



2024 CUWP Summer Seminar



David Sudolsky

President & CEO Anellotech

Title: Feedstock Flexible, Scalable Fluid Bed Catalytic Process for Direct Conversion of Mixed Plastics Wastes into BTX and Light Olefins

Abstract: Anellotech is developing the Plas-TCat® process -- a thermo-catalytic route to convert waste plastics mixtures into BTX and light olefins. Plas-TCat uses a proprietary zeolite catalyst in a circulating fluidized bed reactor to produce BTX, light olefins and other hydrocarbons. The circulating catalyst provides heat to the reactor making this a scalable technology that is not limited by heat transfer. The capital cost and operating cost of Plas-TCat is lower than pyrolysis in traditional batch reactors because of the advantages of circulating fluidized bed reactors. Plas-TCat gas products can be integrated into the steam cracker cold section for light olefins recovery. The process produces higher olefin and aromatic yield compared to steam cracking of plastic pyrolysis oils. Plas-TCat can accept heteroatom-containing polymers (in addition to polyolefins) as the catalyst effectively produces BTX and olefins while eliminating oxygen and nitrogen in the feeds. Extensive research is being done to understand the role of fillers and additives on the stability of the zeolite catalyst. Anellotech and Technip Energies announced a partnership (<https://www.ten.com/en/media/press-releases/technip-energies-and-anellotech-jointly-develop-sustainable-plastics-recycling>) to design commercial Plas-TCat plants based on the continuous data collected from Anellotech's demo unit in Silsbee, Texas. Continuous operation of this ½ TPD (nameplate feed capacity) circulating fluidized bed reactor/regenerator system allows us to (1) understand how to remove plastic additives and fillers and (2) generate the equilibrium catalyst (ECat) that is the basis for the commercial reactor design. The program goal is to build an initial 20 kTA feed commercial plant followed by a 200 kTA facility as the first scale up for global adoption of Plas-TCat technology.

Bio: David Sudolsky has led Anellotech since its founding in 2008. He has secured over \$100 million in strategic partner funding as Anellotech completed development of the Bio-TCat Process (non-food biomass to BTX) and is now pioneering the Plas-TCat Process (chemical recycling of mixed plastics to BTX and light olefins). Prior to joining Anellotech, David was a business officer or CEO of five biotechnology, specialty pharmaceutical and bioprocessing start-ups, one of which (Dura Pharmaceuticals) was sold for \$1.8 billion. He has hands-on chemical engineering experience in process design and refinery plant startups with Union Carbide, and in strategy management consulting at Booz, Allen & Hamilton. David attended Columbia University and earned an MBA in Marketing and Finance from the University's Business School and a B.S. in Chemical Engineering.

September 5th, 2024

Seminar at 3:00pm CST Zoom

<https://uwmadison.zoom.us/j/3560705402>