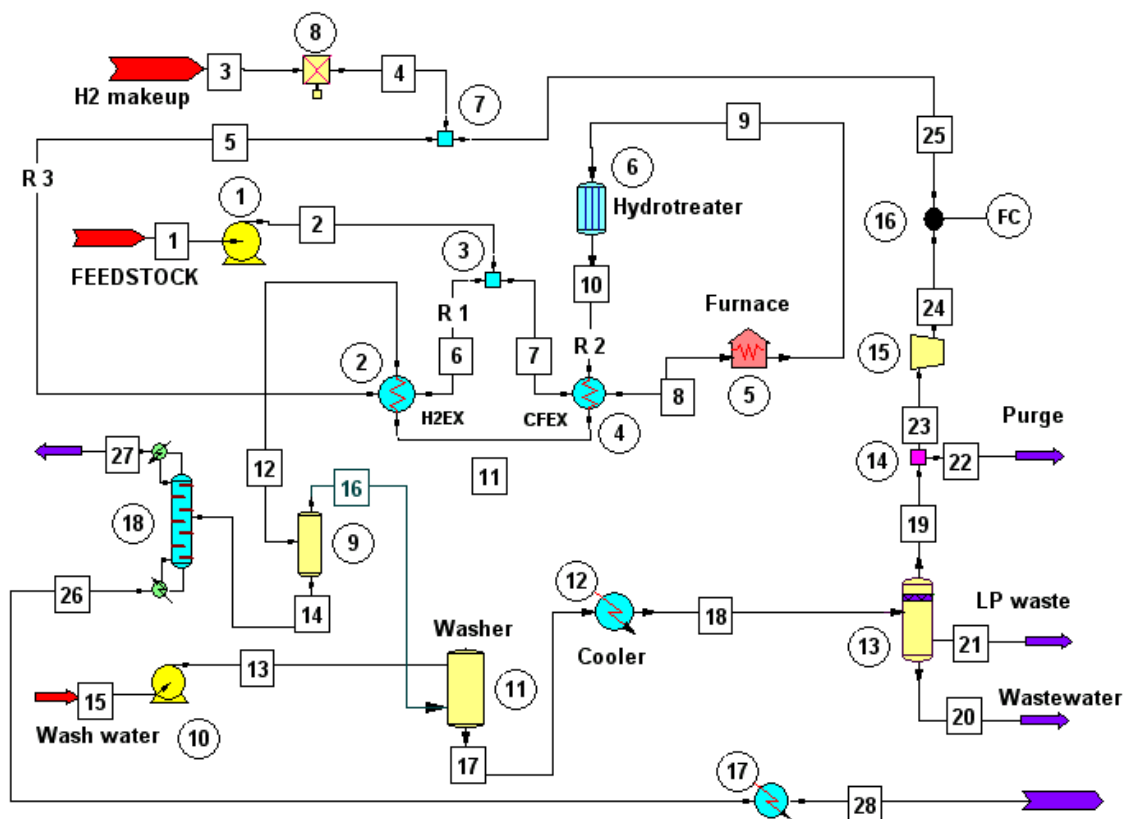


## Hydrotreater Unit Simulation



### DESCRIPTION:

The example shows how to model refining technologies of undefined chemistry. The process is to remove sulfur and nitrogen impurities from C6+ petro cut by hydrogenation.

The feedstock is pumped from tankage and mixed with recycle hydrogen gas. Then it is preheated with hot reactor product gas in the CFEX heat exchanger. The reactor feed is then heated near to the reaction temperature in a process furnace, and introduced to the adiabatic hydrogenation reactor.

In the reactor, sulfur and nitrogen impurities are converted into hydrogen sulfide and ammonia respectively, and alkene bounds are being saturated. The heat of hot reaction gases is recovered in the CFEX exchanger.

Heat is further recovered in the H2EX heat exchanger, where the recycled hydrogen is preheated. The cooled mixture is sent to a drum separator, where gases are flashed off from the heavy liquid product. The gases are washed with process water, cooled, and sent to a flash drum, where light hydrocarbon product and wastewater are separated from the recycle gas. The recycle gas is purged to remove excess H<sub>2</sub>S and NH<sub>3</sub> produced in the process, the gas is re-compressed and mixed with fresh H<sub>2</sub> make-up stream, and the recycle returns to the process.