

TECHNICAL NOTE NUMBER 126
 FOREST PRODUCTS LABORATORY - U. S. FOREST SERVICE - MADISON, WISCONSIN

UNIFORMITY OF DIGESTER CHIP CHARGES

How uniform are the weights of wood in the digester charge, the unit commonly used in chemical pulp-mill operation, is indicated by data obtained in a mill-scale study by the U. S. Forest Products Laboratory. For a period of three months at a certain mill it was possible to weigh all the chips entering one digester, to make accurate determinations of their moisture content, and so to compute the actual amount of wood substance in each charge.

The chip charges for thirty-eight cooks showed the following variation in weight, after deducting for moisture.

7	charges	weighed	between	11,600	and	12,600	pounds
24	"	"	"	12,600	"	13,600	"
7	"	"	"	13,600	"	14,600	"

Fifty per cent of the charges contained between 13,000 and 13,770 pounds of chips,--a variation in weight within the limits of plus and minus 2-1/2 per cent. Delays of more than twenty-four hours occurred in starting all the cooks with charges of more than 13,770 pounds; and since it was customary before bolting down the cover to fill with additional chips the space left by the settling of the charge, the longer filling periods account for the larger amounts of wood in these charges. The cooks with charges of less than 12,600 pounds were started without refilling after the liquor charge was added, and it was anticipated that they would be light.

The weighing experiments indicate that the digester charge is, in most instances, a reliable unit for pulp-mill operation, provided the operation is uninterrupted and the soundness and species of pulpwood do not vary.