Custom Large Scale Systems

Not all laboratories are the same, and neither are all projects. We can help you customize our systems to meet your needs. Production scale systems from Applied Separations offer all the same options and advantages of the Pilot Scale systems.

Computer control/Automation
Applied Separations offers you a completely computer controlled/automated system for use in your laboratory. Ask us how our automated technology can help you.

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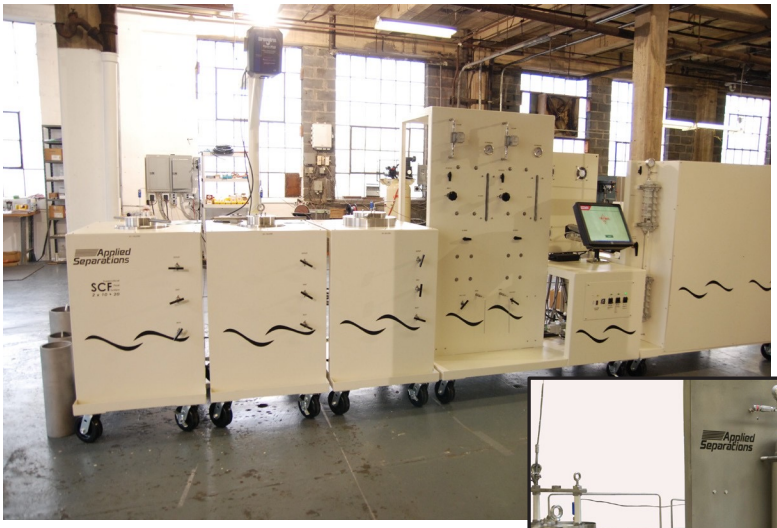
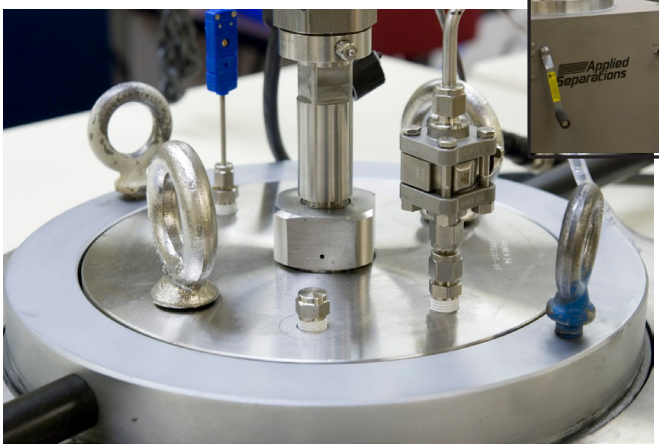
Production Systems

Custom Large Scale Systems





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Why Supercritical Fluids?

Supercritical Fluids Revolutionize Your Processes

No longer an exotic laboratory curiosity, but now a cost-effective tool to improve your process development.

No matter what your business...

Natural products
- Medicinals
- Biomass extractions
- Fragrances/essential oils

Pharmaceuticals/foods
- Natural products
- Enzymatic reactions
- Reaction cleanups
- Hydrogenations

Material Science
- Nanoparticles
- Aerogels
- Coatings
- Impregnations
- Metal Injection Molding (MIM)

Electronics
- IC Cleaning
- Resist developer
- Micro Electro-Mechanical Machines (MEM) cleaning

Textiles
- Dyeing
- Impregnations

Cleaning
- Critical cleaning machine parts
- ICs
- MEMs

Subcritical/Supercritical Water

Supercritical Fluids can revolutionize your processes!

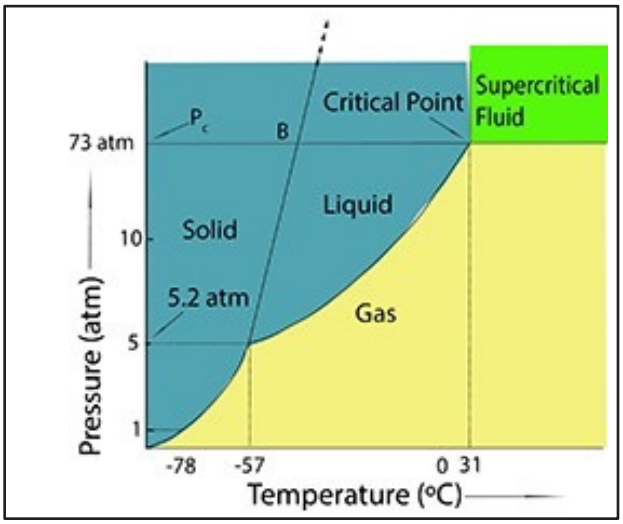
A Supercritical Fluid

- is fast and selective
- allows for reduced extraction and purification steps
- provides decreased processing time
- has reduced organic solvents
- gives higher yield with lower cost

Carbon dioxide is in its supercritical fluid state when both the temperature and pressure equal or exceed the critical point of 31°C and 73 atm (see diagram). In its supercritical state, CO_2 has both gas-like and liquid-like qualities, and it is this dual characteristic of supercritical fluids that provides the ideal conditions for extracting compounds with a high degree of recovery in a short period of time.

By controlling or regulating pressure and temperature, the density, or solvent strength, of supercritical fluids can be altered to simulate organic solvents ranging from chloroform to methylene chloride to hexane. This dissolving power can be applied to purify, extract, fractionate, infuse, and recrystallize a wide array of materials.

Because CO_2 is non-polar, a polar organic co-solvent (or modifier) can be added to the supercritical fluid for processing polar compounds. By controlling the level of pressure/temperature/modifier, supercritical CO_2 can dissolve a broad range of compounds, both polar and non-polar.



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