



The *Journal of Vinyl & Additive Technology* announces a call for papers for an upcoming special issue on “**Bio-additives and bio-fillers: latest trends and future needs**”. Guest edited by Dr. Giulia Fredi and Prof. Rudolf Pfaendner, this special issue is scheduled for publication in early 2023.

Editor-in-Chief, Prithu Mukhopadhyay, Ph.D.

Aim and Scope:

Additives and fillers are extensively used in the field of plastics technology. Among the wide range of available additives and fillers, increasing attention is being given to bio-fillers and bio-additives, i.e., those derived from renewable resources. Bio-additives include antioxidants, UV/light stabilizers, antistatic agents, flame retardants, and many others to meet the requirements of polymer formulations often in low concentrations. Bio-fillers show low density, good mechanical, and functional properties. While non-toxic, these can be derived from renewable, eco-friendly, and sustainable resources, which reduces the environmental impact of the filled plastics. They are also biodegradable, and some are even compostable, expanding the end-of-life options of the filled polymers. Many bio-fillers are hydrophilic, which could compromise the compatibility with the generally hydrophobic polymer matrices. The key is to tailor the filler surface enhancing interfacial interactions with the polymer matrix. Therefore, the focus of this special issue is on the use of bio-additives and bio-fillers capturing latest trends and future needs.

Theme & subthemes include but are not limited to:

- development of bio-fillers and bio-additives: resource selection, synthesis, characterization, functionalization, applications;
- effects of bio-additives in the selected polymers, polymer properties, analytics, processing, aging, surface properties, flame retardancy, life cycle, recycling;
- processing of bio-filled polymers: processing peculiarities, thermal resistance, dispersion, surface wetting, compatibilization, interfacial adhesion;
- properties of the resulting bio-filled polymers: mechanical properties, heat stability, flammability, water uptake, microbial resistance, environmental resistance, fatigue resistance, aging, moisture- and gas-barrier properties, electrical and dielectric properties, biocompatibility;
- end-of-life issues: reprocessing (mechanical recycling) and biodegradation;
- sustainability issues: embodied energy, durability, life cycle assessment, cost.

Keywords bio-additives; bio-fillers; natural fillers; renewable materials; biodegradability; surface modification; sustainability; life cycle assessment; functional additives; processing additives; reinforcing fillers; thermal stability; reinforcing agents; tougheners; lubricants; plasticizers; whiteners; pigments; flame retardants; antistatic agents; foaming agents; smoke suppressors; anti-wear fillers; antioxidants; UV/light stabilizers; biocides; nucleating agents; clarifiers; antifogging agents; dispersants.

Timeline

- **Submission start date:** April 15, 2022; Submission closing date: October 31, 2022
- **Review/revision completion date:** February 28, 2023
- **Special issue publication date:** Early 2023

Guest Editors

- **Dr. Giulia Fredi**, University of Trento, Italy (giulia.fredi@unitn.it)
- **Prof. Dr. Rudolf Pfaendner**, Fraunhofer Institute for Structural Durability and System Reliability, Darmstadt, Germany (rudolf.pfaendner@lbf.fraunhofer.de)