



A research hub was established between IMU and SRAS Berhad in 2013 and under this partnership, SRAS has made available its Supercritical Fluid Extraction System (SCFS) in its GMP facility. The SCFS allows the rapid, efficient, economically competitive and environmentally friendly method to extract reasonably large amounts of analytes or components from complex mixtures such as herbal compounds, food products, wastes, etc. This has enormous applications to research and industry.

In addition, supercritical fluids have certain properties that provide some advantages for analytical extractions. They possess solvating powers similar to organic solvents, but with higher diffusivities, lower viscosity, and lower surface tension. By changing the pressure or temperature, or by adding modifiers to the supercritical fluid, the solvating powers can be adjusted to suit specific needs.

## IMU-SRAS BERHAD RESEARCH HUB

### Supercritical fluid extraction facility

What are supercritical fluids? They are fluids that are produced by heating a gas above its critical temperature or compressing a liquid above its critical pressure. One example is carbon dioxide. These fluids are useful for extracting analytes or specific components from a variety of samples. The main advantages of using supercritical fluids for extractions is that they are inexpensive, contaminant free, and disposal of solvents used is less costly compared to organic solvents.

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For this technology, a supercritical-fluid extractor is required and it consists of a tank of the mobile phase, usually CO<sub>2</sub>, a pump to pressurize the gas, an oven containing the extraction vessel, a restrictor to main high pressure in the extraction line, and a trapping vessel. Analytes or extracted components are collected by letting the solute-containing supercritical fluid decompress into an empty container, through a solvent.

Applications include extraction of pure extracts/components from herbal plants, medicinal foods etc.