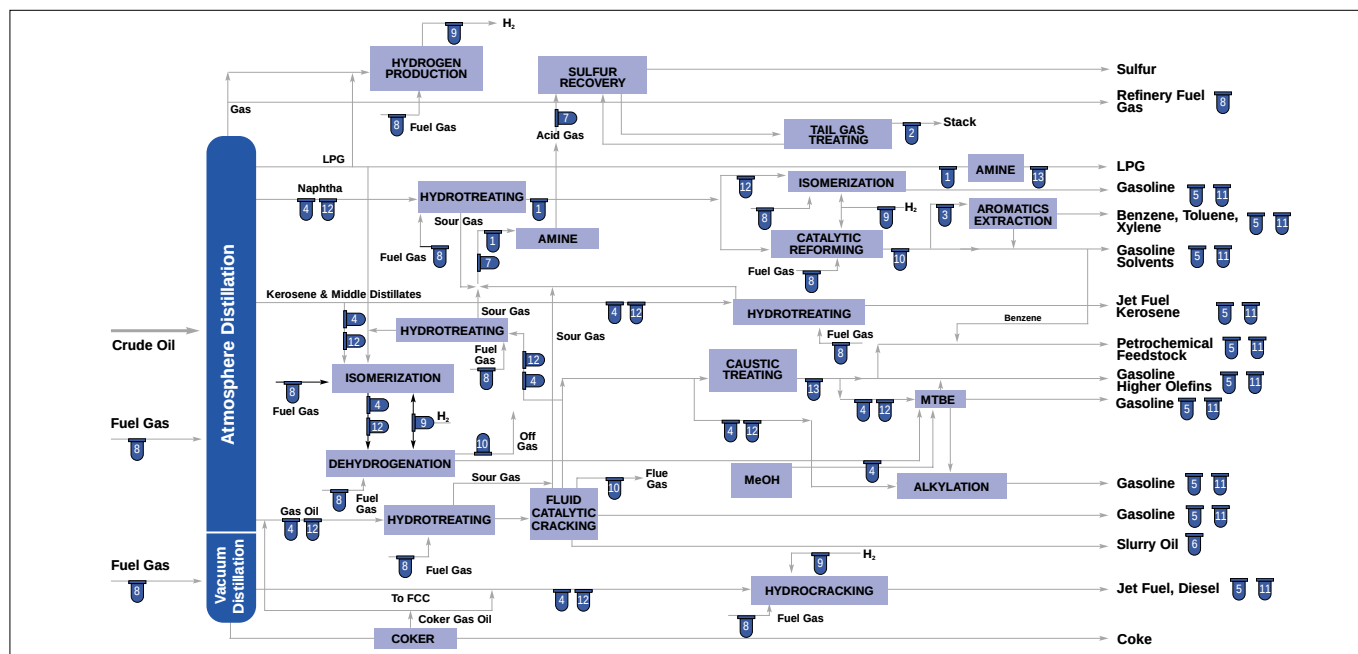




1 Amine Sweetening

Problem: Liquid hydrocarbon and particulates cause foaming and fouling problems within an amine plant.

Products: Pall Sepraso® LG Coalescer to remove liquid hydrocarbons from feed.

Pall NEXIS T® (10–40 µm) filters to remove particulates from recirculating amine.

Benefit: Reduced amine losses, foaming and flaring; improved energy consumption; reduced maintenance, labor and disposal costs.

2 Tail Gas Treating Unit

Note: Many tail gas units contain an amine unit.

Products/

Benefit: Same as amine sweetening, see (1).

3 Aromatics

Problem: Liquid hydrocarbon and particulates cause foaming and fouling problems.

Products: MCC1401 elements (usually E100) and Nylon Profile (10–40 µm) used to remove particulates from recirculation sulfolane.

Benefit: Process similar to amine; reduced solvent losses and foaming; improved energy consumption; reduced maintenance, labor and disposal costs.

4 12 Catalyst Protection*

Problem: Solid particulates plug and deactivate catalyst bed (5–10 µm); water can deactivate some catalysts.

Products: Pall Rigimesh® backwash filters to remove solid particulates.
Pall Epocel® or Ultipor filters to remove low concentrations of solid particulates.
Pall AquaSep Plus liquid/liquid coalescer to remove water.

Benefit: Improved conversion efficiency and profitability; fewer catalyst changeouts; improved conversion/yield; lower maintenance, labor, and catalyst costs.

* NOTE: (4) denotes Pall particulate or backwash filter

(12) denotes Pall AquaSep® Plus or PhaseSep® liquid/liquid coalescer.

LOCATION OF CATALYTIC PROCESSES:

- Catalytic Reformer
- Dehydrogenation Processes
- Hydrocracker (recycle)
- Isomerization
- All Hydrotreaters

5 11 Final Product Filtration*

Problem: Refinery final products contain particulates and water.

Products: Ultipleat High Flow filter used to remove particulates.
AquaSep Plus liquid/liquid coalescer** used to remove entrained water from gasoline/diesel.

Benefit: Improved product quality; less reprocessing and contamination costs; lower maintenance and disposal costs.

*NOTE: (5) denotes Pall particulate filter

(11) denotes Pall AquaSep® liquid/liquid coalescer

**NOTE: AquaSep is especially effective in removing water from fuels with high concentration of additives and surfactants.

6 Fluid Catalytic Cracking Unit Slurry Oil

Problem: Catalyst fines reduce value of slurry oil.

Products: Pall Backwash filters.

Benefit: Improved product quality and revenue; less downstream equipment maintenance.

7 Amine and Sulfur Recovery Unit

Problem: Carried over amine contaminates catalyst at the sulfur recovery unit. Carried over hydrocarbon and treating chemicals initiates foaming in amine contactor.

Products: Pall Seprazol LG Coalescer [CC3LGB7 to remove carried over amine] CC3LGA7 to remove carried over hydrocarbons.

Benefit: Less catalyst changeouts; improved sulfur conversion; less equipment fouling; reduced amine losses, foaming and flaring.

8 Refinery Fuel Gas

Contains light hydrocarbons used to fuel refinery equipment such as furnaces, boilers, and turbines.

Problem: Fuel gas composition changes rapidly and contains condensable hydrocarbons. Liquids and solids will foul and plug burners and combustors.
Low NO_x burners are very sensitive to plugging.

Products: Pall Seprazol LG Coalescers (CC3LGA7 and CC1LGA7) used to remove heavier (liquid) hydrocarbons and particulates from fuel gas.

Benefit: Improved reliability; lower maintenance costs; improved burning efficiency.

LOCATION OF LARGE FURNACES:

- Catalytic Reformers
- Atmospheric Distillation Unit
- Vacuum Distillation Unit
- Hydrogen Generation Unit
- Hydrocrackers
- Hydrotreaters
- Isomerization Unit
- Dehydrogenation Processes

OTHER EQUIPMENT:

- Boilers (check with utilities engineer)
- Fuel Gas distribution compressor (check with utilities engineer)

9 Hydrogen Compressor Protection

Contains light hydrocarbons similar to refinery fuel gas.

Problem: Hydrogen composition changes rapidly and contains condensable hydrocarbons. Liquids and solids will foul internals of compressors; must know composition of liquids being recovered by coalescer.

Products: Seprazol LG Coalescers (CC3LGA7 and CC3LGO2-H13) used to remove heavier (liquid) hydrocarbons and particulates from hydrogen to protect compressor.

Benefit: Improved reliability; lower maintenance costs; improved efficiency.

LOCATION OF HYDROGEN COMPRESSORS:

- Catalytic Reformer (recycle and production)
- Hydrogen Generation Unit (recycle and production)
- Isomerization Unit (recycle)
- Hydrocracker (recycle)
- Hydrotreaters (feed hydrogen, in some instances)
- Dehydrogenation Processes
- May be a large hydrogen distribution compressor within the refinery

10 Catalyst Recovery from Gas Streams

Problem: Catalyst fines discharged into flue or elutriation gas causing catalyst losses, opacity problems, maintenance problems with downstream equipment.

Particularly a problem in processes where catalyst is continuously regenerated.

Products: Pall Blowback filters.

Benefit: Less catalyst losses; less maintenance on downstream equipment; compliance with environmental standards.

13 Treating Processes

Problem: Caustic or amine carries over into product stream causing off-specification product. Carried over caustic can form a precipitate downstream resulting in equipment fouling.

Products: Pall PhaseSep liquid/liquid coalescer to remove carried over caustic
Pall Nylon Profile to remove solid contaminants.

Benefit: Improved profitability; lower reprocessing costs, reduced maintenance and labor costs.



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