

## **Materials Engineer – Emulsion and Dispersion**

### **Job description**

#### **Introduction**

e-TRNL Energy is a fast-growing startup based in Bangalore, focused on developing next-generation energy solutions. We're on a mission to drive innovation in battery technology while building a workplace that values collaboration, agility, and impact.

We are currently expanding our team and strengthening the foundations of our operations. We're looking for energetic professionals who thrive in dynamic environments and want to contribute meaningfully to our growth journey.

Join us at e-TRNL Energy and be part of a company that's not just building advanced technology, but also shaping a vibrant and purpose-driven culture.

#### **Job summary**

We are seeking a hands-on formulation scientist specialising in the design, optimisation, and stabilisation of ceramic-based suspensions and emulsions. The ideal candidate will lead R&D projects focused on developing stable formulations of ceramic powders in solvents, ensuring reproducibility and performance. You will collaborate across interdisciplinary teams, guide technicians, manage scaling efforts, analyse formulation data, and communicate insights toward technology advancement.

#### **Key Responsibilities**

- Develop and optimise stable suspensions of ceramic powders in solvents using emulsification and colloidal formulation techniques.
- Characterise suspension properties: rheology, particle size distribution, zeta potential, stability, and drying behaviour.
- Design experimental protocols—including DoE—to evaluate additive impact (dispersants, surfactants, binders), control interfacial chemistry, and mitigate drying defects.
- Fabricate lab-scale batches, mentor technicians, oversee lab safety, track schedules, and maintain detailed records and technical documentation.
- Analyse formulation data (stability over time, sedimentation, viscosity changes) and prepare reports or presentations for internal reviews.
- Liaise with vendors and interdisciplinary partners (e.g., ceramic processing, scale-up production groups) to ensure compatibility and manufacturability.
- Stay updated on methods such as sol-gel, freeze casting, slip/tape/gel casting processes for advanced ceramic shaping and drying.

#### **Qualifications & Skills**

- B.Tech, M.Sc. or higher in Materials Science, Chemistry, Chemical Engineering, Physics, or related field.
- Minimum 4 years of experience in suspension/emulsion formulation, paints and coatings industry, with ceramics preferred; PhD experience also counts.

- Demonstrated hands-on formulation expertise: emulsions, ceramic colloids, dispersions, slurries.
- Strong understanding of suspension fundamentals: interparticle forces, drainage/cracking control, colloidal stability.
- Practical experience with characterisation tools: rheometers, DLS, zeta potential analysers, particle sizing methods.
- Knowledge of additives for controlling drying defects, cracking, or particle dissolution.
- Skilled in experimental design (DoE) and data analysis for formulation optimisation.
- Proven ability to manage lab personnel, experiments, timelines, and documentation.
- Effective communication and presentation skills, for both technical and non-technical audiences.
- Experience collaborating with external partners/vendors for material sourcing and tech transfer.

**Desired Qualifications.**

- Understanding of scale-up path from lab to pilot manufacturing.
- Patent drafting or grant proposal experience.

**Job Types:** Permanent,

**Pay:** As Per Industry standards

**Benefits:** Health insurance

**Office location:** Whitefield, Bengaluru