

TECHNICAL NOTES

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

MADISON, WISCONSIN

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No. C-5.

WASTE OF CHEMICALS IN PULPING UNBARKED WOOD

BY THE SULPHATE PROCESS

In the manufacture of sulphite and mechanical pulp, all bark must be removed from the wood before chipping or grinding since any fragment of bark finding its way into the pulp makes its appearance as minute black specks in the finished sheet. For soda or sulphate pulp, the cleaning is often not so thorough, since the alkaline digestion tends to destroy the bark. Some mills bark the wood partly or not at all in the manufacture of sulphate pulp.

To determine the amount of chemical required to pulp unbarked wood, shipments of unbarked shortleaf yellow pine chips and of clear bark were tested by the Forest Products Laboratory of the U.S. Forest Service, at Madison, Wisconsin.

A determination upon a 10-pound sample showed that the unbarked chips contained approximately 96 per cent wood and 4 per cent bark, on a bone dry basis. Sulphate pulping trials on clear bark showed that 28.6 pounds of caustic soda and 10.6 pounds of sodium sulphite were required per 100 pounds of bone dry bark. A yield of 24.9 per cent of a gelatinous brownish-black mass, containing pieces of unreduced bark, was obtained. This material could not be screened or washed because it clogged the screen openings. Hand sheets made of it gave physical indications of an extremely hydrated stock, the finished sheets being hard and parchmented.

The results indicate that in pulping a ton of wood (bone dry), consisting of 96 per cent wood and 4 per cent bark, 22.9 pounds of caustic soda and 8.5 pounds of sodium sulphite are needed to reduce the bark. The pulp produced from the bark is useless and, furthermore, produces a variation in color of the pulp, which makes it difficult to maintain a uniform shade in the finished paper.