APPLIED CHEMICAL TECHNOLOGY®

The World Leader in Process Engineering.

Process Development Lab and Pilot Plant Services

Applied Chemical Technology provides a pilot plant that is specifically designed to test your unique process and production requirements in an accurate, small-scale simulation. This simulation provides process specific data on process efficiency, equipment design, product quality and more. All data is directly scalable to production capacity. An ACT pilot plant will also help reveal unforeseen process challenges, allowing corrections to be made while still in a low cost environment. ACT reports and documents all data collected.

ACT utilizes our pilot plant facilities for a broad range of product and process development activities, including the fertilizer, chemical, bio, pharmaceutical, nutraceutical, and food industries. Our extensive experience in these diverse fields prepares us for almost any development project. Our approach to utilizing lab and pilot scale plants in the development and testing of new processes and products has proven very successful. Because of our experience and success in process and product development, ACT is recognized as a world leader in development work.

Large –Scale Pilot Plant

Fluid Bed Pilot Plant

CONFIDENTIALITY

"Your project and process requirements are kept strictly confidential and protected by signed secrecy agreements."

Advantages of ACT Process Development

- All Intellectual property, technology, and products developed are property of ACT's client.
- Capabilities range from bench scale to 2 ton per hour continuous production pilot plants.
- Our large inventory of process equipment allows for rapid assembly, startup, and saves cost.
- Low cost specialty equipment can be quickly designed and fabricated by ACT.
- All pilot plant and lab services are tailored to your schedule and budget.
- We welcome and encourage your involvement throughout the project.
- All ACT lab and pilot plant projects are supervised by experienced chemical and process engineers and supported by our team of technicians, laboratory staff, and designers.

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APPLIED CHEMICAL TECHNOLOGY®

Laboratory Development

Lab Pan Granulator

ACT's laboratory facilities can provide you with quick assessments of process and product development, as well as custom analytical procedures and product quality testing. Our laboratory supports ACT's process development teams with scale-up data, chemical analysis, and product quality testing. We can also provide assistance and training for specially developed lab equipment, designed and constructed at ACT. The laboratory at ACT allows clients to test their ideas on a small scale with low cost. The lab is an economic and efficient tool to develop an approach to produce new products or solve current issues within a process.

Our labs include:

- 2800 sq. ft. of research laboratory space
- 700 sq. ft. research lab with adjacent client offices
- All laboratories may be secured for confidential projects.
- Various lab scale processing equipment

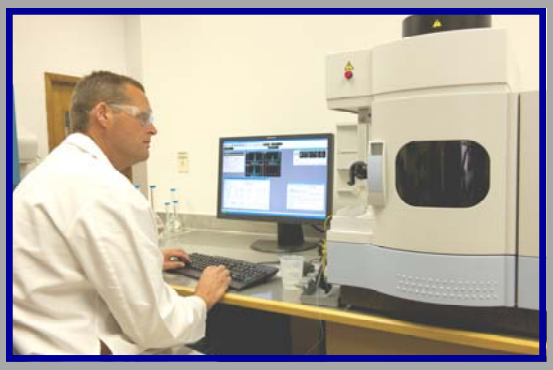
Laboratory Equipment

- Pan Granulator
- Rotary Drums for Granulation and Coating
- Lab scale Fluid Beds
- Lab Scale Explosion Proof Fluid Bed with Solvent recovery
- Inert Gas Fluid Bed (Closed Loop)
- Pin Mixer
- Pug mill
- Humidity Chambers
- Melt Spray Systems
- Furnaces up to 1600 F
- Pressure Vessels
- High Intensity Mixer/Granulator
- Lab Scale Hammer Mill
- Lab Scale Ring and Puck Mill
- Prilling

300N Lab Fluid Bed

APPLIED CHEMICAL TECHNOLOGY

Analytical Support Services



PERKIN ELMER 7300 DV ICP-OES

The Perkin Elmer 7300 DV ICP (Inductively Coupled Plasma) provides ACT with the capabilities to analyze more than 73 elements in a sample in a few seconds. This versatile instrument is capable of superior detection limits and true simultaneous measurements of all elements in the available spectral range. With the ICP, ACT can provide our clients with quick, reliable results to assist in laboratory and pilot plant development.

Analytical Equipment

- LECO CN628 Carbon/Nitrogen Analyzer
- LECO SC144DR Sulfur Carbon Analyzer
- Skalar Segmented Flow Analyzer
- Ohaus Moisture Balance
- Orion Flouride Meter
- Automated Karl Fischer Titrator
- Kjeldahl Automated Titrator
- Perkin Elmer 7300 DV ICP-OES
- LECO 528 Nitrogen Analyzer (Solid and Liquid)

LECO 528 NITROGEN ANALYZER

The LECO 528 nitrogen analyzer provides ACT with the ability to analyze solid and liquid samples for total nitrogen content with a detection limit down to 0.1% nitrogen. This instrument provides quick, reliable analysis of samples in about 3 minutes.

Complete Physical Properties Testing:

ACT's lab is equipped to conduct complete physical properties analysis of granular materials. ACT conducts various methods of analysis for the purpose of product development and process development.

Physical Property Testing Includes:

- Control Release Testing
- Ammonia Volatilization
- Angle of Repose
- Crush Strength
- Abrasion Resistance
- Spherocity
- Caking Tendency
- Critical Relative Humidity
- Viscosity
- True and Apparent Density
- Seive Analysis
- Camsizer Particle Analysis
- Polarized Light Microscope
- Fire Assay
- Soil incubation of Fertilizer and Greenhouse Screening

APPLIED CHEMICAL TECHNOLOGY®

Pilot Plant Services

1-2 TPH pilot plant

ACT pilots plants are purpose built unit which simulate our clients' processes and production requirements. ACT utilizes this major advantage in the process development field to insure efficient design of commercial applications along with process specific planning based upon the results of the pilot plant. ACT will guarantee the commercial process if the pilot plant testing has been conducted by ACT engineers. ACT's pilot plants can provide innovative services for the development of new products or improving existing processes.

ACT is recognized as a world leader in pilot plant development work with over 300 years of process experience provided by out process development team.

PILOT PLANT EQUIPMENT

- Drums
- Pans
- Fluid Bed Dryer
- Boilers
- Pellet Mill
- Roll Mill
- Chain Mill
- Hammer Mill
- Evaporator
- Scrubber
- Pumps
- Elevators
- Feeders
- Littleford Day Mixer
- Rotex Screen 2 deck
- Sweco Screeners
- Rotary Dryer
- Pipe Reactor
- Coating Drums
- Conveyors
- Fluid Bed Cooler
- Fluid Bed Coater
- Fluid Bed Granulator
- Tanks
- Reactors
- Prill Tower
- Pin Mill

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