

## Overview

This standard is for machine printers who prepare printing inks and coatings for printing, either to achieve a specified colour or to alter the characteristics of the inks or coatings to suit the process conditions or substrate being printed.

With the exception of process colour printing which uses the three primary printing colours and black, printing often requires the mixing of ink to a specified colour. This is usually referred to as 'spot' colour. Although inks can be ordered from a supplier to an exact colour match and formulated for a particular substrate, it is often required of the printer to mix colours to a formula contained in a colour swatch; the best known of these is the Pantone system.

The printer must be able to estimate the amount of ink required for the job and to calculate the required weight or volume for each colour in the formula. The mix will then need to be evenly mixed to ensure consistency of colour. Finally, it is usual to produce a proof of the mixed ink, either by use of a hand roller applicator or, for less critical applications, by 'dabbing out'. The resultant colour ink proof will need to be checked for accuracy against the colour swatch, either by comparison or by using a spectrophotometer.

Some processes, such as flexography, gravure and lithography, may also require inks or coatings to be adjusted so that their viscosity or tack more suits the image or substrate being used. Where this is the case, the printer must be able to make the adjustment competently using the correct medium so that the ink colour strength and ink drying is not adversely affected.

On completion of a print run, it is often necessary to keep any remaining mixed ink for future use, and to return any base colours to storage. The printer must ensure the correct method of keeping the ink in a useable condition and correctly labelled and stored. Occasionally, batches of ink may be made up for subsequent use, and in such instances it is usual to keep records of the batch details for quality assurance purposes.

Coatings may be base coatings for subsequent overprinting or a sealer or enhancement over the printed product. Coatings may need to be adjusted for particular substrates using a suitable medium. If coatings are used within the printing environment then the printer or printing assistant must know how to adapt them to

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the particular use.

**Performance  
criteria**

**Mix and match ink to meet the production specification**

- You must be able to:**
- P1 accurately identify the mix and the inks required from the job instructions
  - P2 obtain sufficient inks of the correct type to make up the batch
  - P3 use approved procedures for estimating and measuring the quantities required to produce the required mix in the required batch size(s)
  - P4 use safe and efficient methods to produce the mix, ensuring where required that a sample mix is produced and approved before a large quantity is mixed
  - P5 match a sample against the specification, using approved test methods
  - P6 if necessary, adjust the mix until the colour matches the specification
  - P7 where appropriate, maintain the quality of the mix from batch to batch
  - P8 if required, keep accurate records of the mix you use.

**Adjust viscosity and tack to suit materials or print conditions**

- You must be able to:**
- P9 identify what adjustment to viscosity or tack is required
  - P10 select a suitable medium with which to adjust the viscosity or tack
  - P11 add the medium to the ink or coating and mix thoroughly
  - P12 test the ink or coating to check that viscosity or tack meets the requirements of the job and (where applicable) that the ink colour strength and drying characteristics are maintained
  - P13 make further adjustments incrementally until the required viscosity or tack has been achieved
  - P14 handle solvents safely and use safe working practices throughout
  - P15 keep waste to a minimum

**Store inks**

- You must be able to:**
- P16 store inks and coatings in approved containers
  - P17 clearly and correctly mark containers in accordance with your company's procedures
  - P18 keep storage areas safe to use and easy to access
  - P19 store inks and coatings in conditions which avoid deterioration in quality
  - P20 dispose of any stock that is no longer fit for purpose safely and in compliance with environmental regulations
  - P21 accurately record the stock control details required by your company

## Knowledge and understanding

You need to know and understand:

### Health and safety

- K1 your duties and responsibilities for health and safety as defined by any specific legislation covering your job role
- K2 manufacturer's health and safety requirements relevant to your job

### Communication

You need to know and understand:

- K3 how to communicate with colleagues

### Workplace policy and practice

You need to know and understand:

- K4 workplace objectives, priorities, standards and procedures
- K5 the range of work carried out in the workplace

### The operation of equipment

You need to know and understand:

- K6 the operation of ink weighing and checking equipment
- K7 the operation of viewing equipment
- K8 the operation and use of spectrophotometers

### The causes and treatment of common faults

You need to know and understand:

- K9 raw material faults

### Administrative procedures

You need to know and understand:

- K10 recording and reporting
- K11 product labelling

### Environmental

You need to know and understand:

- K12 any specific environmental legislation that covers processes in your company
- K13 control of pollution

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### Quality Assurance and Control

You need to know  
and understand:

- K14 techniques for controlling quality – testing, sampling
- K15 equipment for controlling quality – light standards for colour viewing, spectrophotometers, colour reference books

### Problem Solving

You need to know  
and understand:

- K16 sources of information
- K17 techniques for assessing machine faults

### Materials

You need to know  
and understand:

- K18 the types and characteristics of paper, board and other commonly used substrates
- K19 the types and characteristics of inks and coatings
- K20 how to maintain the quality of materials during storage and handling

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