

Vanillin: A Renewable and Versatile Platform Chemical for Sustainable Polymers

Polymers derived from renewable resources are becoming considerably attractive as sustainable alternatives to their petroleum-derived counterparts. A renewable resource that has gained considerable attention within the past few decades as a viable feedstock is lignin. Lignin is an aromatic biopolymer found in all woody biomass that could yield highly valuable aromatic platform chemicals, including vanillin, when strategically depolymerized. Vanillin, 4-hydroxy-3-methoxybenzaldehyde, is a unique phenolic aldehyde that has been cultivated for flavoring for many centuries. However and more recently, with the growing demand to increase our cyclical economy and, thus, improving the planet's overall well-being, vanillin is being utilized as a versatile building block and monomer in the synthesis of thermoplastics, thermosets, and block polymers, including epoxies, vinyl esters, polyesters, and polycarbonates. This seminar focuses on the history of vanillin in the development of sustainable polymers, including our research, and a forecast on its utility and impact in the plastics world.

Rowan University: Henry M. Rowan College of Engineering

Rowan University and its Henry M. Rowan College of Engineering (RCoE) are experiencing tremendous growth. By 2023, Rowan expects to have an overall operations budget of \$1 billion, a student population of 25,000, and of \$100 million in sponsored research. The bedrock of Rowan's growth and national profile remains RCoE. The RCoE has carved a reputation for strong, highly-ranked and competitive undergraduate engineering education, since it was conceived in 1998, and in January 2015 started a doctoral program in engineering. Since its inception, the College has developed consistently innovative curriculum models, yielded a range of publications, and research. The College itself is expanding enrollment, programs, and facilities. In January 2018, RCoE will double its physical footprint on the Glassboro, NJ campus of Rowan University and will have completely renovated all existing space. The College will still be the largest tenant of the South Jersey Technology Park of Rowan University, which will also enhance the College's research and collaboration capacities. Thus, RCoE will have state-of-the-art teaching and research facilities. The campus is located a short distance from Philadelphia and its International Airport, and within driving distance from Baltimore, Washington, D.C. and New York City. Moreover, and perhaps most importantly, as part of the official growth plans of the University, Rowan has ensured that the University's culture is committed to principles of sustainability. Rowan University's growth, innovation, research expertise and capacity, facilities, and published commitments demonstrate leadership in the national higher education sector and in the push to develop sustainable practices and a brighter future for all.