

COMPETENCY 1 FOR MATERIALS ENGINEERS **Implementing analysis methods to identify malfunctions and adapt to new conditions**

| <i>Workplace situations</i> | <i>Development trajectories</i> |
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| Product defects | Analyze the defective product to identify the causes of the defect. Recommend an alternative (materials, transformation, integration into the product) to correct the defect. |
| Evolution du marché | Perform market and regulatory intelligence to stay ahead of resulting changes. Be responsive and recommend modifications to stay ahead of future needs. |
| Process drift | Analyze the affected process to identify the causes of drift. Recommend a modification to the affected process to eliminate drift. |

COMPETENCY 2 FOR MATERIALS ENGINEERS **Demonstrating knowledge of lab and testing techniques and the capacity to interpret the results to respond to specifications**

| <i>Workplace situations</i> | <i>Development trajectories</i> |
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| Material/product/process characterization | Choose characterization techniques/choose a model. Analyze the results. |
| Material/product/process optimization | Come up with a strategy (a protocol for an experiment or data processing). Measure the gaps between the results obtained and the desired level of performance. |
| Material/product/process implementation | Identify the environment in which the material/product/process will be used, the target applications, and performance. Implement protocols for experiments or prediction tools. |
| Material/product/process changes | Identify degradation mechanisms. Factor in the concepts of lifespan and aging. |

COMPETENCY 3 FOR MATERIALS ENGINEERS **Actively contributing to innovation**

| <i>Workplace situations</i> | <i>Development trajectories</i> |
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| Design of a new material/product/process | Listen actively to effectively identify employee or customer needs. Maintain broad scientific knowledge. Demonstrate imagination and creativity. |
| Promotion of interdisciplinary approaches | Demonstrate the capacity to bring diverse scientific and technical know-how together around an innovation project. Enable each contributor to express him- or herself and to utilize his or her competencies. |
| Staying up to date on the state of the art | Be open to scientific and technological advances both within and outside of his or her discipline. Demonstrate knowledge of communication and information management tools. Capitalize on the organization's knowledge and competencies. |
| Recommendation of innovative strategies/technological breakthroughs | Accept failure and demonstrate perseverance. Cultivate curiosity and open-mindedness. Enjoy experimenting and discovering the world around us. |

| COMPETENCY 4 FOR MATERIALS ENGINEERS | | Adapt to changes in the workplace and to technological advances | |
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| <i>Workplace situations</i> | | <i>Development trajectories</i> | |
| Career development (geographical, topical, technical) | | Demonstrate an ability to communicate in different languages. | |
| | | Develop a career plan. | |
| | | Build and expand a professional network. | |
| Regulatory changes | | Keep up with changes in society. | |
| | | Comply with legal and regulatory requirements. | |
| Update his or her knowledge | | Develop a technological intelligence practice. | |
| | | Identify and find solutions to technological challenges. | |

| COMPETENCY 5 FOR MATERIALS ENGINEERS | | Coordinate human and technical resources | |
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| <i>Workplace situations</i> | | <i>Development trajectories</i> | |
| Coordination of a team | | Mobilize human resources. | |
| | | Manage men and women in a multidisciplinary, multicultural context. | |
| Development and management of a project in an international environment | | Assign project tasks and identify priorities; | |
| | | prepare a budget and ensure financial profitability. | |
| | | Identify unique cultural considerations. | |
| Trend forecasting (technical, ecological, geopolitical, societal) | | Factor in lifecycle and sustainable development principles. | |
| | | Factor in the societal impacts of the planned activity. | |
| Decision-making/choices, guidance | | Demonstrate knowledge of scheduling and management tools. | |
| | | Select a material/product/process. | |

| COMPETENCY 6 FOR MATERIALS ENGINEERS | | Demonstrate open-mindedness and develop communication skills | |
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| <i>Workplace situations</i> | | <i>Development trajectories</i> | |
| Promotion of his or her work (write, present, and defend his or her work) | | Write and present a technical report that includes the interpretations and conclusions of experiments completed (in French or English). | |
| | | Give a pre-project presentation that includes the planned schedule. | |
| Ranking/selection/dissemination of information | | Summarize bibliographic research. | |
| | | Adapt his or her communication style to the audience. | |
| Raising working groups' awareness | | Create targeted communication strategies. | |
| | | Train staff on new techniques. | |