

Samarth P. Patel

Materials and Process QC Engineer

Eurofins Professional Scientific Services Mid Atlantic, LLC

Samarth.Patel@PSS.EurofinsUS.com

Samarth Patel is a Materials and Process QC Engineer at Eurofins Professional Scientific Services, where he leads materials and parts testing for polymer and additively manufactured components. His work covers in-house and external test strategy, XRCT, DSC, optical microscopy, hardness and mechanical analysis, equipment installation and qualification (IQ/OQ/PQ), and SOP development across the lab.

He holds an MS in Mechanical and Manufacturing Engineering from Drexel University (2025) and a BE in Mechanical Engineering from Sardar Vallabhbhai Patel Institute of Technology. His prior experience spans precision mechanical design, FEA and CFD validation, injection molding optimization, and robotic system integration across roles in the United States and India.

His research interests sit at the intersection of physics-based modeling and machine learning for engineering systems. Recent work includes physics-preserving neural fluid simulators, physics-informed digital twins for in vitro to in vivo extrapolation in liver microphysiological systems, and chemomechanically tuned intermetallic anodes for sulfide solid-state batteries. The present paper extends this line of work to lithium-ion battery management by combining physics-informed feature engineering with ensemble learning for electrochemical performance prediction.

He works in Python (pandas, scikit-learn, statsmodels, XGBoost), SolidWorks, Creo, and ANSYS, and applies ISO 13485 and ISO 14971 frameworks in regulated environments.