

## Designing Plastic Solutions for an Uncertain World: Bioplastics and Circularity Solutions for a Resilient Future

Orrawan Pongchumpon

e-mail: [orrawanp@cheminno.co.th](mailto:orrawanp@cheminno.co.th)

*Chemical innovation company limited, 20 Soi Ramkhamhaeng 30 (Ban Rao), Hua Mak, Bang Kapi, Bangkok  
10240*

In today's rapidly evolving global landscape, the plastics industry faces increasing uncertainty driven by geopolitical disruptions, volatile energy supply, and rising sustainability demands. These challenges are reshaping how materials are sourced, designed, and managed throughout their lifecycle. This presentation focuses on designing plastic solutions that can adapt to these uncertainties through two complementary approaches: bioplastics and circularity-driven technologies. Bioplastics provide effective solutions for applications where plastic waste is difficult to collect, enabling controlled biodegradation and reducing environmental leakage. In parallel, recycling-based solutions play a critical role in enhancing the performance and value of post-consumer recycled materials, reducing dependence on virgin resources.

Case studies, including biodegradable agricultural films and innovative plastic modifier solutions for recycled polyethylene (PE) and polypropylene (PP), are presented to demonstrate real-world applicability. The C-Boost modifier enhances melt strength and mechanical performance in recycled PE, particularly stiffness and impact resistance. Meanwhile, the P-Boost modifier improves melt strength, thermal stability and overall mechanical properties in recycled PP, enabling these materials to meet more demanding application requirements and expand their potential use.

Rather than relying on a single approach, this work highlights the importance of designing adaptable, application-specific plastic solutions. Integrating material design, processing performance, and end-of-life considerations will be key to developing resilient and sustainable plastics systems for the future.

## Biography (For Plenary, Keynote, and Invited Speakers)

<p>Name: <b>Ms. Orrawan Pongchumpon</b></p> <p>Title: <b>Designing Plastic Solutions for an Uncertain World: Bioplastics and Circularity Solutions for a Resilient Future</b></p> <p>Affiliation: <b>R&amp;D Manager, Chemical innovation company limited</b></p> <p>Country: <b>Thailand</b></p> <p>Phone: <b>0854965613</b></p> <p>E-mail: <b>orrawanp@cheminno.co.th</b></p>	 A portrait photograph of Ms. Orrawan Pongchumpon, a woman with long dark hair, wearing a dark blue blazer over a white top. She is smiling and has her arms crossed. The background is a blue wall with some text partially visible, including 'n of lech'.
---	---

### Personal History:

#### Education

- Master's degree in Material Technology, King Mongkut's University of Technology Thonburi, Bangkok
- Bachelor's degree in Polymer Engineering, Suranaree University of Technology, Nakhon Ratchasima,

#### Work Experience : 10 Years-Research and Development

- Develop new products for the olefin-based plastic compound including PE and PP compounds, PP/filler, PP/Elastomer/filler, TPO/TPE compound, plastic modifiers and valuable recycle
- Develop new biodegradable products such as high heat cutlery and food container
- Provide technical support for the commercialization activities to launch the novel functional additive product for the plastic industry
- Troubleshoot problems of both production and molding relate to the plastic compound and ensure formulation run flawlessly on a production scale

#### Research Keyword (3-5 keywords use commas to separate each word):

Bioplastics, Plastic Circularity, Recycled Plastics, Plastic Modifiers, Sustainable Materials