ROSE®
Residuum Oil Supercritical Extraction Process

Realize the most production and profit from each barrel of crude

The ROSE process is the most efficient solvent-extraction option for recovering higher value products from resids. ROSE units yield deasphalted oils that are excellent feedstocks for fluid catalytic crackers and hydrocrackers, as well as recover resins and asphaltenes that have a variety of uses.

ROSE technology is based on the use of a light, readily available hydrocarbon solvent to extract deasphalted oil from a feedstock rich in asphaltenes. The solvent is separated from the deasphalted oil in the downstream deasphalted oil separator, then recovered and recycled. Solvent selection is based on the desired deasphalted oil purity and yield for a given feedstock. The ROSE unit includes a deasphalted oil stripper and an asphaltene stripper for final recovery and recycling of dissolved solvent from the two effluent streams.

ROSE units can upgrade very heavy crudes, process resid from tar sand bitumen, and extract valuable products from thermally degraded petroleum products, shale oil and coal-liquefaction residues.

Attractive economics
The many economic benefits of the ROSE process are the result of recovering the extraction solvent as a supercritical fluid. The recovered solvent is recycled through heat exchangers to recapture a major portion of the energy necessary to achieve supercritical solvent recovery. This significantly reduces capital and operating costs.

Commercial ROSE units have demonstrated overall savings of up to 50 percent compared to conventional solvent-extraction processes that use evaporation, compression and condensation. By eliminating the need to evaporate a major portion of the extraction solvent, the size and complexity of the ROSE unit is reduced. This, in turn, leads to reduced investment costs and further energy savings. The relative simplicity of the ROSE process facilitates smooth start-up and operation and minimizes manpower-operating requirements.
Recover higher value products from resid with ROSE technology

Benefits
- Low capital cost resid upgrading option
- Lowest operating-cost deasphalting process
- Flexibility to process a wide range of feedstocks
- Highest deasphalted oil yield
- Low carbon-residue deasphalted oil
- Low metals-content deasphalted oil
- Excellent deasphalted oil for fluid catalytic cracking or hydrocracking
- Quality deasphalted oil for lube-oil blending
- Option to produce resin product
- Asphaltenes for paving, roofing and specialty asphalts
- Flexibility to shift production mix
- Heavy fuel-oil production reduced or eliminated
- Construction of a new grassroots refinery

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Refining experience

KBR delivers world-class results to the Petroleum Refining Market. Our business as a process developer and licensor in addition to our widely acclaimed project delivery capabilities has resulted in licensing, designing, or constructing more than 60 greenfield refineries and well over 1,000 refining units of every type and size the world over.

Our licensed technology is found in more than half of the worlds’ FCC units, an overwhelming majority of resid upgrading units, and more than 100 hydproprocessing units.

Our emphasis on heavy oil upgrading, improving the bottom-of-the barrel material, producing clean fuels, and providing a wider range of operating flexibility to refiners makes KBR a clear partner in any refining challenge. From grassroots design to revamps no job is too large – or too small.

Technology

KBR offers licensed technologies, process equipment and consulting for refining, ammonia-syngas, petrochemicals, coal monetization, hydrogen and carbon capture and storage.

For more information visit rose.kbr.com

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