

ENCLOSURE (B) 5

PILOT PLANT FOR
PROPANE-PHENOL SOLVENT EXTRACTION
(PROPANE DEASPHALTING AND DEWAXING)

by

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I. HISTORY

This plant was designed by Naval Technician R. MACHIDA and built at TOKUYAMA in 1937, and transferred to the First Naval Fuel Depot in 1939.

II. CAPACITY

About 10 liters per hour. (for raw material)

III. OPERATING METHOD

The raw material in 500 liter Feed Stock Tank is transported into the Mixing Tower (Volume, 50 liters) by Feed Pump. At the same time from the Liquid Propane Reservoir (Volume, 80 liters; Pressure 25 kg/cm²) the liquid propane is added to the raw material in the Mixing Tower through the Propane Preheater at 40°C-50°C. The mixing is carried out in the solvent ratio 5:1 at 40°C-45°C and 20-25 kg/cm². This mixture enters into the Asphalt Separating Tower (Volume, 150 liters) by its own pressure. After 1 hour of letting stand at 40°C-45°C, the oil layer and the asphalt layer are separated and the asphalt is removed into the Asphalt Receiver. (Volume, 30 liters.) The oil layer enters into the Deasphalted Oil Receiver (Volume, 100 liters) at 40°C-45°C and 20 kg/cm² pressure and transported into the cooling Tower (Volume, 150 liters), through the Heat Exchanger at 3°C.

In the Cooling Tower the oil layer is cooled at -25°C and then filtered by Filter (Volume 20 liters) at -45°C and 1-3 kg/cm² pressure.

By filtering, the oil and wax are separated, they are transported by feed pump into the Dewaxed Oil Receiver (Volume, 50 liters) at -20°C and the Wax Receiver (Volume, 30 liters) at 30°C respectively.

Dewaxed oil is transported from the Dewaxed Oil Receiver to the Dewaxed Oil Tank at 20°C (Volume, 500 liters).

At least, the deasphalted and dewaxed oil, the asphalt, and the wax are taken out from the corresponding receivers or tanks.

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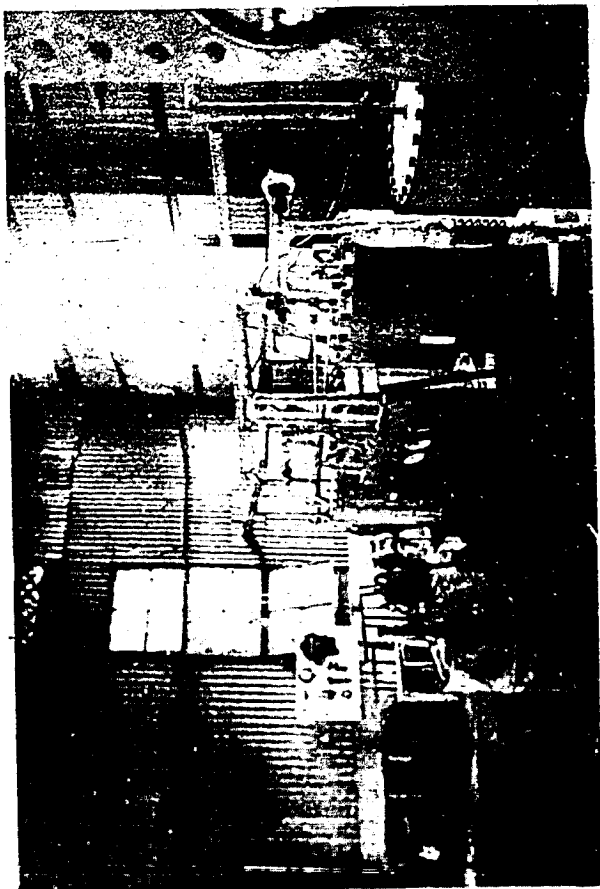


Figure 1(B)5
PROPANE PHENOL EXTRACTION PILOT PLANT
Propane Desasphalting and Dewaxing Section

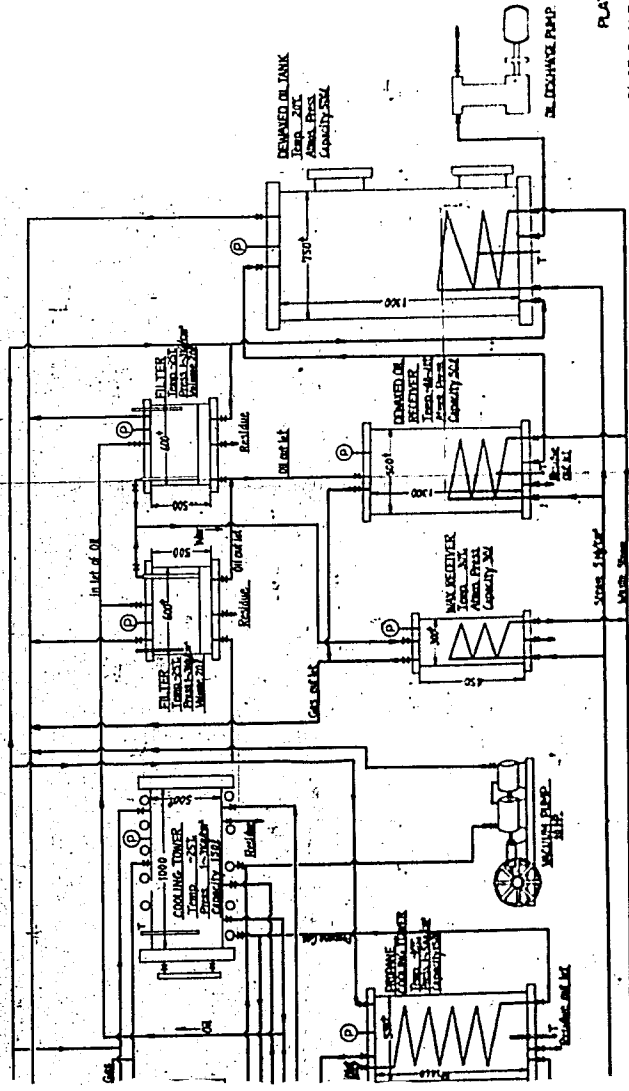


PLATE I (B)5
PILOT PLANT FOR PROPANE SOLVENT EXTRACTION
(PROPANE DELEANNING AND DENSIFYING)

Liquid Propane 210/cwt
Engine, G.M.

