

TECHNICAL NOTE NUMBER 120

FOREST PRODUCTS LABORATORY - U. S. FOREST SERVICE, MADISON, WISCONSIN

YIELDS OF ALCOHOL FROM WOOD WASTE

Softwood lumber mill waste can be made to yield twenty gallons or more of 95 per cent alcohol per ton, and hardwood waste about half as much. Some actual yields obtained by the U. S. Forest Products Laboratory from the waste of various woods are given in the following table.

SOFTWOOD WASTE

Kind of wood	Percentage of wood convertible into sugars	Percentage of sugars fermentable	Gallons of 95% alcohol from 1 ton of wood
White Spruce	23	71	25.8
Longleaf Pine	23	72	25.1
Red Spruce	22	72	24.0
Norway Pine	25	66	23.4
Idaho White Pine	21	74	23.4
Western Hemlock	21	77	23.0
Montana White Pine	20	75	22.0
Lodgepole Pine	21	67	21.8
Sugar Pine	20	66	21.5
Douglas Fir	21	67	20.7

HARDWOOD WASTE

Silver Maple	20	47	14.1
Birch	20	46	12.9
White Oak	17	50	12.4
Red Gum	20	38	11.0
Sycamore	18	38	9.7
Hard Maple	18	34	9.1
Red Oak	19	30	8.1
Cottonwood	18	30	7.2
Slippery Elm	16	26	6.0

The manufacture of industrial alcohol is one method of utilizing lumber mill refuse on a large scale. An alcohol plant with a daily supply of 180 tons of wood can produce 3600 gallons of alcohol at a cost, under present conditions, of approximately 21 cents a gallon.

A descriptive pamphlet including estimates of plant requirements and recent cost data on the manufacture of alcohol from wood is obtainable from the Forest Products Laboratory on request.