

AilumiQ Job Description: JD0009 Quantum Dot Quality Control/Mass production Engineer

Location: Taipei, Taiwan

Employment Type: Full-time

About AilumiQ:

AilumiQ is an innovative deep-tech startup dedicated to revolutionizing the production of advanced materials, such as next-generation quantum dots. We've developed an automated platform powered by AI to achieve exceptional precision, efficiency, and scalability in material synthesis. Our mission is to overcome the limitations of traditional manufacturing methods and unlock the full potential of quantum dot technology.

Job Summary:

We are seeking an experienced and detail-oriented **Quantum Dot Quality Control/Mass production Engineer** to join our manufacturing team in Taipei, Taiwan. In this role, you will be responsible for managing large-scale quantum dot (QD) production processes, ensuring consistent quality and performance across batches, and implementing quality control systems aligned with ISO standards. You will work closely with R&D, automation, and quality teams to establish reliable, scalable, and compliant production workflows.

Responsibilities:

- Oversee and optimize large-scale QD synthesis and post-processing operations to ensure batch-to-batch consistency and yield stability.
- Establish and maintain quality control (QC) protocols for QD optical, structural, and chemical properties.
- Monitor key process parameters, perform in-line and off-line QC testing, and analyze production data to ensure compliance with quality specifications.
- Collaborate with the R&D team to transfer lab-scale synthesis into stable, repeatable mass production processes.
- Develop and maintain documentation for production standards, QC procedures, and process validation.
- Lead in preparing ISO certification and audit documentation for production lines (e.g., ISO 9001, ISO 14001).
- Support the integration of AI-based monitoring and automation tools for continuous process improvement.
- Ensure all production operations follow EHS (Environmental, Health, and Safety) compliance.

Required Skills and Experience:

- Master's degree in Chemical Engineering, Materials Science, or a related discipline.
- 2+ years of experience in chemical manufacturing, nanomaterial production, or semiconductor materials processing.
- Strong understanding of wet-chemical synthesis, colloidal nanoparticle systems, and surface passivation chemistry.
- Demonstrated experience in mass production process development, pilot-to-factory transfer, and yield optimization.
- Proficiency in statistical process control (SPC), design of experiments (DOE), and process capability analysis (Cpk, Ppk).
- Familiarity with ISO 9001 or similar quality management systems, including documentation and internal audit preparation.
- Experience in analytical and optical QC methods, including UV-Vis, PL spectroscopy, XRD, and TEM data interpretation.
- Proficiency in using data analysis tools (JMP, or Python) for quality and process tracking.
- Strong communication, documentation, and cross-functional collaboration skills..

Preferred Skills and Experience:

- Experience in QD or colloidal nanocrystal mass production.
- Experience with automated production equipment, reactor control systems.
- Background in implementing or maintaining ISO 9001 or ISO 14001 certifications.
- Familiarity with statistical process control (SPC), failure mode and effects analysis (FMEA), or Six Sigma methodologies.
- Familiarity with AI-assisted process monitoring, data acquisition systems, and real-time analytics.
- Knowledge of optical and structural QC techniques (e.g., UV-Vis, PL, XRD, TEM).
- Understanding of EHS regulations and safe chemical manufacturing practices.
- Hands-on experience in QD or colloidal nanomaterial mass production.
- Strong organizational and project management skills, with a proactive mindset toward operational excellence.

Benefits:

At AilumiQ, we offer a comprehensive and supportive benefits package designed to empower our team members:

Statutory Benefits:

- Maternity/Paternity Leave
- Family Care Leave
- Labor Insurance
- Health Insurance

Private and Confidential

- Accompanying Spouse's Maternity Leave
- Special Leave (Annual Leave)
- Parental Leave
- Menstrual Leave
- Labor Pension Fund Contribution
- Prenatal Check-up Leave
- Epidemic Prevention Leave
- Employee Health Check-up
- Weekends Off

Other Benefits:

- Employee Stock Options
- Performance-Based Bonus (Year-End Bonus)
- Snack Bar & Coffee Station
- Paid Travel Leave
- Paid Sick Leave (Better than Labor Standards Act)
- Employee Training Subsidies
- Department Gatherings
- Flexible Remote/Work-From-Home Options
- Open Office Environment for Easy Team Integration

Enhanced Benefits for Full-Time Employees:

- Guaranteed 14 Days of Annual Leave (pro-rated based on time of employment), encouraging work-life balance.
- Flexible Working Hours to accommodate family care needs.
- Annual External Training Budget to support continuous skill development.
- Monthly Welfare Allowance of NT\$2,000 for leisure activities (massage, beauty, dining, travel, etc.).
- Employee Laptop Subsidy and Health Check-up Subsidy.

To Apply:

Please submit your resume and cover letter detailing your relevant experience, particularly with optical systems, and why you are interested in joining AilumiQ to hire@ailumiq.com. We look forward to hearing from you.