

## Ajay Chouhan, PhD

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### Professional Summary:

PhD-qualified lubricant chemist with 2+ years of experience in **formulating, testing, and optimizing lubricants, greases, and additives**. Demonstrated expertise in **tribology, surface analysis, and lubricant performance testing** using advanced characterization tools. Adept at **product development lifecycle management** from concept to production, ensuring **compliance with testing standards, accurate documentation, and cross-functional collaboration**. Proven record of supporting **industrial-scale formulation and validation** projects with companies like Fuchs, Vy and **NTNU (Norway)**.

### Core Competencies

- Lubricant Formulation & Development
- Tribology & Wear Testing
- Product Realization & Technical Support
- Laboratory Management & Equipment Calibration
- Data Analysis & Documentation
- Cross-Functional Collaboration (R&D, QA, Production)
- Surface Characterization & Analytical Techniques
- Experimentation & Report Preparation
- Process Optimization & Continuous Improvement

### Education:

- **Ph.D. Chemical Sciences**- Indian Institute of Petroleum (IIP), Dehradun, India  
*Thesis: Chemically Functionalized Graphene: Lubricant Additive to Thin Film Lubrication*
- **M.Tech. Polymer Science & Technology** - Indian Institute of Technology (IIT) Delhi, India,  
*Thesis: Studies on Steel Wool & Ceramic Fiber Combination Reinforced Composite Friction Materials*
- **M.Sc. Chemistry** - Choudhary Charan Singh University, Meerut, India

### Academic and Professional Experience:

#### **Postdoctoral Researcher**

Norwegian University of Science and Technology (NTNU) | Nov 2022 – Jun 2024

Project: *Wear and Friction Reduction in Wheel–Rail Interaction (WINTER)*

- Developed **biodegradable lubricants, additives, and greases** for rail-wheel systems.
- Led **formulation development, synthesis trials**, and tribological performance evaluation using twin-disc and four-ball testers
- Collaborated with industry partners (SINTEF, Fuchs, Vy, Bane NOR) to translate lab findings into field-ready formulations

#### **Postdoctoral Fellow – SERB-NPDF, Department of Science and Technology (India) (2022)**

Project: *Deep Eutectic Solvents (DESs) with Functionalized 2D Materials for Tribo-Thin Films*

- Designed green DES-based lubricants and 2D nanomaterial interfaces for friction and wear reduction
- Integrated surface modification and spectroscopy to establish tribochemical mechanisms

#### **Visiting Researcher – Kyoto University, Japan (2019)**

DST-JSPS Project: Integrated Thin Films of Graphene-Ionic Liquids for Lubrication in MEMS Applications

#### **Assistant Professor (Chemistry)**

*IFTM University | Apr 2022 – Oct 2022*

- Supervised postgraduate theses, reviewed manuscripts, and trained students in research publication ethics and data visualization
- Developed documentation processes and coordinated departmental research reporting activities

#### **Executive – Quality Control, Maxima Solutions (Aero Pharma Group),**

**2007–2010**

Ensured product compliance with cosmetic standards; supported R&D, scale-up, and QC documentation

#### **Technical Skills:**

**Testing & Equipment:** Tribometer, 4-ball Tester, Rheometer, FTIR, TGA, DSC, SEM, AFM, Profilometer

**Software:** MS Office Suite, PowerPoint, Origin, Chemdraw, Peakfit, SAP (basic), and Mendeley

#### **Awards and Distinctions:**

- Managed **editorial workflow and reviewer engagement** for Frontiers in Carbon special issues
- Received **DST-SERB National Postdoctoral Fellowship (2022)** for a graphene and deep eutectic solvents high-impact R&D project
- **DST-JSPS Fellowship (2019):** Graphene–Ionic liquid thin films for lubrication (Kyoto University)
- CSIR-UGC NET-JRF (2013) and GATE (2012 & 2013) Qualified

#### **Languages:**

English (Fluent), Hindi (Fluent)

**(Ajay Chouhan, PhD)**