



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **ICPPR432C Produce specialised lithographic printed product**

**Revision Number: 1**

## ICPPR432C Produce specialised lithographic printed product

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit describes the performance outcomes, skills and knowledge required to produce specialised lithographic printed product that requires a certain amount of problem solving and experimentation with the substrate and press settings.
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### Application of the Unit

<b>Application of the unit</b>	This unit requires the individual to operate a lithographic press ensuring an efficient specialised production flow that maintains product quality standards. Any production problems are anticipated and rectified with minimum downtime. The machine is correctly shut down and cleaned according to OHS guidelines.
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### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Maintain specialised lithographic printing process	<p>1.1. Lithographic plate and plate cylinder conditions are monitored, evaluated and adjusted to ensure the quality of the <i>specialised</i> printed product meets the standard of the sample sheet</p> <p>1.2. Lithographic blanket and blanket cylinder conditions are monitored, evaluated and adjusted to ensure the quality of the specialised printed product meets the standard of sample sheet</p> <p>1.3. Lithographic impression cylinder condition is monitored, evaluated and adjusted to ensure quality of the specialised printed product meets the standard of sample sheet</p> <p>1.4. Lithographic inking system is checked and maintained to ensure quality of the specialised printed product meets the standard of sample sheet</p> <p>1.5. Lithographic dampening system condition is monitored, evaluated and adjusted to ensure quality of the specialised printed product meets the standard of sample sheet</p> <p>1.6. Set off/marketing prevention and drying system is monitored, evaluated and adjusted to ensure quality of the specialised printed product meets the standard of sample sheet</p> <p>1.7. Drying systems are monitored, evaluated and adjusted to ensure quality of the specialised printed product meets the standard of approved proof</p>
2. Maintain specialised production process	<p>2.1. Production process is operated in association with fellow workers and according to enterprise procedures and planned daily schedule</p> <p>2.2. Production is maintained according to OHS requirements, manufacturer's specifications and enterprise procedures</p> <p>2.3. Manual and/or automatic control is used according to job specifications</p> <p>2.4. Performance is monitored, evaluated and verified using the process control system according to enterprise procedures</p> <p>2.5. <i>Ink</i> performance, colour, register and position of print are monitored, evaluated and adjusted throughout production run</p> <p>2.6. Production difficulties are anticipated and</p>

ELEMENT	PERFORMANCE CRITERIA
	<p>preventive action is taken to prevent occurrence by timely intervention</p> <p>2.7. Process adjustments to eliminate problems are reported according to enterprise procedures</p> <p>2.8. Faulty performance of equipment is identified and reported according to enterprise procedures</p> <p>2.9. Waste is sorted according to enterprise procedures</p>
3. Tune and adjust machinery	<p>3.1. Idiosyncrasies of <i>machines</i> are reviewed and adjustments or tuning undertaken to compensate or to exploit the idiosyncrasy, within manufacturer's specifications</p> <p>3.2. Options are assessed to determine most effective/efficient method of production, ensuring highest quality and yield from machinery</p> <p>3.3. A test run confirms correct options and settings or the need for further adjustment or tuning to meet quality standards</p> <p>3.4. Options and recommendations are documented for future reference according to enterprise procedures</p> <p>3.5. Instruction on new practices is provided to machine operator or finisher, if required</p>
4. Troubleshoot machinery and material problems	<p>4.1. Corrective or preventive action is recommended and implemented where appropriate</p> <p>4.2. Changes are communicated to relevant personnel in a logical and easily understood manner</p> <p>4.3. Changes are monitored to confirm improvement to production efficiency</p> <p>4.4. Ongoing problems are reported according to enterprise procedures</p>
5. Conduct shutdown of production process	<p>5.1. Correct shutdown sequence is followed according to manufacturer's specifications and enterprise procedures</p> <p>5.2. Plate cylinder is set up and adjusted according to job specifications</p> <p>5.3. Unused ink is correctly labelled and stored according to manufacturer/supplier specifications and enterprise procedures</p> <p>5.4. Solid and liquid waste is removed from operating area and recycled or disposed of, where required, according to regulatory requirements and enterprise procedures</p>

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
	5.5. All product is removed from operating area 5.6. Machine faults requiring repair are identified and reported to designated person according to enterprise procedures 5.7. Repair/adjustment is verified prior to resumption of operations

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

- OHS in relation to operating machinery such as safely switching off machinery before cleaning is started
- communication of ideas and information by providing feedback to internal and external clients about printing processes and job specifications
- collecting, analysing and organising information by collating details of job and machine specifications and printing processes to ensure efficient production
- planning and organising activities by providing information about time and materials requirements for production scheduling
- teamwork when maintaining the production process in association with others
- mathematical ideas and techniques by calculating consumables and personnel requirements to meet production schedules
- problem-solving skills by identifying print problems and correcting during print run
- use of technology by using monitoring systems, understanding their output and feeding into production management systems

#### Required knowledge

- OHS concerns that are there when operating the reel transportation system
- reel wander cause
- cause of the web to break at the unwind unit
- difference between a "flying paster" and "zero speed" type reel-stand
- a print fault that would result from the reel being run out of centre
- possible faults in the unwind section that could cause a web break
- OHS concerns that are there when operating the sheet transportation system
- result of worn suckers at the feeder suction head
- sheet detection types that are on this machine
- amount of movement that the sheet should have when being registered by the side lay
- cause of mis-register of the sheet at the feeder
- visible signs of the sheet being registered in the feeder
- gripper malfunction affect on the sheet control and transfer
- adjustment of the sheet transfer mechanisms
- cause of the feeder stack to become uneven
- result of the feeder stack not being loaded level
- rectifying the unevenness of the feeder stack
- OHS risks that are associated with rewinding and sheeting
- a safety feature that is in the delivery system if the web jams up

**REQUIRED SKILLS AND KNOWLEDGE**

- sheet cut-off wander
- effect of poorly adjusted nip rollers when rewinding and sheeting
- further operations that are required for printed reels upon removal from the printing machine
- storing the printed job after removal from the printing machine
- need to label each printed reel
- effect that machine speed will have on sheet delivery
- advantage of spraying moving sheets with anti set off powder in the delivery
- items in the delivery that could cause marking of the printed image
- remedial steps that may be necessary to eliminate marking of the printed image
- function of a sheet decurler fitted to the delivery of some machines
- faults that could result from incorrectly set grippers in the transfer section of a machine
- storing the printed job after removal from the printing machine
- result if the plate develops a crack at the grip edge during a print run
- effect of a sticky blanket surface
- print faults that would result from the blanket not being tensioned correctly
- cause of blanket packing creep during printing
- effect of a build-up of ink on the impression cylinder the printed product
- cause of ink to lie back in the duct
- cause of ink stripping on the inking rollers
- print faults that would result from excessive use of fountain solution on the plate
- recommended pH range for fountain solutions
- cause of change in the conductivity of the fountain solution over an eight-hour shift
- problems that can be caused by excessive conductivity of the fountain solutions
- effect of eating or drinking near the machine when using UV inks
- link between driers and set off and marking
- causes of UV ink to dry
- cause of the substrate blistering
- effect in the chillers if the drying temperature was too low
- effect of incorrect drying temperature on the finished product
- effect of inadequate communication within the work team on a lithographic printing machine
- safety features within the organisation that aid in maintaining effective production
- ramifications if machine guards are removed and/or micro switches are disconnected on a machine
- legally responsibility for the removal of machine guards and/or disconnection of micro switches
- disadvantage of using a closed looped system for automatic control of the printed product
- other measurement besides optimum solid ink density that can be measured to



**REQUIRED SKILLS AND KNOWLEDGE**

assess print quality

- most accurate method of checking register during a production run
- need to take immediate action when production problems are anticipated
- action that is taken to eliminate further processing of unacceptable printed product
- effect on a stack of paper if the relative humidity is increased in the press room
- procedure to care for a newly delivered skid of paper to the press room
- waste sorting
- advantage of keeping reusable waste
- industry standards that can be applied to enhance effective communication with the client
- the necessary procedures that the client should follow to "OK" a printed product
- need to call service personnel to correct a machine problem?
- enterprise procedures that are in place to report any machine operating problems
- result if correct shutdown procedures were not followed
- need for correct shutdown procedures that are conducted with fellow workers
- advantages that result from proper labelling and storage of excess inks and materials
- clear labelling of the printed product prior to removal from the press room
- use of completed records in the final analysis of the job
- benefits of comprehensive records when considering the production of future jobs
- machine manuals, safety and other documentation that are relevant to this task and where they are kept and information that is included in these documents

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> <li>operate a lithographic press ensuring an efficient specialised production flow that maintains product quality standards. Any production problems are anticipated and rectified with minimum downtime. The machine is correctly shut down and cleaned according to OHS guidelines</li> <li>demonstrate use of computerised control, monitoring and data entry systems if available and appropriate</li> <li>demonstrate an ability to find and use information relevant to the task from a variety of information sources</li> <li>monitor production output and make necessary adjustments to maintain print quality on a lithographic machine whilst producing a specialised print on TWO occasions (if possible using different types and sizes of substrates) according to job specifications, enterprise procedures and the Performance Criteria</li> <li>evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> <li>assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment</li> <li>lithographic printing machine.</li> </ul>
<b>Method of assessment</b>	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> <li>direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.</li> </ul>

**EVIDENCE GUIDE****Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICPPR332C Produce complex lithographic printed product
- ICPPR431C Set up for complex lithographic printing.

## Range Statement

### RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<b><i>Specialised</i></b> may include:	<ul style="list-style-type: none"> <li>specialised within this context relates to the set up and production of print runs that involve new products, or a new mix of substrates and inks that requires a certain amount of problem solving and experimentation with the substrate and press settings. The set up of equipment and production involves the development of new set up and production approaches based on solving technical problems arising from new product or equipment combinations.</li> </ul>
<b><i>Inks/coatings</i></b> may include:	<ul style="list-style-type: none"> <li>wide range of inks commonly used in printing.</li> </ul>
<b><i>Machines</i></b> may include:	<ul style="list-style-type: none"> <li>range of single sheet, stream-fed or reel-fed printing machines with manual, semi-automated, fully automated or computerised process control. Includes machines with digitally imaged plates.</li> </ul>
<b><i>Colour matching systems</i></b> may include:	<ul style="list-style-type: none"> <li>use of densitometers and/or spectrophotometry.</li> </ul>
<b><i>Design</i></b> may include:	<ul style="list-style-type: none"> <li>complex graphics and text. Critical "tight" registration, fit and position, registration for quality print requirements.</li> </ul>
<b><i>Substrate types</i></b> may include:	<ul style="list-style-type: none"> <li>range of substrates within the major categories of paper, pressure sensitive material, board, plastics and related films, or metal.</li> </ul>
<b><i>Substrate handling</i></b> may include:	<ul style="list-style-type: none"> <li>wide and narrow reel, and large and small sheet handling systems.</li> </ul>

## Unit Sector(s)

<b>Unit sector</b>	
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## Competency field

Competency field	Printing
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## Co-requisite units

Co-requisite units		