



Australian Government

Department of Education, Employment and Workplace Relations

ICPIM331C Manufacture inks and coatings

Revision Number: 1

ICPIM331C Manufacture inks and coatings

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manufacture inks and coatings.
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Application of the Unit

Application of the unit	This unit requires the individual to manufacture inks and coatings.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	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. Read and interpret job requirements from documentation	1.1. Appropriate processes are identified and confirmed 1.2. Appropriate materials and/or equipment are selected according to job specifications
2. Set up machines/equipment	2.1. Pre-startup checks are completed and documented according to enterprise procedures 2.2. Raw materials/feed lines are checked to ensure availability 2.3. Stirrer, mixer, pots and vats are checked to ensure they are free from contamination 2.4. Machine/equipment operation is verified according to enterprise procedures
3. Maintain blending process	3.1. Mix is completed in association with fellow workers according to enterprise procedures and OHS requirements 3.2. Materials are added to the process according to job specifications 3.3. Quality inspection/sampling is carried out according to enterprise procedures 3.4. Adjustments to mix/equipment are made to correct identified quality problems
4. Maintain ink/coating milling process	4.1. Production process is operated in association with fellow workers and according to enterprise procedures and planned daily schedule 4.2. Production is maintained according to OHS requirements and enterprise procedures 4.3. Milling process and equipment are monitored during batch manufacture to ensure operation is maintained 4.4. Machines/equipment are inspected, adjusted as required and readouts recorded and interpreted 4.5. Quality inspections/sampling are undertaken according to enterprise procedures 4.6. Records/log/checklists are completed according to enterprise procedures
5. Maintain operation of equipment/process conditions	5.1. Variations/irregularities of equipment operation or process conditions are identified and reported 5.2. Production difficulties are anticipated and preventive action is taken to prevent occurrence by timely intervention according to enterprise

ELEMENT	PERFORMANCE CRITERIA
	procedures 5.3. Corrective action is documented and reported according to enterprise procedures
6. Shut down liquid ink/coating blend/milling process	6.1. Pre-shutdown checks are carried out and documented according to enterprise procedures 6.2. Correct shutdown sequence is followed according to manufacturer's specifications and enterprise procedures 6.3. Shutdown is conducted in association with fellow workers and in compliance with OHS requirements 6.4. Product/materials used in manufacture are removed from operating area where appropriate 6.5. Solid and liquid waste is removed from operating area and recycled or disposed of, where required, according to regulatory requirements and enterprise procedures
7. Clean up	7.1. Equipment cleaning requirements are identified 7.2. Correct equipment/materials for manual or mechanical cleaning are selected 7.3. Cleaning is undertaken according to enterprise procedures and OHS requirements

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
- communicating ideas and information by completing logs and checklists during manufacturing
- collecting, analysing and organising information by sampling the mix to maintain quality standards
- planning and organising activities by completing startup checks prior to manufacture
- teamwork when completing the mix in association with fellow workers
- mathematical ideas and techniques by correctly measuring materials required for the mix
- problem-solving skills by anticipating production difficulties and taking preventive action
- use of technology by using manufacturing and measuring equipment

Required knowledge

- safety requirements for adding powders during the mixing stage of ink manufacture
- OHS considerations when cleaning bowls, vats, and pots
- other OHS issues that arise in the manufacture of ink or coatings
- safety equipment that is required and what do you need to check when fitting and using it
- batch coding system used in the work area and the recording procedures used
- checks to be made when preparing containers and equipment for ink/coating manufacture
- checks to be made when measuring raw materials for ink production
- factors that determine the position of the mixing head
- purpose of using low speed early in the mixing process
- function of antioxidants in the mixing process
- action taken when the mixture has a skin on it
- particular requirements for coating manufacture
- characteristics of the end product of the mixing phase of ink manufacture
- purpose of milling ink
- ideal conditions for milling ink
- adjusted of the mill for low or high grind values
- procedures for potting off the mill
- system that is in place for labelling containers of ink
- sampling and testing procedures that are used at each stage of the ink or coating

REQUIRED SKILLS AND KNOWLEDGE

manufacture process

- in-process testing and how is the grind of the ink determined
- checks of the ink texture and viscosity that are made during the milling process
- environmental issues that need to be considered when working with the range of materials used in the manufacture of ink/coatings
- 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

EVIDENCE GUIDE

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.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- correctly manufacture inks and coatings according to job specifications
- demonstrate an ability to find and use information relevant to the task from a variety of information sources
- use a mixer/disperser and EITHER a bead mill OR a 3-roll mill to manufacture TWO batches of ink/coating according to manufacturer's and job specifications, OHS requirements, enterprise procedures and the listed Performance Criteria.

Context of and specific resources for assessment

Assessment must ensure:

- 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.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning/observation combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Guidance information for assessment

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

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.	
Materials may include:	Range of raw materials/consumables, pigment, varnish, inks, chemicals used in cleaning.
Enterprise procedures may include:	Range of enterprise procedures within defined work area as documented in enterprise procedures (SOPs).
Machines/equipment may include:	Machines/equipment may include high and low speed dispersers, mills, pan washer/scrubbers, pumps, valves, other vessels.
OHS may include:	Includes relevant legislation, regulations and enterprise policies/guidelines.
Adjustments/corrections may include:	In the range from normal operating to emergency response.
Shutdown may include:	In the range from planned shutdown to emergency response.
Application may include:	Liquid ink/coating manufacture and associated tasks are typically performed by operators working under limited supervision to ensure production requirements are met.
Documentation may include:	Range of work instructions including formulae, job dockets, work sheets, specifications, labels, material safety data sheets.

Unit Sector(s)

Unit sector	
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Competency field

Competency field	Ink Manufacture
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Co-requisite units

Co-requisite units		