

SSROP01 Product Developer – Rope, Cordage and Twine

1. Job role

TCF sub-sector	Rope, Cordage and Twine Manufacturing
Functional area	Product Design and Development
Job role	SSROP01 Product Developer – Rope, Cordage and Twine
Job role description	Leads the design, development and commercialisation of rope, cordage and twine products for industrial, marine, agricultural, construction and specialist technical applications, ensuring products meet performance, safety, durability and regulatory requirements. In the Australian rope, cordage and twine sector, the Product Developer is responsible for translating end-use requirements into engineered fibre and construction solutions. Products may include synthetic and natural fibre ropes, braided cords, high-performance lifting slings, marine lines, agricultural twines and specialised technical cordage systems. The role involves selecting fibres and materials, designing yarn and rope constructions, developing prototypes, coordinating testing and validation, and ensuring compatibility with manufacturing processes such as extrusion, twisting, braiding and finishing. It requires a deep understanding of load-bearing performance, abrasion resistance, environmental durability and safety standards. The Product Developer works closely with customers, engineers, production teams, quality personnel and suppliers to ensure products are fit for purpose, compliant with standards and capable of being produced efficiently at scale.
Performance expectations	• Developing products that meet performance and safety requirements • Ensuring correct selection of fibres and construction methods • Delivering products that meet customer and industry specifications • Managing development timelines and product lifecycle stages • Conducting testing and validation of mechanical performance • Ensuring manufacturability and production efficiency • Maintaining documentation and traceability • Minimising product failure risks and defects • Supporting innovation and continuous improvement
Specialisation	Rope construction design, fibre selection, load-bearing systems, braided and twisted structures, technical cordage development

Application in other TCF sectors	Marine, construction, mining, agriculture, defence, transport, industrial lifting and rigging
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2. Key tasks and critical work functions

Key tasks	- Translating customer and industry requirements into product specifications - Selecting fibres (synthetic and natural) and yarn constructions - Designing rope, cordage and twine structures (twisted, braided, plaited) - Developing and testing prototypes - Evaluating tensile strength, elongation, abrasion and fatigue performance - Ensuring compatibility with extrusion, spinning, twisting and braiding processes - Maintaining product specifications and technical documentation - Collaborating with production and QA teams - Supporting product launch and customer trials
Critical work functions	- Ensuring products meet load-bearing and safety requirements - Preventing product failure in critical applications - Maintaining consistency and quality of materials and construction - Supporting compliance with standards and certifications - Maintaining traceability of materials and production - Enabling scalable and efficient manufacturing - Supporting innovation in materials and construction techniques - Ensuring products meet environmental and operational demands

3. Technical skills

Fibre and material selection	Understanding synthetic and natural fibres
Rope construction design	Designing twisted, braided and plaited structures
Mechanical testing	Conducting tensile, fatigue and abrasion testing
Process integration	Aligning designs with extrusion, spinning and braiding
Failure analysis	Investigating product failures and performance issues
Data analysis	Interpreting test and production data
Documentation	Maintaining technical specifications
Standards compliance	Applying industry and safety standards

4. Generic Skills

Attention to detail	Ensuring precision in design and testing
Analytical thinking	Evaluating performance and risk

Communication	Working with customers and production teams
Problem solving	Resolving design and performance issues
Teamwork	Supporting cross-functional development
Time management	Managing development timelines
Adaptability	Responding to changing requirements
Professionalism	Maintaining compliance and documentation standards

5. Emerging skills

Emerging skills	• High-performance fibres (aramids, UHMWPE) • Smart ropes with embedded sensors • Advanced braiding and automation technologies • Sustainable and recyclable materials • Digital modelling of rope performance • Advanced coatings and protective treatments
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6. VET Qualifications and Skill Sets

Entry-level preparation	MST40122 Certificate IV in Textile Design and Technology or equivalent
Advanced development	Degree in Textile Engineering, Materials Science or Mechanical Engineering

7. Job progression

Possible job progression	Development Technician → Product Developer → Senior Developer → Technical Manager → Engineering or Operations Manager
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8. Classification

Australian Qualifications Framework	Level 5-7
Australian Bureau of Statistics (ABS) Skill Levels	Skill Level 1-2
Open Source Classification of Occupations for Australia (OSCA)	Product Developer - Rope, Cordage and Twine



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