Applied Process Technology International, LLC

Engineering Expertise serving Virginia and the global Biomass and Biofuels Industries
Located in Williamsburg, VA

- Thirty-plus staff focused on engineering and process design
- Over 400 years of industrial experience
- Over 125 years of biofuels experience
- Increasing International Focus
Proven Ethanol Technology Provider

- Forty-plus licensees produce over two billion gallons of ethanol annually.
- Additional one billion gallons of ethanol dehydration capacity installed.
- Custom-designed fuel, beverage and high purity alcohol solutions.
- Multiple feedstocks corn, sorghum, wheat, molasses & cassava.
100 MMGPY Corn Dry Mill
Vodka Plant in Northern China
APTI is a member of the Bateman Litwin group.

Full Plants

Alcohol Refining Plant
Core Competencies

• Design - Chemical Process Unit Operations
  • Agitation and Mixing of Liquids
  • Evaporation
  • Distillation / Rectification
  • Separations
  • Gas Adsorption
  • Drying of Solids

• Specializations
  • Molecular Sieve Dehydration
  • Distillation / Rectification
  • Thermal Integration & Optimization
  • Fermentation
Implementation Capabilities

- **Engineering**
  - Front End Engineering & Design (FEED)
  - Equipment Specifications
  - Control System Design
  - Process & Instrumentation Diagrams (P&ID’s)
  - General Arrangement Drawings

- **Commercial Scale**
  - Equipment Procurement
  - Design Build Technical & Engineering Support
  - Start-up & Optimization
Laboratory Capabilities

- Feedstock evaluations and testing
  - Multiple varieties of starch, sugar and biomass
- Process design data generation
- Fermentation studies
- Process Chemistry
- Scale-up
Biofuel’s Future

- 1\textsuperscript{st} Generation to 2\textsuperscript{nd} – 3\textsuperscript{rd} Generation
- Mandates drove US development
- Mandates will drive ex-US development
- Increasing development of cellulosic biomass as raw material for fuel ethanol; and as building block for many useful chemicals
  - Stover and crop residues
  - Woody biomass
  - Paper mill and industrial/food process streams
  - Municipal Solid Waste
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