

The information and data contained in this document were prepared by a technical committee of the Association. The committee and the Association assume no liability or responsibility in connection with the use of such information or data, including but not limited to any liability or responsibility under patent, copyright, or trade secret laws. The user is responsible for determining that this document is the most recent edition published.

Weight of newsprint rolls

Scope

To provide a graphic representation of the relationship between the diameter and width of a newsprint roll and that roll's corresponding air dry weight. This relationship is an approximation, as roll weights are affected by caliper variations, winder operations, furnish, and other factors that affect roll density in individual mills.

Definitions

The air dry weight of paper is defined as the weight of paper having a moisture content of 8%. The basis for curve calculation is that a roll 1 inch wide and 1 inch in diameter has an air dry weight of 0.019905 pounds, also expressed as a density of 43.72 pounds per cubic foot.

Safety precautions

None.

Content

By measuring the width and diameter of a roll of newsprint, this graph can be used to estimate the weight of that roll. The exact weight will vary with roll density, which varies from mill to mill. Newsprint roll densities are generally in the range of 40 to 45 pounds per cubic foot. A roll density of 43.72 lb/ft³ (0.70 g/cm³) was used to establish this graph.

Calculations

The calculation is based on the volume of a cylinder ($\pi \times r^2 \times h$), multiplied by the average density of the rolls, where

$$\pi = 3.14159...$$

r = ½ entire diameter of roll

h = width of roll

The volume of the core is not subtracted from the total volume as calculated above, as the compensation for the core volume (assuming 3 inch $\pm$ core diameter) is not discernable from the readable accuracy of the graph.

The graph uses 43.72 pounds per cubic foot for density. For increased accuracy, adjust the weight as determined on the graph by the actual density of the roll as is shown in the following example:

The graph shows a 40 inch wide by 45 inch diameter roll weighing 1600 pounds. The mill's roll density is usually closer

to 47 pounds per cubic foot than the 43.72 constant used by the graph. The correction is done by multiplying the 1600 pounds by the ratio (47/43.72) to obtain a roll weight of 1720 pounds.

Keywords

Roll weight, Newsprint, Roll density, Width

Additional Information

Effective date of issue: June 18, 2003

Working Group Members:

Bernard Kessler - Chairman, Ponderay Newsprint Company
 Todd Swegle, Ponderay Newsprint Company
 Rick Fink, Inland Empire Paper Company
 Jim Patton, Smurfit Newsprint Corporation of California
 Gary Smith, Alberta Newsprint Company

