

**Professor Funda TIHMINLIOĞLU**

**Department of Chemical Engineering, İzmir Institute of Technology**

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**Education:**

**Doctor of Philosophy**, Chemical Engineering, 1998  
The Pennsylvania State University, State College, PA, USA

**Master of Science**, Chemical Engineering, 1993  
Ege University, Izmir, Turkey

**Bachelor of Science**, Chemical Engineering, 1990  
Ege University, Izmir, Turkey

**Experience:**

**Dean**, Faculty of Engineering, January 2011-February 2015

**Professor**, Chemical Engineering, İzmir Institute of Technology, 2009-present

**Associate Professor**, Chemical Engineering, İzmir Institute of Technology, 2004-2009

**Assistant Professor**, Chemical Engineering, İzmir Institute of Technology, 1998-2004

**Research Areas:**

Polymer processing and characterization: structure-property development  
Preparation and characterization of synthetic and biobased polymer micro & nanocomposites.  
Interfacial enhancement on natural fiber and particulate reinforcement on polyolefin based pristine and recycled polymer composites, Recycling.  
Biomaterials for drug delivery and tissue engineering applications: Development of functional scaffolds for hard and soft tissue engineering.  
Biobased polymer/composites for food packaging applications  
Barrier coatings for packaging, and stone protection (restoration)

**Courses Taught:**

**Undergraduate Courses**

ChE 211 Introduction to Polymer Science  
ChE 312 Separation Processes  
ChE 321 Thermodynamics II (Phase Equilibria)  
ChE 334 Composite Material Processing  
ChE 439 Biomaterials  
ChE 301 Technical Report Writing

**Graduate Courses**

CHE 565 Fundamentals of Polymer Science  
CHE 512 Polymer Chemistry  
CHE 566 Polymer Solution Thermodynamics  
CHE 590 Technical Report Writing  
BENG 566 Biomaterials

### **Publication List (peer reviewed journals):**

Tamburaci, Sedef; Kimna, Ceren; Tihminlioglu, Funda ” Bioactive diatomite and POSS silica cage reinforced chitosan/Na-carboxymethyl cellulose polyelectrolyte scaffolds for hard tissue regeneration”, Materials Science & Engineering C-Materials For Biological Applications Volume: 100 Pages: 196-208 Published: JUL 2019.

Kara, Aylin; Tamburaci, Sedef; Tihminlioglu, Funda; et al. “Bioactive fish scale incorporated chitosan biocomposite scaffolds for bone tissue engineering “: International Journal of Biological Macromolecules Volume: 130, Pages: 266-279 Published: JUN 1 2019.

Palaveniene, Alisa; Tamburaci, Sedef; Kimna, Ceren; et al. “Osteoconductive 3D porous composite scaffold from regenerated cellulose and cuttlebone-derived hydroxyapatite” Journal of Biomaterials Applications Volume: 33 Issue: 6 Pages: 876-890 Published: JAN 2019.

Tamburaci, Sedef; Kimna, Ceren; Tihminlioglu, Funda, “ Novel phytochemical *Cissus quadrangularis* extract-loaded chitosan/Na-carboxymethyl cellulose-based scaffolds for bone regeneration” Journal of Bioactive and Compatible Polymers, Volume: 33 Issue: 6 Pages: 629-646 Published: NOV 2018.

Tamburaci, Sedef; Tihminlioglu, Funda, “Biosilica incorporated 3D porous scaffolds for bone tissue engineering applications” Materials Science & Engineering C-Materials for Biological Applications Volume: 91 Pages: 274-291 Published: OCT 1 2018.

Akin, Okan; Tihminlioglu, Funda, “Effects of Organo-Modified Clay Addition and Temperature on the Water Vapor Barrier Properties of Polyhydroxy Butyrate Homo and Copolymer Nanocomposite Films for Packaging Applications” Journal of Polymers and The Environment Volume: 26 Issue: 3 Pages: 1121-1132 Published: MAR 2018.

Sedef Tamburaci, Funda Tihminlioglu, “Novel POSS reinforced chitosan composite membranes for guided bone tissue regeneration” Journal of Materials Science: Materials in Medicine; 29:1, January 2018.

Sedef Tamburaci<sup>a</sup>, Funda Tihminlioglu “Diatomite reinforced chitosan composite membrane as potential scaffold for guided bone regeneration” Material Science and Engineering C, Volume 80, 1 November 2017, Pages 222-231.

Okan Akin, Funda Tihminlioglu” Effects of Organo-Modified Clay Addition and Temperature on the Water Vapor Barrier Properties of Polyhydroxy Butyrate Homo and Copolymer Nanocomposite Films for Packaging Applications, Journal of Polymers and the Environment, accepted, 2017 in press.

Güneş S, Tihminlioglu F. Hypericum perforatum incorporated chitosan films as potential bioactive wound dressing material, *Int J Biol Macromol.* 2017, Volume 102, September 2017, Pages 933-943

Gunes, S.; Arslan, N.; Demiray-Gurbuz, E.; Tihminlioglu F., Yilmaz O, “*In vitro* Evaluation of Bioactive Chitosan Microspheres for Eradicating *Helicobacter pylori* Biofilm” , *HELICOBACTER*, Volume: 21 Pages: 118 2016.

Arslan, N.; Gunes, S.; Demiray-Gurbuz, E.; et al. I “Determination of biofilm formation by *Helicobacter pylori*” *HELICOBACTER* Volume: 21 120-121, 2016

Yılmaz Ocak, Aysun Sofuoglu, Funda Tihminlioglu, Hasan Böke, “ Sustainable bio-nano composite coatings for the protection of marble surfaces “, Journal of Cultural Heritage, 2015.

Gunes, S. Becerikli, T.,Tihminlioglu F., Yilmaz O. , “ Investigation of Antimicrobial Activity to determine MIC value of Cinnamon Bark Oil against *Helicobacter Pylori*” , *Helicobacter* , Volume: 19 Special Issue, 153, 2014.

Onur Ozcalik, F. Tihminlioglu, “Barrier Properties of Corn Zein Nanocomposite Coated Polypropylene Films for Food Packaging Applications”, Journal of Food Engineering, 114, 4, 505-513, 2013.

Sokullu-Urkac, Emel; Oztarhan, Ahmet; Tihminlioglu, Funda Tihminlioglu, et al., "Oxidation Behavior of C- and Au-Ion-Implanted Biodegradable Polymers ", IEEE TRANSACTIONS ON PLASMA SCIENCE Volume: 40 Issue: 3 Pages: 863-869 DOI: 10.1109/TPS.2011.2179677 Part 2 MAR 2012.

Tihminlioglu, F., Atik, I.D., Ozen, B. "Effect of Corn-Zein Coating on the Mechanical Properties of Polypropylene Packaging Films." Journal of Applied Polymer Science, 119 (2011): 235–241

Altioek, D.; Demiray-Gurbuz, E.; Bekmen, N., Yilmaz O., tihminlioglu F., "Genipin crosslinked Clarithromycin Loaded Chitosan Microspheres for Eradication of Helicobacter Pylori, 4th International Workshop on Helicobacter and Related Bacteria in Chronic Digestive Inflammation and Gastric Cancer, HELICOBACTER Volume: 16 Special Issue: SI 132, 2011

Tihminlioglu F., Atik, Isa Dogan; Ozen, Banu, "Effect of Corn-Zein Coating on the Mechanical Properties of Polypropylene Packaging Films ", Journal of Applied Polymer Science Volume: 119 Issue: 235- 2011

Oguzlu Hale, Tihminlioglu F. "Preparation and Barrier Properties of Chitosan-Layered Silicate Nanocomposite Films" Macromolecular Symposia, 298, 91-98, 2010.

Altioek D., Altioek E., Tihminlioglu F.," Physical, antibacterial and antioxidant properties of chitosan films incorporated with thyme oil for potential wound healing applications", J Mater Sci: Mater Med. ,21, 2227 2010

Altioek, D.; Gurbuz, E. Demiray; Bekmen, N. Tihminlioglu; A natural antioxidant: Trans-resveratrol against H. Pylori, 23rd International Workshop on Helicobacter and Related Bacteria in Chronic Digestive Inflammation and Gastric Cancer, NETHERLANDS, 2010 , HELICOBACTER Volume: 15 Issue: 4 Pages: 334-335, 2010

Altioek, D.; Bekmen, N.; Gurbuz, E. Demiray; Yilmaz O, Tihminlioglu F. "Antimicrobial Activity of Essential Oils Against H. pylori ", 23rd International Workshop on Helicobacter and Related Bacteria in Chronic Digestive Inflammation and Gastric Cancer Location: NETHERLANDS, 2010, published in HELICOBACTER Volume: 15 Issue: 4 Pages: 335-336 Published: AUG 2010

Tihminlioglu, F., Atik ID, Ozen B. "Water vapor and oxygen-barrier performance of corn-zein coated polypropylene films", Journal of Food Engineering, 96, 3, 342-347, 2010.

Ocak Y, Sofuoglu A, Tihminlioglu F. et al,"Protection of marble surfaces by using biodegradable polymers as coating agent , Progress in Organic Coating, Volume 66, Issue 3, pages 213-222, 2009.

D. Berkun, D. Balkose, F. Tihminlioglu, S. A. Altinkaya , "Sorption and Diffusion of Water Vapor on Edible Films ", Journal of Thermal Analysis and Calorimetry ,94, 3, 683 2008.

Atik, I.D., Tihminlioglu F., Özen, B. "The Water Vapour Barrier Performance of Corn-zein Coated Polypropylene (PP) Packaging Films", Journal of Thermal Analysis and Calorimetry, 94, 3, 687 2008.

Basalp, D. Tihminlioglu, F. "The Effects of Natural Zeolite and Silane Coupling Agents on Melting and Crystallization Behaviour of Polypropylene", Journal of Thermal Analysis and Calorimetry, 94, 3, 757 2008.

E. Sokullu Urkac, A. Oztarhan, F. Tihminlioglu, N. Kaya, D. Ila, C. Muntele, S. Budak, E. Oks, A. Nikolaev, A. Ezdesir, Z. Tek, "Thermal Characterization of Ag and Ag + N ion Implanted Ultra-high Molecular Weight Polyethylene (UHMWPE)", Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, 261 (1-2): 699-703, 2007.

N. Kaya, Ahmet M. Oztarhan, E.S. Urkac, D. Ila, S. Budak, E. Oks, A. Nikolaev, A. Ezdesir, F. Tihminlioglu, Z. Tek, S. Cetiner, C. Muntele, "Polymeric Thermal Analysis of C + H and C + H + Ar Ion Implanted UHMWPE Samples", Nuclear Instruments and Methods in Physics Research Section B : Beam Interactions with Materials and Atoms, 261 (1-2): 711-714, 2007.

U. Atikler, D. Basalp, F. Tihminlioglu "Mechanical and Morphological Properties of Recycled HDPE Filled with Calcium Carbonate and Fly Ash", *Journal of Applied Polymer Science*, 102 (5), 4460-4467, 2006.

H. Eser, F. Tihminlioglu, "Determination of Thermodynamic and Transport Properties of Solvents in poly (L-lactide co glycolide)", *Journal of Applied Polymer Science*, 102 (3), 2426-2432, 2006.

U. Atikler, H. Demir, F. Tokatlı, F. Tihminlioglu, D. Balkose, S. Ulku "Optimization of the Effect of Colemanite on Intumescent System as a New Synergic Agent", *Polymer Degradation and Stability*, 91 (7): 1563-1570, 2006.

H. Pehlivan, D. Balköse, S. Ülkü, F. Tihminlioglu, "Effect of Zeolite Filler on the Thermal Degradation Kinetics of Polypropylene", *Journal of Applied Polymer Science*, 101 (1), 143-148, 2006.

H. Demir, U. Atikler, D. Balkose, F. Tihminlioglu," The effect of Surface Treatments on the Mechanical and Water Sorption Properties of Polypropylene-Luffa Fiber Composites", *Composites Part A:Applied Sci. And Manufacturing*, 37, 446-456, 2006.

.Eser, H., F. Tihminlioglu , "Solubility and Diffusivity of Solvents and Non-solvents in (polymethylmethacrylate-co butyl methacrylate)," *Fluid Phase Equilibria*, 237, 68-76 2005.

Pehlivan, H., Balköse, D. , Ülkü S., F., Tihminlioglu , "Characterization of Pure and Silver Exchanged Natural Zeolite Filled Polypropylene Composite Films," *Composites Science and Technology*, 65, 2049-2058 2005.

Gultekin, N., Tihminlioglu, F., Ciftcioglu, R., Çiftcioglu, M. Ş. Harsa, "Preparation and Characterization Polylactide-Hydroxyapatite Biocomposites," *Key Engineering Materials*, 264-268, 1953 2004.

Metin D., Tihminlioglu, F., Balköse, D. S. Ülkü, "The Effect of Interfacial Interactions on the Mechanical Properties of Natural zeolite –PP Composites," *Composites Part A. Applied Sci. And Manufacturing*, 35, 23-32 2004.

Pehlivan H., Özmihçi F., Tihminlioglu, F. Balköse, D. S. Ülkü, "Water and Water Vapor Sorption in Polypropylene-Zeolite Composites," *Journal of Applied Polymer Science*, 90, 3069-3075 2003.

Cai, W. D., Ramesh, N., Tihminlioglu, F., Danner, R.P., Duda, J. L. and A. De Haan, "Phase Equilibrium and Diffusion of Solvents in Polybutadiene: A Capillary Column Inverse Gas Chromatography Study," *J. of Polym.Sci. Part B:Polym. Phys.*, 40, 1046-1055 2002.

Tihminlioglu, F. and R. P. Danner, "Solvent Diffusion in Amorphous Polymers: Polyvinyl Acetate-Toluene Systems," *J. of Polym. Sci. Part B:Polym. Phys.*, 38, 1965-1974 2000.

Tihminlioglu, F., Danner, "Solvent Diffusion in Amorphous Polymers: Polystyrene-Solvent Systems," *J. of Polym. Sci. Part B:Polym. Phys.*, 38, 2429-2435 2000.

Tihminlioglu, F. and R. P. Danner, "Application of Gas Chromatography in Polymer-Solutions-Diffusion and Thermodynamic Measurements in Polyacrylate-Solvent Systems," *Journal of Chromatography A.*, 845, 93-101 1999.

Danner, R.P., Tihminlioglu, F., Surana, R.K. ve J.L., Duda, "Inverse Gas Chromatography Applications in Polymer-Solvent Systems," *Fluid Phase Equilibria*, FPE, 148/1-2, 171-188 1998.

Nagvekar, M., Tihminlioglu, F. and R. P. Danner, "Colligative Properties of Polyelectrolyte Solutions," *Fluid Phase Equilibria*, 145/1, 15-42 1998.

Surana, R. K, Danner, R. P., Tihminlioglu, F., and J. L. Duda, "Evaluation of Inverse Gas Chromatography for Prediction and Measurement of Diffusion Coefficients," *J. of Polym.Sci., Part B Polym. Phys.*, 35, 1233-1240 1997.

Tihminlioglu, F., Surana, R.K., Danner, R.P. and J. L. Duda, "Finite Concentration Inverse Gas Chromatography: Diffusion and Partition Measurements," J. of Polym.Sci. Part B: Polym. Phys., 35, 1279-1290 1997.

Tihminlioglu F. and S. Ülkü, "Use of Clinoptilolite in Ethanol Dehydration," Separation Sci. and Technology, 31, 2855-2865 1996.

### **Completed Projects:**

Preparation and Characterization of Polymer-Zeolite Composites, TÜBİTAK (National Research Council of Turkey) project MISAG 129, Project Coordinator, 1998-2000.

Polypropylene Natural Fiber Based Composites, DPT Project, Government Planning Organization (The Ministry of Science, Technology and Industry), #120190, Project coordinator, 2000-2003.

Thermodynamic and Transport Properties in Polymer Solvent Systems, TÜBİTAK Project, MISAG 144, Researcher, 2003-2005.

Protection of Marble Surfaces by Biodegradable Polymers, TÜBİTAK Project, # 104M 5649, Researcher, 2005-2007

Preservation of Marble Surfaces by Biobased Nanocomposites, Coordinator, Tübitak, 108M335- 2008 December-2010 December

Controlled Release of Bioactive Agents from Biobased Microspheres for the ;Eradication of Helicobacter Pylori., Tübitak Project, 109M028, Project Coordinator, 2009 -2010.

Surface Modification of Biodegradable Polymer by Ion Beam for Nerve Regeneration, Researcher, Tübitak, 2008- 2011 .

Dental Composites Membranes for Guided Bone Tissue Eng. Applications, SANTEZ 0494-STZ, Coordinator, 2013-2015.

Development of Controlled Release of Antibiotics from Chitosan Based Composite Scaffolds for Hard Tissue Engineering Applications, Coordinator, Tübitak Project 1001, 2017-2019.

### **Awards:**

- L'oreal 2006 , Women Scientist Research Award in Material Science and Engineering, 2006
- PAGEV Plastic Research & Development Foundation , Research Award 1. Prize, 2010
- 2. Chemistry- Research -Development Project Awards, 2. Prize in Drug section. 2011
- North Star Innovation Awards (Sabri Ülker Company) 2. Prize, 2012