

Materials Engineers

SOC: 17-2131 • Career Profile Report

■ Key Facts

\$108,310 Median Salary	23,000 Employment	+6.0% Growth Rate
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■ Requirements & Salary Range

Education: Bachelor's degree

■ Automation Risk Assessment

Low Risk - 17.0% probability of being automated in the next 10-20 years.
This job is relatively safe from automation due to its creative, social, or complex problem-solving requirements.

■ Work-Life Balance

8.1/10 - Excellent work-life balance

■ Personality Fit (RIASEC)

Higher scores indicate better personality fit for this career type.

Realistic	8.2/10	Investigative	8.8/10
Artistic	6.4/10	Social	5.2/10
Enterprising	5.8/10	Conventional	6.6/10

■ Top Skills Required

Analytical skills, Computer skills, Math skills, Problem-solving skills, Communication skills

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Materials Engineers typically perform the following tasks:

- Analyze product failure data and laboratory test results to determine causes of problems and develop solutions.
- Design and direct the testing or control of processing procedures.
- Monitor material performance, and evaluate its deterioration.
- Conduct or supervise tests on raw materials or finished products to ensure their quality.
- Evaluate technical specifications and economic factors relating to process or product design objectives.
- Modify properties of metal alloys, using thermal and mechanical treatments.
- Determine appropriate methods for fabricating and joining materials.
- Guide technical staff in developing materials for specific uses in projected products or devices.
- Review new product plans, and make recommendations for material selection, based on design objectives such as strength, weight, heat resistance, electrical conductivity, and cost.
- Supervise the work of technologists, technicians, and other engineers and scientists.
- Plan and implement laboratory operations to develop material and fabrication procedures that meet cost, product specification, and performance standards.
- Plan and evaluate new projects, consulting with other engineers and corporate executives, as necessary.
- Supervise production and testing processes in industrial settings, such as metal refining facilities, smelting or foundry operations, or nonmetallic materials production operations.
- Solve problems in a number of engineering fields, such as mechanical, chemical, electrical, civil, nuclear, and aerospace.
- Conduct training sessions on new material products, applications, or manufacturing methods for customers and their employees.
- Perform managerial functions, such as preparing proposals and budgets, analyzing labor costs, and writing reports.
- Present technical information at conferences.
- Replicate the characteristics of materials and their components, using computers.
- Design processing plants and equipment.
- Write for technical magazines, journals, and trade association publications.

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Source: <https://www.bls.gov/ooh/architecture-and-engineering/materials-engineers.htm>