

Operations

Crude Oil for processing by Petrojam is purchased under the San Jose Accord from Venezuela and Mexico and the Caracas Agreement with Venezuela. In addition, some crude oil is purchased from third party suppliers, as the refinery diversifies sources to take advantage of lower cost crude.

Process

The refinery in Kingston Jamaica operates as a hydroskimming type plant. A hydroskimming refinery is equipped with a main Atmospheric Distillation unit, a naphtha reforming unit and necessary treating processes for other products going to storage. This refinery was designed to operate with a high level of heat integration between process streams and with high temperature streams providing heat to process at lower temperatures. All products are line blended into finished product tankage.

Crude oil is initially treated in a desalter unit where excess salts, mud and water are removed. It is then processed through a single-stage atmospheric pipe-still or APS (fractional distillation column). Fractional distillation uses the difference in boiling point to separate the hydrocarbons in crude oil into different cuts/streams. The APS produces an overhead naphtha cut, kerosene and gas oil sidestream cuts and a bottoms stream at 650 degrees F (See Figure 1). Variations in the draw-off temperature used for the sidestream cut produces kerosene or aviation fuel and auto diesel or marine diesel in blocked operations.

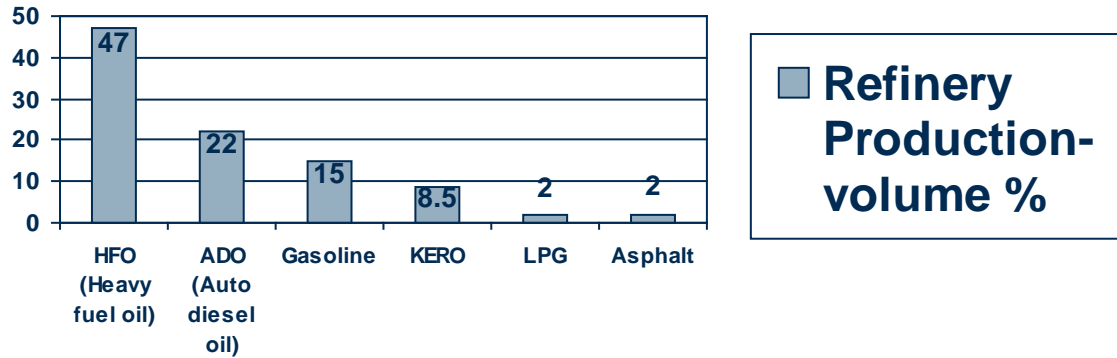
The naphtha cut is de-ethanized, debutanized and split with light, middle and heavy virgin naphthas to blend motor gasoline. A portion of the heavy virgin naphtha (HVN) is also blended to middle distillates and heavy fuel oil (HFO). The middle virgin naphtha is fed to the reforming unit where it undergoes a process by which low octane number straight-run naphtha is upgraded to a higher-octane motor fuel blending grade by catalytically promoting specific groups of chemical reactions. The reformer is a semi-regenerative type catalyst system. The grades of gasoline made by the refinery include both 87 and 90 Octane Index.

Light end fractionalization splits into propane and butane which is used as liquefied petroleum gases, (LPG) or blended in the gasoline pool (butane). The kerosene sidestream is hydrofined to ensure sulphur and nitrogen targets are met and then run down to tankage as dual purpose kero/turbo fuel. Auto diesel oil is produced by blending a part, or all of the kerosene sidestream to the gas oil stream. It is also hydrofined (treated with hydrogen over a catalyst to reduce sulphur and nitrogen content) to meet sulphur specifications and then sent to storage. On occasion however, it may also be run down directly to tankage as Marine gas oil (MGO), which is a heavier cut gas oil from the atmospheric distillation unit.

Atmospheric Pipestill bottom is blended with gas oil, kero and/or heavy virgin naphtha to produce Bunker C fuel oil, utility grade fuel oil and IFO 380. A portion of the

atmospheric pipestill bottoms steam is also sent to the vacuum Pipestill to produce two grades of penetration asphalt.

The typical yields of various products are highlighted below:



UNITS

Atmospheric Pipestill
 Gas Oil Hydrofiner
 Kerosene Hydrofiner
 Naphtha Hydrofiner

EQUIPMENT & CAPACITY B/ CD

35,500
 7,200
 6,000
 6,400

Light Ends Fractionation

- De-ethanizer
- De-butanizer
- C3/C4 Splitter

7,000
 6,600
 1,050

Virgin Naphtha Splitter

5,400

Powerformer

- Powerformer Reactors
- Powerformer Stabilizer

3,540
 3,000

Vacuum Pipestill

1,350

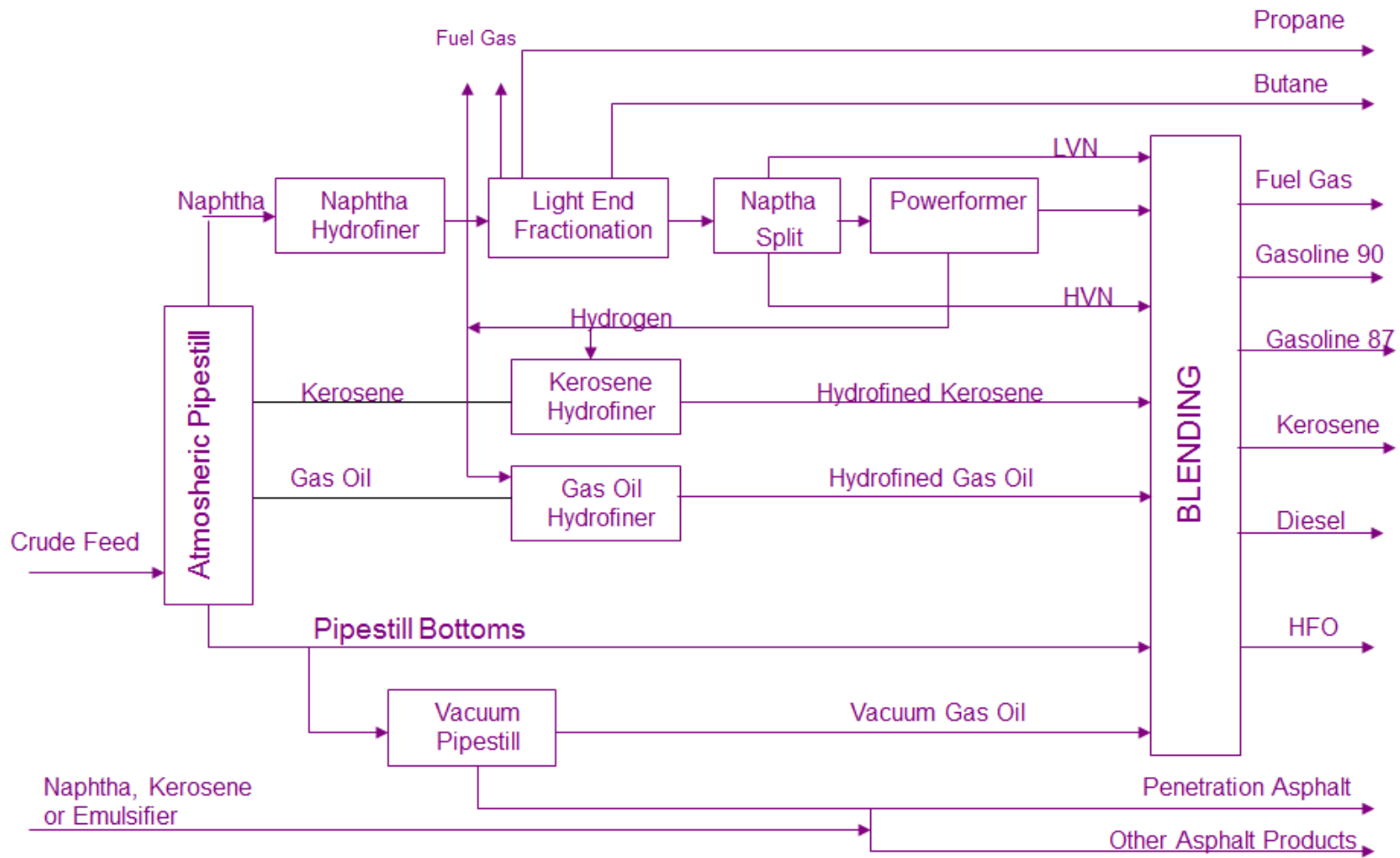


Figure 1: Petrojam Refinery Configuration - Block Diagram