

“Against all Odds,” 40+ Years of Discovery in Polymer Science: Lessons Learned

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The author started his career in polymer science in 1968 as a technician in the late Prof. Bernhard Wunderlich’s research group at Rensselaer Polytechnic Institute without the benefit of a degree. After completing a B.S. in chemistry from the State University of NY at Albany in 1973 and nearing his completion of a MS degree at RPI, he entered the world of industrial R&D in 1974 as an associate staff polymer chemist at the General Electric Research and Development Center in Schenectady, NY. After 7 years at GE CRD, he joined GE’s Plastics Division as a Product Development Chemist in the PPO Technology Department in Selkirk, NY. He received his Ph.D. from RPI in polymer chemistry in 1993. In 1996 Dick joined Cargill Inc. in Wayzata, Minnesota as a Senior Materials Scientist to help with their development of EcoPLATM polylactic acid (PLA) biopolymer, now sold commercially as NatureWorks IngeoTM polylactide. Throughout his 40+ years in the field, he has garnered a number of valuable lessons which remain relevant still today. He will discuss these lessons in context to his discovery of science and self along the way.

Title in quotes borrowed from the Bernhard Wunderlich autobiography, “A Science Career Against all Odds: A Life of Survival, Study, Teaching and Travel in the 20th Century,” Springer-Verlag Berlin Heidelberg, 2010

Commercialization of NatureWorks® Ingeo™ Polylactide: Past, Present and Future

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ABSTRACT

In the past the plastics industry has traditionally relied upon petrochemicals as its primary feedstock. However, with growing concerns over the supply and cost of oil and natural gas and an increasing recognition of the need to control greenhouse gas (GHG) emissions, new alternative technologies that enable us to produce plastics from annually renewable resources are being rapidly brought to market. In this presentation we discuss the commercialization of NatureWorks Ingeo polylactide biopolymer and its unique combination of environmental attributes, processability and end-use performance that help position this sustainable biopolymer for a promising future in the 21st Century.

Biographical Sketch

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Richard C. Bopp is a senior materials scientist at NatureWorks LLC in Minnetonka, Minnesota where he has worked on process and product development of Ingeo™ polylactide biopolymers for the past 16 years. Special areas of technical interest have been PLA crystal nucleation, thermoforming, injection stretch blow molding, recycling and nanocomposite technology.

Prior to this position Dick worked at the General Electric Co. for 21 years, starting at the GE Corporate Research and Development Center and continuing at the GE Plastics PPO Technology Department in Selkirk, NY. At GEP Dick led a variety of development programs including microwaveable NORYL™ food packaging, GECET™ foam and UV stabilization. In 1992 he was the recipient of GE's Don Jaquiss Award for his development of a flame retarded Noryl resin for a McDonald's roof made from post-consumer recycled computer housings. In 1993 he was named Noryl Recycle Business Leader.

Dick earned his bachelor's degree in chemistry from the State University of New York at Albany and his M.S. and Ph.D. degrees in polymer chemistry from Rensselaer Polytechnic Institute in Troy, NY.

Active in the Society of Plastics Engineers since 1975, he is past-president of the Upper Midwest and the Hudson Mohawk Sections. He has served on the EPSDIV board in various capacities including membership chair since 2000 and is a member of the board with the Plastics Environmental Division. He was elected SPE fellow in 2011 and inducted in the Plastics Pioneers Association this year.

He has authored or co-authored numerous technical papers and holds over 20 U.S. patents.