

First KIA Laureate Applied Research



- ◆ **Researcher:** Prof. Tejrav M. Aminabhavi
- ◆ **Nationality:** Indian
- ◆ **Date of birth:** 1947
- ◆ **Position:** Consultant
- ◆ **Scientific affiliation:** Industrial Biotechnology Group
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Project title: New insights into polymers in drug delivery, membrane science, molecular transport and modeling

Abstract: Over the past thirty years, the contributions of Professor Tejrav Aminabhavi has been in areas like polymer solutions, drug delivery, molecular transport, membrane-based separations, polymer synthesis/polymer composites, thermodynamics and molecular modeling. In molecular transport area, sorption/diffusion parameters were addressed to understand molecular transport phenomenon. Membrane-based separation processes like electrodialysis, microfiltration, ultrafiltration, nanofiltration and reverse osmosis were developed to treat industrial effluents. Per-vaporation and gas separation techniques were developed along with novel zeolite-filled mixed matrix membranes to separate organic azeotropes and gaseous mixtures. In controlled release area, drug-loaded micro, nano, hydrogel particles in addition to transdermal patches were developed using biopolymers as controlled release devices for drugs. Nanotechnology findings were used in brain delivery. Other activities include development of pesticide-loaded formulations, periodontal cavities, oral insulin formulations and gene targeting. Molecular modeling of polymer surfaces and hydrodynamics of blends, coatings applications of polymers/dendrimers, metal oxide interactions with polymers have yielded useful correlations with experimental results. Other research includes synthesis of polyurethanes for coatings, polymers for high temperature applications and conducting polymer composites in addition to extensive research on the understanding of thermodynamics of liquids, liquid mixtures and micellar solutions.

Biography: Prof. Tejrav Aminabhavi after finishing his master, he proceeded to USA, in 1975 and obtained his PhD degree in 1979 from the University of Texas, Austin, while working on thermodynamics of polymer solutions. During 1980-1982, he did post doctoral research at Clarkson University, Potsdam, New York and at Southwest Texas State University, San Marcos, Texas, USA. After returning to India in 1983, he has established active research and teaching programs in polymer science and was the founder director of Center of Excellence in Polymer Science from 2002 to 2007. He has published a text book in Polymer Science by Wiley, New York in 2002 with Dr. Petr Munk in addition to publishing more than 500 papers, 50 review articles, three US patents and supervised 50 PhD students including post doctorates. He was the summer visiting professor to many universities in US between 1986 and 2006. Prof. Aminabhavi has collaborated extensively on scientific topics with the World renowned scientists including two Nobel Laureates (Professors Ilya Prigogine and Alan MacDiarmid). His research interests are in the areas of membrane-based separations, polymeric drug delivery devices, molecular modeling of polymers, thermodynamics and polymer composites. He is serving as the International advisory board member of Journal of Applied Polymer Science (USA) and Polymer Plastics, Technology & Engineering (USA) in addition to Science and Technology related membership activities in India.