

The diagram illustrates the complex refining process of crude oil into motor gasoline. It begins with **Crude Oil** entering **Atmospheric Distillation**. The top product, **Straight-Run Light Gasoline**, is treated in a **Coker Light Gasoline Hydrotreater** (receiving  $H_2$ ) and then sent to **Isomerization and/or Benzene Saturation** (also receiving  $H_2$ ). The bottom product, **Atmospheric Bottoms**, goes to **Vacuum Distillation**. This unit produces **Straight-Run Heavy Gasoline**, **Straight-Run Jet (Kerosene)**, and **Straight-Run Diesel (Heating Fuel)**. The heavy gasoline is treated in a **Heavy Gasoline Hydrotreater** (receiving  $H_2$ ) and then sent to a **Reformer** (receiving  $H_2$ ). The reformer produces **Reformate** and **Hydrocracked Light Gasoline**. The kerosene and diesel are sent to **To Distillate Fuel Blending**. The reformer also produces **Hydrocracked Heavy Gasoline**, which goes to a **Hydrocracker** (receiving  $H_2$ ). The hydrocracker produces **Hydrocracked Gasoil** (to fuel blending) and **Hydrocracked Light Gasoline** (to isomerization). It also produces **FCC Heavy Cycle Oil**, which goes to an **FCC Feed Hydrotreater** (receiving  $H_2$ ). The FCC feed hydrotreater produces **FCC Feed**, which enters the **FCC** (Fluid Catalytic Cracking) unit. The FCC produces **FCC Gasoline Hydrotreater or Sweetener** (receiving  $H_2$ ), **FCC Light Gasoline**, and **FCC Light Gasoil** (to fuel blending). The FCC gasolene hydrotreater produces **FCC Light Gasoline** and **FCC Heavy Gasoline**. The FCC also produces **Butylenes/Amylenes ( $C_4/C_5$ )**, which are sent to **Polymerization** (with **Propylene ( $C_3$ )** and **Isobutane ( $C_4$ )**) and **Alkylation** (with **Butylenes/Amylenes ( $C_4/C_5$ )** and **MeOH/EtOH**). The polymerization produces **Polymerized Gasoline**, and the alkylation produces **Alkylate**. The FCC also produces **Butylenes/Amylenes ( $C_4/C_5$ )**, which go to the **Ether Plant** (with **MeOH/EtOH**). The ether plant produces **MTBE/TAME/ETBE**. The FCC also produces **Heavy Gasoline**, which goes to the **Coker**. The coker produces **Heavy Gasoline**, **Light Gasoline**, and **Light Gasoil** (to fuel blending). The coker also produces **Vacuum Resid**, which goes to the coker, and **Coke**. The final products are sent to **Motor Gasoline Blending**, which includes **Straight-Run Light Gasoline**, **Reformate**, **Hydrocracked Light Gasoline**, **Polymerized Gasoline**, **Alkylate**, **MTBE/TAME/ETBE**, **FCC Light Gasoline**, and **FCC Heavy Gasoline**. The diagram also shows connections to **From bottom of page** and **To top of page**.

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