Materials Chemist II

Location: Burnaby, BC (onsite/hybrid)
Department: R&D – Advanced Materials
Reports to: CTO

About the Role

Hydrogen In Motion (H2M) is advancing next-generation hydrogen storage materials and systems. We're seeking a world-class **Materials Chemist II** to develop of high-capacity, fast-kinetics sorbents and composites for safe, efficient hydrogen storage. You'll drive the science from concept to pilot—owning synthesis, characterization, scale-up, and rigorous validation—alongside a multidisciplinary engineering team.

If you're a builder-scientist who thrives on solving hard problems in adsorption, catalysis, and surface chemistry—and translating breakthroughs into manufacturable products—this role is for you.

What You'll Do

- **Set the Materials Strategy:** Define hypotheses, research plans, and down-selection criteria for hydrogen storage media (porous carbons, MOFs/COFs, polymeric sorbents, hydrides, hybrid composites).
- **Synthesis & Scale-Up:** Develop and optimize synthesis routes (batch/continuous), binder systems, densification/pelletization, and surface functionalization to hit capacity, kinetics, durability, and cost targets. Scale from grams → kilograms.
- **Characterization & Testing:** Own end-to-end testing workflows:
    - **Porosity & surface:** BET, BJH, t-plot.
    - **Electron imaging:** SEM, TEM
    - **Chemical and structural analysis:** XRD, XPS, TGA/DSC, EDX
    - **Gas sorption:** High-pressure volumetric/gravimetric hydrogen adsorption/desorption, cycling stability.
    - **Purity & analytics:** GC/MS for gas analysis, impurity tracking.
- **Data, Modeling & DOE:** Design statistically robust experiments (DoE), database analysis, DFT and MD modelling of chemical process and adsorption system.
- **System Integration:** Partner with mechanical/process engineers to integrate media into canisters/cartridges, validate under real-world duty cycles, and meet safety/standards (CSA/ISO).
- **Safety & Quality:** Champion material-based hydrogen safety, and quality documentation; establish SOPs for lab and pilot operations.

- **Documentation & IP:** Maintain meticulous records; generate invention disclosures and support patent filings; author technical reports and publications where strategic.
- **Leadership & Collaboration:** Mentor chemists/techs, manage vendor/academic collaborations, and represent materials in cross-functional reviews.

Qualifications

Must-Have

- PhD in **Chemistry**, **Materials Science**, **Chemical Engineering**, or related field (or MSc + 7–10 years of directly relevant experience).
- Deep expertise in **surface chemistry**, **adsorption/desorption kinetics**, **porous materials** or **hydrides**, and **2-dimensional materials**.
- Proven track record taking materials from **lab to pilot** (scale-up, reproducibility, cost-aware process development).
- Strong statistical design (DoE) and data analysis; comfortable with Python/MATLAB/R for modeling and visualization.
- Demonstrated safety leadership in **high-pressure gases** and lab operations.

Nice-to-Have

- Experience with **graphene**, **MOFs/COFs**, advanced carbons, polymeric sorbents, or **metal hydrides** for hydrogen storage.
- Knowledge of **CSA/ISO hydrogen standards**, system-level integration, and impurity/purity management.
- Mechanical property optimization of **pellets/monoliths**, binders, and composite architectures.
- Patent authorship, tech transfer to manufacturing, and industry collaborations.

Why H2M

- **Mission & Impact:** Build materials that enable practical solid-state hydrogen adoption and real decarbonization.
- **End-to-End Ownership:** From foundational chemistry to integrated product demonstrations.
- **Growth & Autonomy:** Lead a high-leverage domain with visibility to executive leadership.
- **Compensation & Benefits: Benefits:** Competitive base + performance bonus + potential equity; extended health benefits; flexible time off; professional development support.

Work Environment

- Onsite access to high-pressure hydrogen systems, gloveboxes, sorption analyzers, and full synthesis suite.
- Safety-first culture with comprehensive training and PPE.
- Cross-functional collaboration with mechanical/process/controls engineering.

How to Apply

Please submit your **CV**, a brief **cover note** (highlighting 1–2 relevant projects with quantitative results), and any **publications/patents** to **chemistry@hydrogeninmotion.com** with the subject line:
"Materials Chemist – Hydrogen Storage".

Equal Opportunity

H2M is an equal opportunity employer. We celebrate diversity and are committed to creating an inclusive environment for all employees.

Short Posting (for LinkedIn/Indeed)

Materials Chemist II – Hydrogen Storage | Burnaby, BC
H2M is developing next-generation hydrogen storage materials. Materials chemist II to advance synthesis, characterization, and scale-up of high-capacity sorbents and composites. You'll own gas sorption testing (high-pressure H_2), porosity/surface analysis (BET/TGA/DSC/XRD), and integrate materials into real systems. PhD in Chemistry/Materials or MSc + 7–10 yrs; expertise in adsorption, surface chemistry, 2-dimensional materials, porous materials/hydrides; strong DOE/data skills. Impactful role, hands-on lab, pilot scale, and cross-functional collaboration.
Apply: chemistry@hydrogeninmotion.com • **Ref:** Principal Materials Chemist – H_2 Storage

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