



BENFIELD™ PROCESS

UOP's Benfield process is a thermally regenerated cyclical solvent process that uses an activated, inhibited hot potassium carbonate solution to remove CO₂, H₂S and other acid gas components.

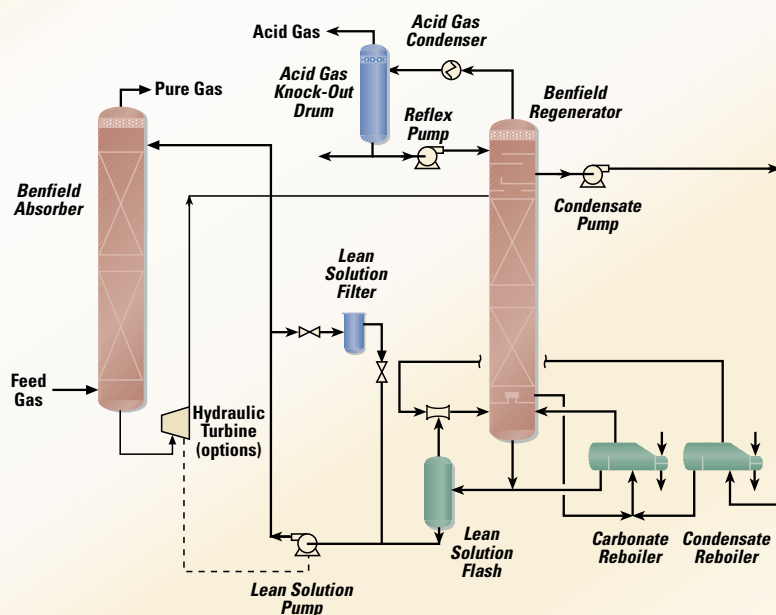
The Benfield process uses low cost chemicals available on the world wide market. There are a variety of flow schemes available that permit process optimization and energy reduction with this near-isothermal unit operation. Our new, commercially proven Benfield ACT-1™ activator results in lower utilities, lower tower packed heights and easier solvent maintenance. Existing plants can be revamped for either capacity increase and/or heat savings through the use of UOPs proprietary LoHeat™ technology or UOP high performance packings.

The high temperature operation of the Benfield process prevents hydrocarbon condensation from occurring.



Hydrocarbon and synthesis gas losses are minimal due to their low solubility in the Benfield solution. Mostly carbon steel construction is used and the process is oxygen tolerant without solution degradation.

Benfield Process



APPLICATIONS

The Benfield process can be tailored for either bulk or trace acid gas removal. It is typically used in the following applications and markets:

- Synthesis gas treating for CO₂ removal in ammonia plants
- Synthesis gas treating for CO₂ removal in direct iron ore reduction plants
- Natural gas treating to achieve either LNG or pipeline specifications
- Recycle gas purification in an ethylene oxide facility

Design packages ranging from functional process specifications through a complete UOP Schedule A are offered to support

this technology. As with all our processes, service is always readily available through UOP's worldwide technical service organization.

FEEDSTOCKS AND PRODUCTS

Acid gas partial pressure is the key driving force for the Benfield process. Typical feed conditions range between 150 and 1800 psia with acid gas compositions from 5% to more than 35% by volume. The product specifications achievable depend on the application and can be anywhere from a few hundred ppmv to a few percent of CO₂. Typical heat consumption is 30,000-40,000 Btu/lbmole of CO₂ removed.

EXPERIENCE

The Benfield process was introduced over 30 years ago. As of January, 2000, over 700 Benfield units have been put into commercial service. The Benfield process has also been readily applied in several direct iron ore reduction plants and in over 50 natural gas plants. The Benfield process continues to be the dominant process selected for new ammonia plants and in ethylene oxide facilities.

FOR MORE INFORMATION

For more information, contact your local UOP sales office or UOP's Gas Processing business in the USA at:

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