Prepare production costing estimates
Estimating Ink Quantities - the SPANKS formula

The name comes from the initial letters of the factors it takes into account in calculating the amount of ink used in a particular job: Stock, Process, printed Area of each sheet in square metres, total Number of sides to be printed, Kind of image, Specific Gravity (density) of the ink used. Numbers are assigned to each of the factors, depending on the specifications of the job and the method of working, they are multiplied together and then divided by 353 -

$$\frac{S \times P \times A \times N \times K \times S}{353}$$

- to give the weight in kilograms of ink expected to be used producing the job. (In real life a margin should be added for extra lost in Making Ready, Overs and Spoilage, but the principle is the same.)

Below is a table of the numbers assigned to the 6 SPANKS factors. You should keep this sheet in a safe place for reference, although this table will be provided when you are assessed on this topic.

Stock	
High quality Coated	1.0
Low quality Coated	1.2
Offset, Wove, Bond	1.3
Smooth Cartridge	1.6
Newsprint	1.8
Antique	2.0
Rough Cartridge	2.2
Docket book	0.1

Process	
Letterpress	1.0
Offset Litho	0.5

Kind of image	
Solid	1.0
Reverse	0.7
Halftones	0.4
Catalogue with pics	0.3
Med type bold heads	0.2
Medium type	0.2
Light type	0.15
4-colour Process	1.1

Specific Gravity of ink	
Black	1.0
Reflex Blue	1.2
Yellow, Process	1.3
Red, Blue, Green	1.4
Opaque White	2.0

EXAMPLES

1. 5,000 A2 posters printed 4-colour process on A2 grade Gloss Art paper:

Stock (A2 Art) = 1.2

Process (Offset Litho) = 0.5

Area (A2 - 594 x 420)
= 594mm x 420mm (sq.mm)
= 594 x 420 /1,000,000 (sq.M)
= 0.24948 sq.M

Number of sides
= 1 side x 5,000 posters = 5,000

Kind of image (4-colour Process) = 1.1

Specific Gravity of ink (Process) = 1.3

$$\frac{S \times P \times A \times N \times K \times S}{353}$$

$$= \frac{1.2 \times 0.5 \times 0.25 \times 5,000 \times 1.1 \times 1.3}{353}$$

= 3kg

2. 128 text pages of 2,000 A5 books printed in black on Offset paper:

Stock (Offset) = 1.3

Process (Offset Litho) = 0.5

Area (A5 less 10mm margins, imposed 8-up)
= 190mm x 128mm x 8up (sq.mm)
= 190 x 128 x 8 /1,000,000 (sq.M)
= .19456 sq.M

Number of sides
= 128pp / 8-up x 2,000 books = 32,000

Kind of image (Medium Type) = 0.2

Specific Gravity of ink (Black) = 1.0

$$\frac{S \times P \times A \times N \times K \times S}{353}$$

$$= \frac{1.3 \times 0.5 \times 0.195 \times 32,000 \times 0.2 \times 1.0}{353}$$

= 2.3kg