

UOP Polybed™ Pressure Swing Adsorption (PSA) Systems

Hydrogen purification applications

Introduction

UOP invented and developed the Polybed PSA technology nearly 50 years ago. It has since become the leading hydrogen purification technology in many industries for many applications, processing more than 40 types of feedstock.

Polybed PSA technology has evolved as the leader in many gas purification applications, including those shown below..

Hydrogen Upgrading and Bulk Separation

Feed Source	H ₂ in feed vol%	H ₂ production largest single train		First system On-stream	Number of systems
		MMSCFD	Nm ³ /hr		
Steam Reformer	47-98	240.0	267,912	1966	408
Refinery Streams	46-99	126.2	140,812	1971	241
Ethylene Off-gas	35-99	110.0	122,793	1968	134
Methanol Off-gas	59-95	35.5	39,595	1972	38
Misc. Off-gas	64-98	44.9	50,155	1966	28
Partial Oxidation/ Syngas	49-94	75.4	84,169	1974	24
Coke Oven Gas	51-60	10.9	12,201	1979	19
Oleflex™ Process Net Gas	79-95	50.4	56,194	1990	15
Ammonia Off-gas	51-88	52.6	59,000	1970	14
Chlorine Off-gas	98-99	22.1	24,637	1968	11
Styrene Off-gas	79-95	9.0	10,002	1970	12
Steel Industry Gas	15-19	134.4	150,000	2006	2
Total Units					946

Other applications include the recovery and purification of carbon dioxide, methane, helium, chlorine and monomers.

UOP's industry leading Polybed PSA technology is the result of years of technical innovation and commercial experience. As the industry leader in molecular sieve/adsorbent research and development, UOP combines high performance adsorbent technology with innovative process and mechanical design.



With more than 1,000 units, UOP is the world's leading supplier of PSA technology for hydrogen purification. We use our experience, innovation and expertise to achieve your hydrogen purification and production needs

FEATURES & BENEFITS

- High hydrogen recovery through the use of proprietary UOP adsorbents
- Enhanced production of hydrogen due to the control system that automatically adjusts to maintain production, even during upset conditions
- Reduced capital cost due to adsorbent efficiency, process design, and control philosophy
- Reduced feed pretreatment requirements
- Enhanced adsorbent life

UOP offers Polybed PSA systems as skid mounted, modular units, complete with hardware, adsorbents and controls systems. UOP does the detailed design and project management, with fabrication completed by rigorously qualified sub-vendors under UOP supervision.

UOP Provides:

- Superior knowledge of upstream and downstream hydrogen requirements and implications
- Optimized integration of PSA technology within your plant
- Improvements to existing technology to meet your changing process needs
- New applications to meet your new challenges
- Unparalleled international experience in project development, engineering, fabrication, and technical support
- Flexibility in project execution
- PSA systems optimized to customer requirements
- Worldwide sourcing to meet local requirements
- Fixed pricing for accurate forecasting of project expenses
- Shop fabricated skid-mounted systems for fast on-site installation and start-ups
- Superior quality control resulting in enhanced safety and reliability
- Designed for greater than 99.8% on-stream factor from the rigorous design and selection of the valves and control system
- On-time, on-spec delivery, easy installation, quick start-up
- Proprietary UOP adsorbents that enable superior performance
- Automatic operation that minimizes manpower requirements
- Enhanced production reliability due to control systems that automatically adjust to maintain production, even during upset conditions
- Reduced capital cost due to adsorbent efficiency, process design and control philosophy
- Products and services with ISO-9001 certification
- Ongoing technical services and support after startup
- Information on the latest developments and advancements in our technology through seminars and conferences
- Proven training programs
- Revamp services to enable existing equipment to meet your future needs



For more information

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