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Aiman Siddiqui

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ABOUT ME

Polymer and Petrochemical Engineering graduate passionate about sustainable materials and polymer research, with hands-on experience in experimental analysis and materials development.

EDUCATION AND TRAINING

12/10/2019 – 28/10/2023 Karachi, Pakistan

BACHELORS OF ENGINEERING NED University of Engineering and Technology

1. Thermodynamics
2. Chemical Reaction Engineering
3. Heat Transfer
4. Polymer Physics
5. Fluid Mechanics

WORK EXPERIENCE

RESEARCH ENGINEER – UNILEVER – 06/05/2024 – 08/11/2025 – KARACHI, PAKISTAN

- Conducted applied research on packaging materials for Home Care products, including flexible, rigid, and corrugated structures.
- Designed and executed experimental trials to evaluate material performance, sustainability, and cost optimization.
- Performed technical validation and standardization of packaging designs, ensuring compliance with global specifications.
- Collaborated with cross-functional R&D and supply chain teams to translate research findings into scalable industrial applications.

RESEARCH ENGINEER – FAV GROUP OF COMPANIES – 15/01/2024 – 15/04/2024 – KARACHI, PAKISTAN

- Conducted applied R&D in polymer masterbatch formulations, focusing on material performance and functional optimization.
- Gained hands-on exposure to polymer systems, including thermoplastics and rigid plastics, through experimental development work.
- Contributed to the development of advanced masterbatches for food packaging, flame retardancy, coloration, and barrier enhancement.

PRODUCTION ENGINEER – LOTTE CHEMICALS PAKISTAN – 12/09/2022 – 07/10/2022 – KARACHI, PAKISTAN

- As a production Intern gained practical experience in research and development, process optimization, and collaborative project work in chemical engineering.
- Developed understanding of various aspects of chemical processes through experimental and analytical work.
- Analyzed performance data and operational reports to evaluate process efficiency and system behavior.

PROJECTS

Development of Reinforced Polymer Composite Construction Blocks (Final Year Design Project)

- Designed lightweight, high-strength construction blocks using HDPE/PP polymer blends for structural applications.
- Optimized composite composition to improve mechanical strength, thermal insulation, and moisture resistance.
- Developed a modular interlocking geometry enabling mortar-free assembly and efficient construction.
- Demonstrated the potential of polymer composites as a sustainable alternative to concrete and clay bricks.

Surf Excel – Multilayer Packaging Sustainability Project

- Investigated a PE/BOPP multilayer flexible packaging structure as a recyclable alternative to conventional PE/PET laminates for FMCG applications.
- Analyzed mono-olefin compatibility to improve recyclability within polyolefin recycling streams while preserving functional performance.
- Evaluated barrier properties, mechanical strength, seal integrity, and processability of the redesigned structure.
- Assessed the effect of BOPP stiffness and thickness optimization on material reduction, performance, and environmental impact

Liquid Pouch Packaging Development – Vim & Surf Excel

- Investigated metallized PET-based multilayer laminates for liquid pouch and sachet applications, focusing on barrier performance and structural stability.
- Evaluated seal integrity, material–process interactions, and machinability under high-speed filling conditions through production trials.

Web-Based Sachet Material Weight Calculator

- Developed a web-based calculation tool using Python, JavaScript, HTML, and CSS to estimate sachet material weight from layer thickness, material density, and package dimensions.
- Applied packaging engineering and material balance equations to automate accurate weight estimation for multilayer PET/PE structures.
- Demonstrated the integration of computational tools with polymer and packaging engineering concepts for data-driven analysis.

Pigment Optimization Study in LLDPE Formulations

- Conducted a comparative evaluation of rutile TiO_2 and rutile–anatase pigment blends with calcium extenders in LLDPE matrices.
- Assessed optical properties, dispersion behavior, and material efficiency to identify a cost-optimized pigment system with performance comparable to pure rutile formulations.

Metallized Flexible Packaging Development – Surf Excel White

- Developed a metallized multilayer flexible packaging structure, covering material selection, laminate design, and process qualification.
- Evaluated runnability, seal integrity, barrier performance, and metallization uniformity through factory-scale trials.
- Defined laminate build specifications to ensure consistent performance and scalability to mass production.

Flexographic to Rotogravure Printing Transition – Surf Excel

- Conducted a technical transition from flexographic to rotogravure printing for high-volume flexible packaging.
- Assessed ink laydown, color density, registration stability, and print repeatability to validate process suitability.
- Supported cylinder engraving, ink formulation optimization, and print trials to ensure print quality and laminate compatibility.

LANGUAGE SKILLS

Mother tongue(s): **URDU**

Other language(s): **ENGLISH**

SKILLS

Digital Skills

SAP | AWS | PLM | BLUE | COUPA | DCIW

CERTIFICATIONS

Certificate for participation in 2nd Sindh Research and Technology

Certificate for participation in Unilever Engineering Possibilities Program

• Certificate for securing 1st position in 1st Project and Poster Exhibition at NEDUET