
Overview

This standard covers the competences you need to design the scale-up process for explosive substances and/or articles in accordance with approved procedures and practices

You will be required to demonstrate that you can develop and validate new processes, techniques and equipment in line with regulatory guidelines. Ensuring that your scale-up design demonstrates reproducibility, with the required properties in accordance with approved procedures and practices.

This activity is likely to be undertaken by someone whose work role involves Weapons, Ordnance, Munitions or Explosives work activities. This includes people working as research leaders, design managers and development managers and researchers, designers and developers.

Performance criteria

- You must be able to:*
- P1 work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines
 - P2 establish the evaluation criteria to determine the success of the scale-up
 - P3 assess the suitability of existing processes, techniques, and plant and equipment
 - P4 explore the possibility of adapting existing processes, techniques and equipment before new ones are developed
 - P5 develop and validate new processes, techniques and equipment in line with regulatory guidelines
 - P6 ensure that your scale-up design demonstrates reproducibility, with the required properties
 - P7 write clear and concise process procedures
 - P8 document fully the rationale and the choice of processes, techniques and equipment
 - P9 report your findings, in the correct format

Knowledge and understanding

- You need to know and understand:*
- K1 the health, safety and environmental and other statutory legislation, regulations and safe working practices and procedures governing explosives, and their implications for your area of work
 - K2 the relevance of personal protective equipment (PPE)
 - K3 the nature, characteristics, hazards and risks of the explosive substances and/or articles
 - K4 the actions to be taken in response to an unplanned event
 - K5 the research programme and plan
 - K6 the required properties of the substance(s) being scaled up
 - K7 the range of possible processes, and their advantages and disadvantages
 - K8 the critical factors in scale-up processes
 - K9 the available facilities and equipment, and their constraints
 - K10 the competences of the personnel involved
 - K11 the information needed to draw up processing procedures
 - K12 whom to consult, and where to go for further advice
 - K13 methods for evaluating the fitness for purpose of the processes, techniques, plant and equipment
 - K14 methods for evaluating the success of the scale-up
 - K15 problem solving techniques
 - K16 the impact of the cost of developing or adapting new processes, techniques, plant and equipment
 - K17 the documentation requirements
 - K18 how to consign residues and other products for disposal

Scope/range

1. Suitability: cost; safety
2. Resources: limited; full

Developed by	Cogent
Version Number	2
Date Approved	November 2017
Indicative Review Date	November 2020
Validity	Current
Status	Original
Originating Organisation	SEMTA
Original URN	ESA1.17
Relevant Occupations	Science and mathematics Science; Science; Engineering and manufacturing technologies; Science and Engineering Technicians; Process, Plant and Machine Operatives
Suite	Explosive Substances and Articles
Keywords	Design, scale-up, explosive substances, health, safety, hazards, regulations, procedures