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BUREAU OF INDIAN STANDARDS

Draft Indian Standard

**GUIDE FOR PAPER SPOILAGE AND WASTAGE FOR PRINTING INDUSTRY PART
1 SHEETFED LETTERPRESS AND OFFSET PROCESSES**

[*First revision of IS 12000 (Part 1)*]

(ICS Number 37.100.10)

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FOREWORD

(Formal clauses will be added later)

In printing, binding and other operations, some extra paper should be added to the base quantity of printable papers and boards to allow for make-ready, spoilage for subsequent printing and other finishing operations etc. The quantity will depend upon the number of colours, workings, quality of job, length of run, etc and it should include additional allowance for operations like ruling, numbering, perforating, die-stamping, overprinting, punching, foil printing, varnishing, lamination, graining, UV spot coating, etc.

It should be noted that before the job is ready for continuous running, some sheets are usually spoiled during the process of make-ready etc regardless of the length of run. Once the machine is set in motion, possible wastage of paper during printing process is considerably reduced and is limited to certain mechanical defects/deficiencies and/or adjustments on machines or to use of materials like ink, paper, plates, etc. Adequate quality control measures, proper maintenance of machinery and competent workers are the factors which reduce wastage of paper to the absolute minimum under normal conditions. In colour work, the allowance must be sufficient to cover wastage due to bad register, defective colour, set off, etc. All this means additional sheets to the base (printable) quantity.

Besides the above, paper gets damaged due to handling during the course of transit from the suppliers to the printers as also during storage. Therefore, proper packaging of paper and board should conform to

IS 6211:1993

Code of practice for packaging of paper and board.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of analysis shall be rounded off in accordance with IS 2:1960 "Rules for rounding off numerical values (*revised*)". The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part 1) prescribes the minimum overs that should be added to the base (printable) quantity of paper needed for a particular job to be printed by sheetfed letterpress and offset processes.

1.2 This wastage formula should not be applied to paper below 48 gsm including tissue paper, speciality paper and air mail paper since additional wastage is justified for printing on these papers. Wastage formula for such papers could be mutually decided between the printer and the print buyer.

2. TERMINOLOGY

2.1 Spoilage/Wastage - Extra quantity of paper required, over and above the actual quantity to be printed.

2.2 Make-ready - Process of setting up a printing machine for proper positioning of the printing image on paper to print, uniform impression, colours registration and substance of paper to be used etc, prior to actual run of the job.

2.3 Fixed Wastage - The wastage of sheets of paper involved in make-ready process prior to actual running of the job.

2.4 Running Wastage - The wastage of sheets of paper which occurs during continuous printing of the job subsequent to make-ready.

2.5 Printable Quantity - The actual quantity of paper available to the printer for carrying out the printing.

2.6 Working Sheet - Working sheet is the actual size and substance of the paper being used for printing a job on the machine.

2.7 Common Work - Work of average quality normally printed.

2.8 Quality Work - Work of high quality, which requires accurate registration, sharpness and high colour consistency through out the print run.

3. RATIONALE FOR COMPUTING PAPER SPOILAGE ALLOWANCE

3.1 The rationale in adopting the formulae for paper spoilage envisages the following:

- a) A fixed number of sheets (if irreducible, minimum number) are required at initial stages for make-ready operations regardless of the quantity to be printed;
- b) Paper spoilage depends on the extent and nature of work;
- c) Wastage of sheet occurs during running/manufacturing process on account of some defects/deficiencies/adjustments of impressions, paper stock or material;
- d) The larger the overall number of copies printed, the lesser is the percentage of spoilage in any continuous print job;
- e) There is a progressive increase in the spoilage with the increase of print run;
- f) The spoilage allowance shall be computed on the basis of some fixed percentage per colour per side of actual print run but also with some minimum number of sheets, irrespective of the print order, keeping in view the Fixed Wastage for make-ready etc.;
- g) Spoilage for every additional operation like ruling, numbering, perforating, die-stamping, punching, foil printing, varnishing, lamination, graining, UV coating etc., shall also be provided.
- h) Wherever machine proofs are required, additional wastage on the basis of minimum make-ready shall be provided; and
- j) Spoilage allowance shall be computed on printable quantity of paper.
- k) Spoilage allowance shall be different for computerized and non-computerized printing machines.

3.1.1 Allowable wastage for sheetfed letterpress process and offset process has been explained in **4.**

4. ALLOWABLE WASTAGE-SHEETFED LETTERPRESS/OFFSET PROCESS

4.1 Sheetfed Letterpress Process

4.1.1 For common work sheetfed letterpress process allowable wastage per side per colour to be added to the base quantity of paper shall be 1% subject to a minimum of 25 sheets.

4.1.2 The above wastage is expected to cover the wastage for normal binding operations like folding, gathering, collating, stitching/sewing/pasting, trimming, etc. and hence no additional wastage need be given for these operations. However additional wastage for cutwork and other special operations like ruling, perforating, numbering, die stamping, foil printing, punching, varnishing, laminations, graining, UV/Spot Coating, etc. may be settled between the print buyer and the printer.

4.1.3 In case of computerized printing machines, wastage may be settled between print buyers and printer; however, it shall in no case exceed the wastage specified in **4.1.1.**

4.2 Sheetfed Offset Process

4.2.1 For Sheetfed Offset Process allowable wastage per side per colour to be added to the base quantity of paper shall be 1% subject to a minimum of 40 sheets.

4.2.2 The above wastage is expected to cover the wastage for normal binding operations like folding, gathering, collating, stitching/ sewing/pasting, trimming, etc. and hence no additional wastage need be given for these operations. However additional wastage for cutwork and other special operations like ruling, perforating, numbering, die stamping, foil printing, punching, varnishing, laminations, graining, UV/Spot Coating, etc. may be settled between the print buyer and the printer.

4.2.3 In case of computerized printing machines, wastage may be settled between print buyers and printer; however, it shall in no case exceed the wastage specified in **4.2.1**.