

There is the Cracked Residual which is still the residue of the crude remaining after further processing of the Straight-Run Residual by the thermal cracking process. In the thermal cracking process, the heavy Straight Run residue from distillation is subjected to high pressure and high temperature so that a modification of the hydrocarbon structure and molecular rearrangement produces a high yield of gasoline of higher octane number, a substantial quantity of distillate or gas oil, and consequently a decreased amount of residue, that is, residual fuel oil. During World War II, as the result of this demand for higher octane aviation gas, a catalytic cracking process was developed which leaves no residue. Thus, through the development of the thermal and catalytic cracking processes, crude oil can be refined 100 per cent so that no residue or residual fuel oil remains, which permits the refiner to convert crude oil to products which yield the highest dollar return, for example, gasoline, kerosene, distillate, lubricating oils and solvents.

Residual fuel oil is also made by blending the residue from the distillation process or the residue from the cracking process with a distillate or "cutter stock" to reduce viscosity to a level that permits these residuals to be handled in and out of tankers, barges, transports and terminals.

What are the sources of supply of residual fuel oil? During the year 1966, on the East Coast of the United States where residual fuel is mostly used, approximately 1,170,000 barrels per day were consumed. This amounts to 49,140,000 gallons per day—42 gallons to a barrel. Of this amount, approximately 15 per cent was produced by domestic refiners, with the balance being imported from foreign based refineries.

The relatively small supply from the domestic refineries is substantially all committed and delivered to certain captive markets such as the metal industry, because of the relatively low sulphur content of the domestic production. The balance of the consumers on the East Coast are thus required to use foreign produced residual fuel oil.

The reason for the relatively small supply of domestic residual fuel oil is simple. Due to the advanced technology of catalytic cracking, and the higher prices obtainable from the lighter fuels, such as gasoline and jet fuels most in demand, as compared to the lower price of residual fuel oil and also due to domestic conservation policies, the domestic refiners naturally prefer to crack the crude 100 per cent, which leaves no residual fuel oil.

Thus, approximately 85 per cent of the residual fuel oil consumed on the East Coast of the United States is imported. Of this imported amount, some 90 per cent comes from Caribbean refineries whose residual yields average some 57 per cent—that is, 57 per cent of the crude barrel as residual compared to 7.5 per cent yield of the U.S. refineries or 0 per cent on catalytic cracking. Venezuela crudes supply approximately 95 per cent of the Caribbean residual fuel oil. The balance of the imported residual fuel oil comes from Africa and Argentina.

The Caribbean crude oils have a high sulphur content and are known as "sour" crude. The low sulphur content crudes, or otherwise known as "sweet" crudes, are found in the Middle East, Africa and Argentina.

The importation of crude oil is closely tied to our foreign policy and particularly concerning Venezuela and other Caribbean areas.