to design, develop, and validate new composite materials with intrinsic recyclability properties, followed by the pilot-scale development of VIBES recycling technology.

Throughout their journey, the partners actively participated in prominent events, expanding their reach and impact. From presentations at conferences like "Roadmap 2030 for a Sustainable Economy" to exhibiting at exhibitions such as Packaging Première & PCD Milan and JEC World 2023 Fair, partners strengthened their network and shared their expertise in sustainable innovation.



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The VIBES project's research contributions have also been recognized through publications in prestigious scientific journals. Notable papers include topics such as lignin-based carbon fibres and biobased epoxy reactive diluents. Additionally, industrial communication platforms featured interviews with project partners, showcasing the project's innovative research and its potential industry impact.

To further exchange knowledge, the VIBES project is offering an English summer course on "Enhancing Recyclability of Thermoset Composite Materials through Greener Recycling Technology." This 30-hour program combines theoretical and practical components, providing participants with expertise and skills to apply real-world scenarios in the circular economy. The VIBES summer course is accessible online from May 15, 2023, to September 15, 2023, with a practical session held on September 15, 2023, at PLATA (Teruel Airport) headquarters in Spain. Interested participants can create an account and enroll at <https://aitemy-learning.com/academy/login/index.php>.

Stay informed about the latest progress and developments of the VIBES project by visiting the official website at www.vibesproject.eu. Don't forget to subscribe to their newsletter for regular updates and follow VIBES on social media to stay connected.

Disclaimer

This press release reflects only the author's view, and the Biobased Industries Joint Undertaking (JU) is not responsible for any use that may be made of the information it contains.

ANNEX 9. VIBES Sixth Press Release



CONTACT US: info@vibesproject.eu
VISIT: www.vibesproject.eu

PRESS RELEASE

18/12/2023

VIBES Attains Milestone with Successful Roundtable Event in Montpellier

Commencing the 30th month of its journey, the 6th project meeting of VIBES project took place in Montpellier, France, on November 28, 2023. Organised by SPECIFIC POLYMERS, the meeting proved to be exceptionally fruitful. Partners gathered to present and discuss the significant strides and accomplishments achieved thus far.

On November 29th, the project reached another pivotal moment with its 1st roundtable, held in Montpellier in a hybrid format and expertly moderated by Q-PLAN. This roundtable united key project partners and crucial stakeholders, including members of the VIBES Stakeholders' Board, providing invaluable feedback on progress and results.



At the core of VIBES lies the mission to transform the thermoset composite materials industry, strategically incorporating them into a circular economy framework. With a budget of nearly 5.3 million Euros and a duration of 48 months, the project is funded by the Bio-Based Industries Joint Undertaking (BBI-JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023190.

The project partners have made significant progress in developing thermoset composites with intrinsic recycling properties, using several methods and combinations of bio-based materials, including biobased

bonding materials (BBMs), bio-based resins and fibres (either bio-based carbon fibres or flax fibres). The developed thermoset composites are addressing engineering applications in three different industrial sectors and will be validated based on their requirements, specifically for the construction, aeronautics and marine sectors. The marine sector application exhibited properties surpassing requirements, presenting a highly promising solution. Meanwhile, the construction and aeronautical sector applications achieved positive results with certain challenges identified, slated for further improvement in the upcoming project activities, in particular for improving gel time issues and interlaminar shear strength.

Engaging actively in significant events, our partners extended their influence and broadened their impact in various forums. The project developments were showcased at key industry events including Polymer Connect 2023, 1st IPPT_TWINN conference, and Packnet conference "Circular Innovation in Packaging: the road to a sustainable future". Additionally, active participation in the Global Fiber Congress 2023, the "Advances and Development of the Aeronautical and Aerospace Sector" conference and the ECOMONDO FAIR 2023 highlighted VIBES' impactful strides.

VIBES wrapped up its impactful Summer Course on September 15, 2023, focusing on enhancing recyclability of thermoset composites. The 24-hour theoretical module covered circular economy strategies, biobased fibres, and practical industry applications. Our unique blended learning empowered participants, offering flexibility and industry insights. Watch the success unfold in our latest video: <https://t.ly/A-6nV>

Stay informed about the latest progress and developments of the VIBES project by visiting the official website at www.vibesproject.eu. Don't forget to subscribe to their newsletter for regular updates and follow VIBES on social media to stay connected.

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Annex 10. Communication and Dissemination Reporting Template

The form below has been designed to help keep track of any kind of communication and dissemination activities of the project. As a reminder, communication and dissemination activities include, but are not limited to, conferences, fairs, forums, workshops, roundtables, press releases, newsletters, publications, presentations etc. Please, complete ANY RELEVANT PARTS of the form below each time you perform a communication or dissemination activity, either small or large.

Partner name																
No.	Date of activity	Place of activity	Type of activity	Title of publication (journal, newspaper etc.) or event (conference, workshop, training, roundtable, info-day, exhibition, TV programme etc.)	Title of article (scientific, press release, news etc.) or presentation given by the partner	Type of audience	Size of audience (no. of persons per type of audience)	Language used/ countries reached out	Role and description of partner organisation's involvement (e.g. facilitator, etc.)	Type of project promotional material used (e.g. leaflets, infographic, poster or infographic roll-up etc.)	Quantity of project promotional material handed out (no. of copies distributed per type of material)	Name of other VIBES partners or external organisations responsible / involved	Short description of the activity	Evidence: URL, screenshot, photo (given that the target group has given its consent)	Significant contacts made (name, position, organisation; if consent, to store and share e-mail address, telephone)	Other comments
1																
2																
3																

Annex 11. News Reporting Template



News about Project Developments

Picture (if available)	
Title	
News (main content)	
Key words/ hashtags (for social media)	

Attachments

Please attach any relevant pictures/ images as separate jpg files with as high resolution as possible.

Annex 12. Event Reporting Form

Event's Aggregate Data

Title	
Date	
Venue	
Organisers	
Audience (number and type, including % of female attendees)	
Duration	

Event's goals, objectives and relevance to VIBES

What were the key objectives of this event/activity? (e.g. to gather ideas, gather data, find new stakeholders, etc). Was the event relevant to VIBES? To what extent?

Organisation of the event

This section is completed only in case of organising a project event. For participation in external events do not complete this section.

How was the event/activity organised?

- What steps were taken to set up the activity/event?
- What was the location of the event and why was this area selected?

Promotional activities

How was the event/activity promoted? Was project material used for promotion? Was the VIBES project promoted during the event?

Structure of the event

Description of the event's sessions.

- What did the event/activity consist of?
- What tools were used? Why were these selected?

For participation in external events, please report what you did at the event.

Outcomes of the event

What information or data was gathered as part of this activity? (a brief summary of the information/data gathered is sufficient)

What ideas were generated? (brief explanations are sufficient)

Evaluation of the event

What are the main impressions and observation that you made?

- Were there any challenges with this event/activity?
- What were the key successes of this activity?
- If re-deploying this event/activity how will/would you do it differently?

Annexes: Attachments

If applicable, the following Annexes should be attached:

- The list of participants (if consent to store and share data was given)
- A scanned copy of the list of participants signed by each participant (if applicable)
- The agenda of the event
- Photos
- Presentations (if applicable)
- Copies of materials used to promote the event (e.g. leaflets, infographic, newsletters etc.)

Annex 13. External Conferences and Events Template

		Identified External Conferences and Events							
No.	Event's name	Thematic Focus	Date	Location	Registration fees	Specific requirements for participation (e.g. abstract submission etc)	Deadline for abstract submission (if applicable)	Website	Added by (Partner)
1									
2									
3									