

TORNAD

**New routes of safe and sustainable by design
water and oil repellent biobased coatings**

NEWSLETTER: ISSUE 1

IN THIS ISSUE

1. Tornado concept
2. Tornado website and Social media
3. Attendance to events
4. Upcoming events
5. TORNADO consortium



tornado.project@tecnalia.com



tornado-project.eu



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101091944.

1.TORNADO CONCEPT

TORNADO project aims to contribute to the transition to a safe circular economy by influencing how products should be designed, produced, used or treated at their end-of-life.

New organic and hybrid free-toxic coatings with water and oil repellence following Safe and Sustainable by Design (SSbD) criteria will be developed. The novel proposed coatings will be PFAS free



TORNADO idea is to research and develop:

1. Two new type of functionalized acrylated biomonomers with PDMS and POSS by two different chemical routes (acrylation and direct acrylation).
2. To synthesized and formulate 2 new biobased coatings based on the functionalized biomonomers by two technologies, waterborne organic and hybrid coatings and hybrid sol-gel coatings.

Biomonomers and coatings will be scale up in an industrial environment. Coatings will be applied by different industrial processes depending on the industrial field. The two coatings will be validated in industrially relevant environments to obtain a performance at least identical to PFAS coatings in terms of water and oil repellence and tested according to the main textile, packaging and kitchenware specifications and requirements (waterproofness, oxygen barrier and durability, respectively).

The improvement in environmental performance and circularity of the new coatings will be assessed through environmental Life Cycle Assessment, Life Cycle Cost, and social Life Cycle Analysis (LCA/LCC/s-LCA) of the proposed new coatings compared to traditionally used hazardous coatings. Computational tools will be developed for efficient interfacing with publicly accessible and accepted QSAR-models to facilitate ease-of-use in-silico prediction of required physicochemical properties, toxicological end-points and degradation.

2. TORNADO WEBSITE AND SOCIAL MEDIA

Since M2 available TORNADO project website (tornado-project.eu) is available A project general objective and structure can be found as well as dissemination and communication events section that will be update continuously.

TORNADO also will disseminate and communicate their updates in social media linkedin, twitter

TORNADO objectives related to communication, dissemination, and exploitation are:

- **Communication:** reach out to society and demonstrate TORNADO project results benefit by providing safe and sustainable solutions to the issues related to PFAS coatings and explaining the impact of a PFAS-free materials at all relevant levels (e.g., environments, health, circularity, etc..).

- **Dissemination and exploitation:** to act as effective promoter of the knowledge transfer of the results achieved within the project to the relevant target stakeholders to maximise the potential impact of project results by establishing a bilateral communication aimed at the understanding of the stakeholder needs relevant to TORNADO activities and disseminating in return the project achievements, facilitating the adoption and further developments of the results attained within the project.



During TORNADO project all the results will be share with the skateholders using all the avaiable tools for communication and dissemination.

3. ATTENDANCE TO EVENTS

Pick & Pack Expo 2023

CHOVI assisted to Pick Pack event, which is one of the largest knowledge forums where you can discover trends, the latest emerging technologies and the most notable success stories in the application of automation and robotics solutions and logistics and packaging solutions for different industrial sectors. An unmissable event for the industrial professional who wants to boost his activity to the highest level of competitiveness and innovation. During the event it was presented how TORNADO project will contribute to generate new coatings for packaging sector.

4. UPCOMING EVENTS

EVENT	PARTNER	DATE
GREENCHEMCO 2023	NTT	September 2023
8th International Asian Polymer Congress	DENGE KYMIA	September 2023
MATCOMP 2023	TEC	June 2023

5. TORNADO CONSORTIUM

TORNADO consortium is composed by **14 partners** from 4 EU countries and 1 EU associated country: **4** research and technology developers (**RTO**), **3** small and medium sized enterprises (**SEM**) and **7** large companies (**LE**).

The value chains for the three application sectors, textile, packaging and kitchenware, will be fully completed with RTO partners (TEC, NTT), chemical manufacturers (ARK, ARKit ART, DEN) and packaging manufacturer (INN, EM). Representative companies of these three industrial sectors (CHOVI, SUN and ALLU respectively) will validate the new coatings in an industrial relevant environment (TRL5), demonstrating the compliance with the requirements and their applicability by industrial processes. The consortium will be further reinforced with specialized RTOs on SSbD (AIMEN, IVL) and a consultant engineering partner (RINA-C).



Funded by the European Union