

Method of estimating crude tall oil in wood chips

Scope

This test is used to determine the amount of available tall oil in a given wood supply. A wood chip sample is ground and then digested twice in 0.5 N caustic. During the digestion the tall oil components are saponified to form their soluble sodium soaps. The resulting pulp is washed to recover the sodium soaps. The digesting and washing filtrates are combined and analyzed to estimate the total crude tall oil in the wood chip sample.

Apparatus

1. Waring blender.
2. A four liter resin reaction kettle or flask, 2,000 mL heating mantle, . variable transformer, thermometer, Pyrex stoppers, oil trap and reflux condenser assembled as illustrated in Fig. 1.
3. Three stainless steel mesh screens - 30, 80 and 200 mesh.
4. Separatory funnel, 500-mL.
5. Graduated cylinders, 10-mL, 100-mL, 250-mL, and 1-liter.
6. Beakers, 400-mL and 600-mL.
7. Evaporating dish.
8. Steam bath.
9. Filter paper, coarse

Reagents

1. Caustic solution 0.5 N - Mix 20 g of NaOH per liter of water.
2. HCl (1:1) - Dilute cone. HG with an equal volume of water.

NOTE 1: For safety, add the acid to the water, not water to the acid.

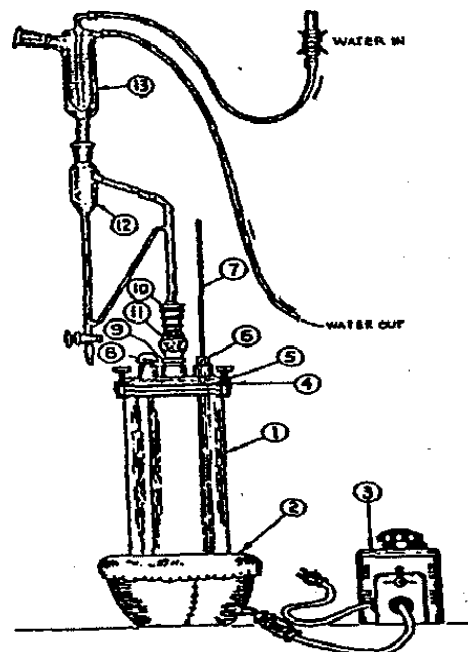


Fig. 1. Apparatus for determining tall oil and/or turpentine in pulp wood chips.

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| 1 = | 4-liter resin reaction kettle; |
| 2 = | 2,000-mL electric heating mantle; |
| 3 = | variable transformer, |
| 4 = | resin reaction on kettle cover; |
| 5 = | resin reaction kettle clamp; |
| 6 = | thermowell; |
| 7 = | centigrade thermometer, 0 to 200°C; |
| 8 = | Pyrex glass stoppers, 24/40; |
| 9 = | glass adapter, joints 34/45 to 29/42; |
| 10 = | glass adapter, joints 29/42 to 24/40; |
| 11 = | packing retainer and packing, joints 29/42 and 24/40; |
| 12 = | modified oil trap, ASTM D 889 type, altered to have a 10-mL graduated section; |
| 13 = | reflux condenser. |