

ENCLOSURE (B) 17

STUDIES ON THE MANUFACTURE
OF LUBRICATING OIL FROM PINE ROOT OIL

by

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SUMMARY

A precise distillation was made for the analysis of the components of pine root oil.

The tar, topped to 300°C, was distilled and cut into fractions of 10°C under vacuum of 17mm Hg. In the vicinity of 210°C/17mm about 40% was distilled which probably consisted of abietic acid.

From 230-250°C, about 20% was distilled which probably consisted of retene.

In this fraction, crystals were deposited some time afterwards. Besides the two above-mentioned fractions, various fractions were cut for every 5%-10% of distillate.

The densities of each fraction increased gradually. This was due to the fact that the components in the distillates were not remarkably different and the isomers were distilled gradually in order of the boiling point.

I. INTRODUCTIONA. History of Project

On the one hand, a large quantity of the pine root oil was available, and on the other, raw materials for lubricating oils were scarce, so it was attempted to utilize the higher boiling fractions of pine root oil or pine root tar as the raw material for lubricating oil.

We began the study in July, 1945. At first, the main substances of the higher boiling fractions or the tar of the pine root oil were studied by the component analyses.

For this purpose, the fractional vacuum distillation was begun.

B. Key Research Personnel Working on Project

Chem. Eng. Lieut., I. SHIWATA

II. DETAILED DESCRIPTION

The experiments were carried on over too short a time to report any results other than those described in Figure 1(B)17, which shows the scheme by which the aero engine oil was to be prepared.

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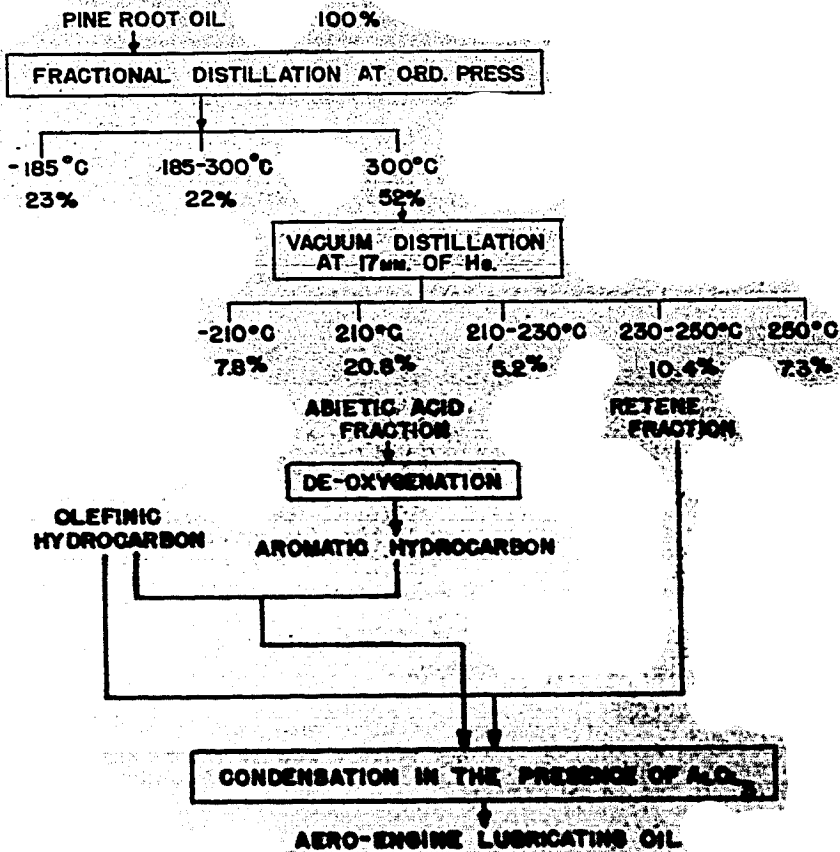


Figure 1(B)17
SCHEME FOR PREPARATION OF AERO ENGINE OIL