Prepare inks and coatings for printing

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 make sure that there is a consistency in 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 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 the particular use.

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Performance criteria

You must be able to:

Mix and match ink to meet the production specification

1. identify mix and inks required to meet specifications
2. obtain sufficient inks to make up the batch to meet specifications
3. estimate and measure quantities required to produce the required mix in the required batch size(s)
4. produce mixes, check sample mixes are produced and approved before a large quantity is mixed
5. match samples against specifications using approved test methods
6. adjust mixes until the colour matches specifications
7. maintain the quality of mixes from batch to batch following standard operating procedures
8. keep records of mixes used
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   Adjust viscosity and tack to suit materials or print conditions

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9. *identify adjustments to viscosity or tack required to meet specifications*
10. *select suitable mediums to adjust viscosity or tack following standard operating procedures*
11. *add medium to inks or coatings and mix thoroughly following standard operating procedures*
12. *test inks or coatings to check viscosity or tack meets specifications*
13. *make further adjustments incrementally until the required viscosity or tack has been achieved*
14. *handle solvents using safe working practices following standard operating procedures*
15. *keep waste to a minimum following safe working practices**

Store inks

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16. store inks and coatings in approved containers following standard operating procedures
17. mark containers following standard operating procedures
18. keep storage areas safe to use and easy to access
19. store inks and coatings in conditions which avoid deterioration in quality
20. dispose of any stock that is no longer fit for purpose following current environmental regulations
21. record stock control details required by your company

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Knowledge and understanding

You need to know and understand:

Health and safety

1. your duties and responsibilities for health and safety as defined by any specific legislation covering your job role
2. manufacturer's health and safety requirements relevant to your job**
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Communication

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3. how to communicate with colleagues
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Workplace policy and practice

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4. workplace objectives, priorities, standards and procedures
5. the range of work carried out in the workplace
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The operation of equipment

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6. *the operation of ink weighing and checking equipment*
7. *the operation of viewing equipment*
8. *the operation and use of spectrophotometers**

The causes and treatment of common faults

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9. *raw material faults*
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Administrative procedures

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10. *recording and reporting*
11. *product labelling **

Environmental

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12. any specific environmental legislation that covers processes in your company
13. control of pollution **

Quality Assurance and Control

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14. techniques for controlling quality – testing, sampling
15. equipment for controlling quality – light standards for colour viewing, spectrophotomers, colour reference books **

Problem Solving

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16. sources of information
17. techniques for assessing machine faults
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Materials

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18. the types and characteristics of paper, board
19. the types and characteristics of inks and coatings
20. how to maintain the quality of materials during storage and handling

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