

Job Title: Semiconductor Manufacturing Materials Expert**Department: Technical Sourcing / Supply Chain Management****Job Summary:**

The Semiconductor Manufacturing Materials Expert is responsible for sourcing, evaluating, and qualifying materials critical to semiconductor manufacturing, such as wafers, chemicals, gases, photoresists, targets, and dielectric materials. This role requires technical expertise in semiconductor materials and close collaboration with cross-functional teams to ensure the timely and cost-effective procurement of high-quality materials. The expert will develop strategic supplier relationships, drive cost reduction initiatives, and ensure that all sourced materials comply with the company's technical specifications and industry standards.

Key Responsibilities:**1. Sourcing of Semiconductor Materials:**

- a. Identify, evaluate, and select suppliers for semiconductor materials, including wafers, substrates, photoresists, chemicals, gases, metals, and dielectric materials.
- b. Build and maintain a network of suppliers capable of delivering high-quality materials on time and at competitive costs.
- c. Work closely with procurement, engineering, and quality teams to align material sourcing with the company's manufacturing needs and technical requirements.

2. Materials Qualification and Compliance:

- a. Lead the qualification process for new materials, ensuring that they meet technical specifications, performance requirements, and industry standards (e.g., SEMI, ISO).
- b. Collaborate with process engineers and R&D teams to evaluate the impact of new materials on semiconductor fabrication processes.
- c. Ensure all materials comply with environmental, health, and safety regulations, as well as corporate sustainability initiatives.

3. Supplier Evaluation and Selection:

- a. Conduct regular supplier reviews and audits to assess performance, quality, capacity, and adherence to contracts and standards.
- b. Collaborate with cross-functional teams to select materials suppliers based on technical merit, quality, and support capabilities.

- c. Establish and maintain strong relationships with key suppliers to ensure continuous material supply and access to innovations in materials technology.
- d. Drive supplier development and improvement initiatives to enhance material quality, reduce costs, and minimize supply chain risks.

4. Cost Management and Negotiation Support:

- a. Develop and execute cost-saving strategies for semiconductor materials while maintaining quality and performance standards.
- b. Analyze market trends and raw material cost drivers to forecast pricing and develop long-term sourcing strategies.

5. Cross-Functional Collaboration:

- a. Collaborate with process engineering, R&D, manufacturing, and quality teams to ensure that sourced materials meet all process and product development requirements.
- b. Support New Product Introduction (NPI) by sourcing and qualifying materials for new semiconductor processes and technologies.
- c. Provide technical guidance to commercial sourcing and procurement teams on material specifications, requirements, and potential alternative sourcing options.

6. Risk Management:

- a. Identify and mitigate risks associated with material sourcing, including supply chain disruptions, material shortages, and geopolitical risks.
- b. Develop contingency plans and alternative sourcing strategies to ensure a robust and resilient supply chain for semiconductor materials.
- c. Monitor market conditions and emerging trends to proactively address potential supply chain risks.

7. Market Research and Material Innovation

- a. Stay up to date with emerging technologies and trends in semiconductor materials, including advancements in substrate materials, advanced coatings, and eco-friendly chemicals.
- b. Evaluate and recommend new materials that could enhance process performance, reduce costs, or improve sustainability.
- c. Attend industry conferences, trade shows, and supplier meetings to stay informed about the latest developments in semiconductor materials.

8. Data Analysis and Reporting

- a. Analyze material usage, performance data, and supplier metrics to drive continuous improvement in material sourcing and supply chain efficiency.

- b. Generate reports and present findings to management on material performance, cost savings, supplier performance, and sourcing strategies.
- c. Use data to identify opportunities for process optimization and material cost reductions.

9. Documentation and Compliance:

- a. Maintain comprehensive documentation of material specifications and qualification processes.
- b. Ensure that all sourcing activities comply with industry standards, internal policies, and legal requirements.
- c. Manage Material Safety Data Sheets (MSDS) and ensure all materials adhere to environmental and safety regulations.

Qualifications:

- Education: Bachelor's or Master's degree in Materials Science, Chemistry, Chemical Engineering, or a related technical field. Advanced degrees or certifications in supply chain management (e.g., CPSM, CPIM) are a plus.

Experience:

- 10+ years of experience in semiconductor materials sourcing, procurement, or process engineering within the semiconductor or high-tech industry.
- Proven track record of managing material sourcing for complex, high-precision manufacturing environments.

Technical Knowledge:

- Deep understanding of semiconductor materials, including silicon wafers, advanced substrates, photoresists, chemicals, metals, and dielectric materials.
- Familiarity with semiconductor manufacturing processes and how different materials impact process performance and yield.
- Strong knowledge of industry standards for materials (e.g., SEMI standards, ISO certifications) and regulatory requirements.

Skills:

- Excellent negotiation, supplier management, and contract management skills.
- Strong analytical and problem-solving abilities, with the ability to analyze material performance data and drive sourcing decisions.

- Proficiency with ERP systems, supply chain management software, and data analysis tools.
- Excellent communication and collaboration skills to work effectively with cross-functional teams and suppliers.

Other:

- Willingness to travel for supplier audits, evaluations, and negotiations.
- Strong attention to detail and organizational skills to manage multiple material categories and suppliers simultaneously.

Key Competencies:

- **Materials Expertise:** Deep knowledge of semiconductor materials and their application in manufacturing processes.
- **Strategic Sourcing:** Ability to develop and implement effective sourcing strategies for high-tech materials.
- **Supplier Management:** Expertise in evaluating and managing supplier relationships to ensure reliable supply and material quality.
- **Cost Management:** Proven ability to drive cost reduction initiatives while maintaining material performance and quality.
- **Collaboration:** Strong ability to work across departments (engineering, quality, R&D, and procurement) to align material sourcing with business objectives.