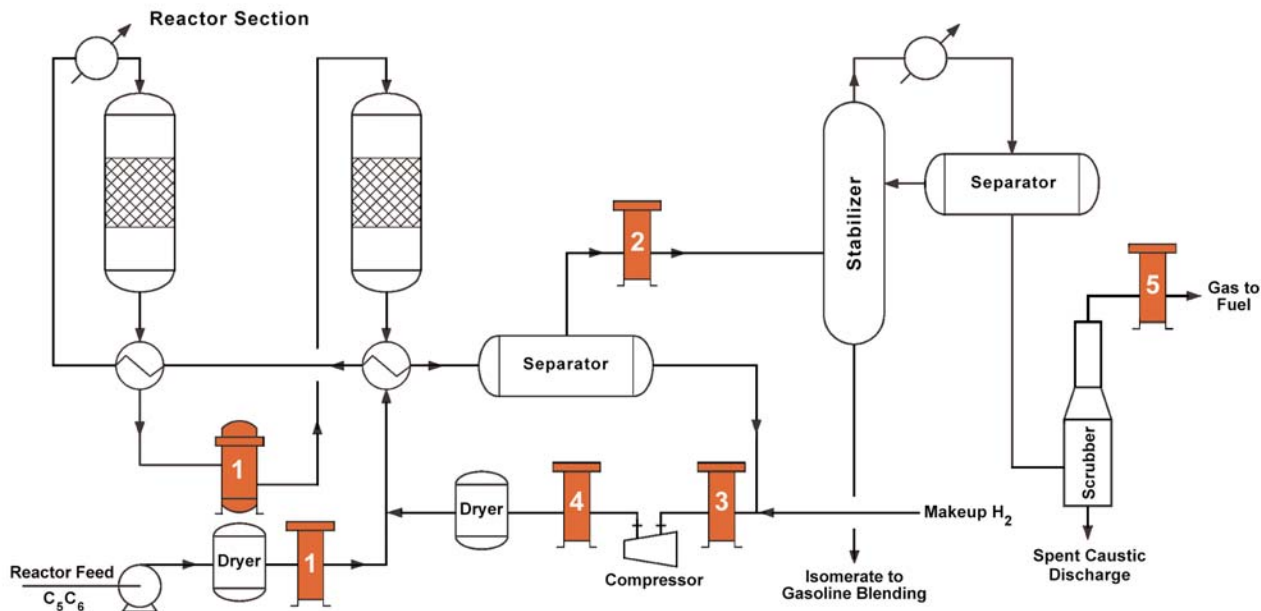




Isomerization



The Isomerization process is used to convert C5-C6 in light straight run Naptha into respective isoparaffins for gasoline blending. Isoparaffins are used to increase the octane rating and decrease the benzene content of gasoline. The feedstocks for catalytic reforming are hydroprocessed low octane naphthas. In this process the naptha feedstock is combined with recycle and make-up hydrogen gas, heated to reaction temperature and fed into a fixed catalyst bed reactor. After the catalytic reaction the effluent is cooled and separated to recover the hydrogen gas for re-use in the process. The liquid product is sent to a stabilizer to remove light ends and dissolved hydrogen from the isomerate product. The stabilized isomerate product is then sent directly to gasoline blending.

Operational Problems

1. Catalyst fouling
2. Stabilizer fouling
3. Process liquid carryover
4. Compressor fouling

Solutions

1. A Nowata Filtration depth or pleated type high-temperature cartridge filter on the reactor feed inlet should be installed to prevent contaminant from fouling the catalyst in the fixed bed reactor.
2. A Nowata Filtration cartridge or bag filter on the liquid product line is used to remove any catalyst fines that could foul the stabilizer internals.
3. A Nowata Filtration Filter / Separator using 1 micron NFG filter elements should be used to remove hydrocarbon liquids and catalyst fines from the reactor effluent separator for the hydrogen recovery system. This will prevent contaminant fouling of the feed heat exchangers or catalyst bed.
4. A Nowata Filtration Coalescer using 0.3 micron NFF coalescing filter elements should be used to remove lube oil mist from the hydrogen make-up stream after the hydrogen compressor. This will prevent fouling of the Mol Sieve dryer prior to hydrogen introduction into the process.
5. A Nowata Filtration Filter / Separator using 1 micron NFG filter elements should be used to remove caustic liquids from the scrubber gas. This will prevent downstream corrosion and fouling of the plant fuel gas system.

