

ENCLOSURE (B) 7

P I L O T P L A N T . F O R H I G H P R E S S U R E S O L V E N T  
E X T R A C T I O N I N P R O P A N E S O L U T I O N W I T H  
H I G H P R E S S U R E M E T H A N E O R H Y D R O G E N

by

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~~Prepared for and Revised with Authors~~  
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I. HISTORY

This plant was designed by Eng. Lt. S. SANKA and built at the Fourth Research Laboratory in 1943. (See Figure 1(B)7.)

II. CAPACITY

About 10 liters at one time (for raw materials).

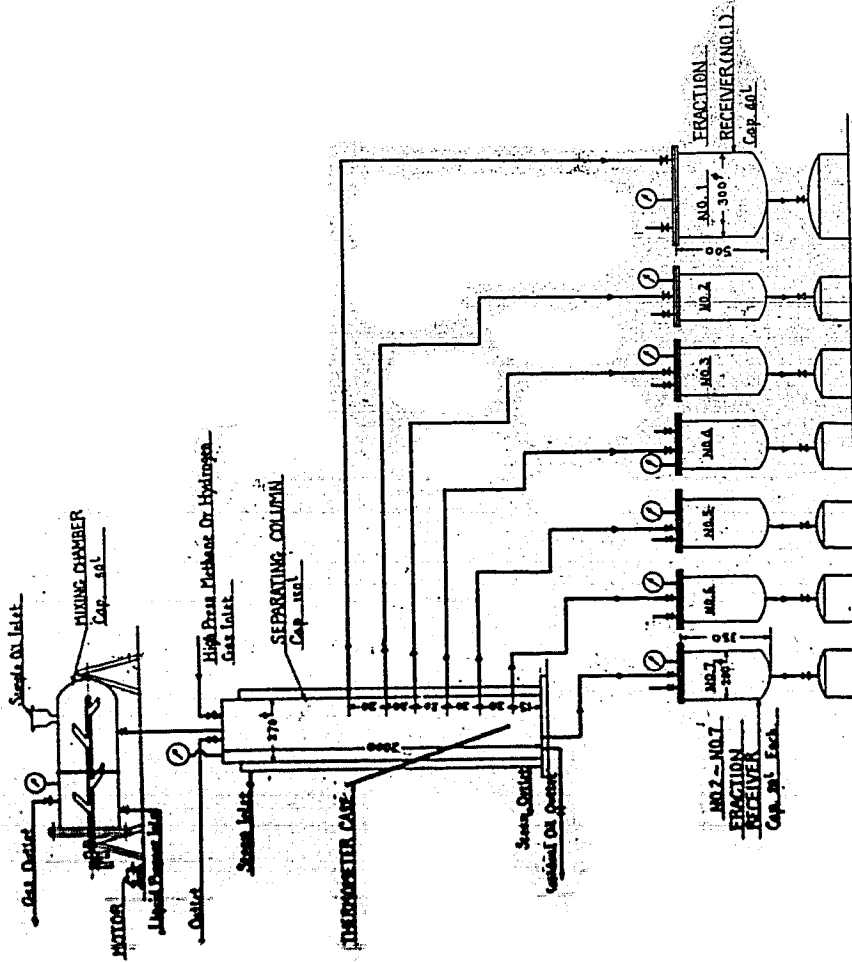
III. OPERATING METHOD

In general, components of oils are separated by distillation, but the cracking of oil by heat can hardly be avoided at higher temperatures. To avoid this cracking of oils by heat, it was intended to separate the components of oil in propane solution at a high pressure of methane or hydrogen gas.

A sample oil which contained no asphalt and liquid propane was charged in to the mixing chamber and was agitated by the motor. Then the true solution of oil and liquid propane was obtained, which was introduced into the separating column. Methane or hydrogen gas from the bomb was put into the separating column. These gases were partly dissolved in the propane solution, and then the solvent action of the liquid propane was changed and the higher molecular weight components of oil were at first separated. Increasing the pressure of methane results in amount of dissolved methane being increased, and lower molecular weight components should be separated.

For this reason many components of oil should be separated physically according to the difference of molecular weight.

However, only the experimental apparatus was erected and it was not operated because of the interference of other researches.



PILOT-PLANT FOR HIGH PRESSURE SOLVENT EXTRACTION  
IN PROPANE SOLUTION WITH HIGH PRESSURE METHANE OR HYDROGEN

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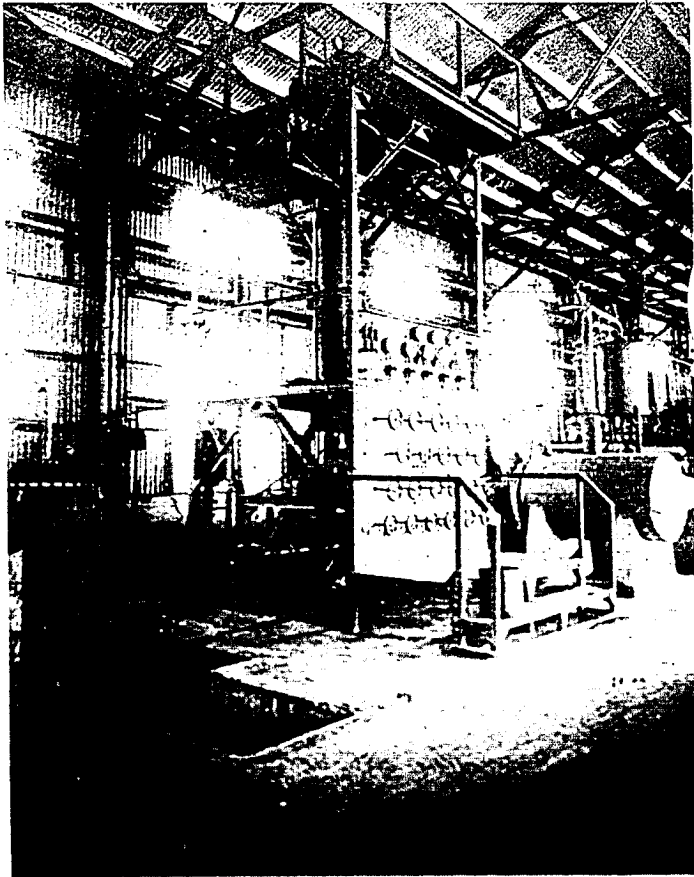


Figure 2(B)7  
PILOT PLANT FOR HIGH PRESSURE SOLVENT EXTRACTION  
IN PROPANE SOLUTION WITH METHANE OR NITROGEN