



UOP Molex™ Complex for Upgrading Refinery Kerosene to Normal Paraffins

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Introduction

Production of normal paraffins offers an opportunity for the refiner to upgrade straight run kerosene to higher valued products, or for a linear alkylbenzene benzene (LAB) producer to secure feedstocks. Normal paraffins, especially those in the range of C₁₀ to C₁₃, are an important precursor to LAB which is used to produce linear alkylbenzene sulfonate (LAS), the workhorse surfactant of the detergent industry. The Molex process is a proven method to extract normal paraffins from kerosene.

Most normal paraffins (about 80%) are used in the production of LAB. The remainder serves the detergent alcohol, solvent, and lubricant markets.

Process Description of the Molex Complex

The heart of the Molex complex is the Molex process. In this process high purity normal paraffins in the kerosene are recovered using UOP's Sorbex™ separation technology and a long-life molecular sieve adsorbent. The raffinate stream, which consists of iso-paraffins and cyclic hydrocarbons, is typically returned to the refiner for jet fuel blending.

Along with the Molex process, a kerosene hydrotreating unit is required to pretreat the kerosene to a low level of sulfur, nitrogen and oxygenate contaminants for the

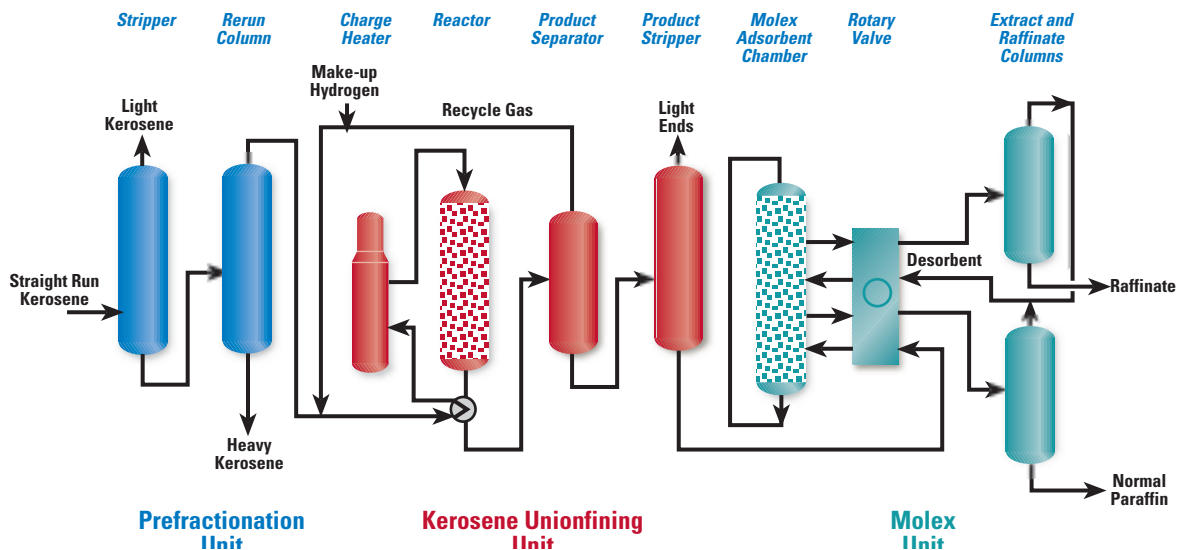


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protection of the Molex adsorbents. UOP's Unionfining™ technology is used for the hydrotreating. The severity of hydrotreating depends on the level of impurities in the kerosene feedstock and the desired quality of the Molex raffinate stream. UOP can design the Molex complex so that the raffinate stream meets jet fuel specifications.

Figure 1 shows a simplified block flow diagram of a Molex complex.

Figure 1 ■ Molex Complex Simplified Block Flow Diagram



Prefractionation columns are recommended for the Molex Complex. Usually the prefractionation columns are stripper and rerun columns to tailor the kerosene to the correct carbon range for final product requirements.

Feed and Product Quality

Typical kerosene requirement:

Any straight run kerosene with 18-50% normal paraffin.

Experience

UOP has licensed 28 Molex units throughout the world.

For more information

For more information, contact your local UOP representative or our Des Plaines sales office:

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