

Crude found in Mexico has a very wide density range, from 10^o API to 42.5^o API, with an average 30^o. Its sulphur contents also varies proportionately to its density. High density oils are among those with the highest sulphur contents in the world (5.5%), while the lowest contain less than those found in the Middle East (0.2%). Some oils also contain large quantities of sulfhydic acid (bitter crude). Most crudes obtained in Mexico have an intermediate character (naftenic-paraffinic). The characterization factors (Bureau of Mines) range from 11.4 to 12.2. The density of distilled products are 0.72 for gasoline, 0.8 for kerosene and 0.85 for fuel oils. All of this indicates moderate contents of cyclic components. Paraffine contents vary. The dripping point of some crudes is as high as 8^oC, while other, non wax crudes, have -37^oC. The vanadium and nickel contents are moderate to high (16-500 ppm vanadium and 3-70 ppm nickel).

Natural gas production was 3.57 billion cubic-feet a day (bcfd) in 1989, 2.7% over the 3.48 bcfd of 1988. Of total gas production, 85% was associated with oil. The Southeastern zone produced 54%, the Campeche marine zone 30.2% and the North, Center and South zones 15.8%.

5.1.3 Industrial Transformation

During 1989, the volume of crude, liquid gas, secondary process liquids and condensates processed in the refineries and petrochemical centers was 539.9 mb or 1.47 mbd, an increase of 3.4% over 1988, of which 83.2% corresponds to crude. The amount of heavy crude used in Mexican refineries has continued increasing in order to lower raw material costs and to free light oil for exports at higher prices. Total Maya crude processed in 1989 was a record 402,230 bd, 2.1% higher than in 1988. The total production of petroleum products in 1989 consisted of 155.8 mb of fuel oil, 143.7 mb of gasoline, 85.5 mb of diesel, 79.5 mb of liquefied gas, 15.9 mb of turbosine and 18.2 mb of miscellaneous products, including kerosene, lubricants, asphalts, greases and paraffin.

Mexico's principal refinery centers are located in: Azcapotzalco D.F. (10 plants), Cadereyta N.L. (13 plants), Madero Tamps. (21 plants), Minatitlán Ver. (22 plants), Poza Rica Ver. (5 plants), Reynosa Tamps. (2 plants), Salamanca Gto. (29 plants), Salina Cruz Oax. (12 plants), Tula Hgo. (15 plants).

A total of 3.2 bcfd of gas were processed, 86.1% of bitter gas and 13.9% of sweet gas. A total of 381,500 bd of liquids were recovered, 45% in liquid petrochemical gas, 37% in ethane and 18% in gasoline.

At present, 175 companies are operating 490 basic and secondary petrochemical plants in Mexico, giving direct employment to about 130,000 people. Mexico currently produces approximately 400 petrochemical products, representing 2.5% of total GDP. PEMEX is by law the sole producer of the following petrochemicals, considered basic petrochemicals: