

Networked Purification System Increases Productivity for Medicinal Chemists

In the highly competitive race to develop useful new compounds, medicinal chemists are responsible for advancing synthesis projects to a decision point as quickly as possible. In some companies, quotas for compounds to be synthesized and delivered for screening have reportedly doubled in recent years. This gives chemists a strong incentive to look for innovative ways to multi-task and to reduce the time spent on repetitive and routine activities. Since purification of target compounds typically accounts for 30–40% of the chemist's time (Fig. 1) when done by traditional manual methods, it offers a great opportunity for time savings and increased productivity.

Automated Purification

Many medicinal chemists have only recently made the transition from fully manual flash chromatography to instrument systems that automate solvent gradients and fraction collection. These systems free the chemist to work on additional syntheses in the lab while a purification is running. Flash chromatography systems with on-line UV detection can additionally reduce the amount of TLC work required

on separated compounds. However, the chemist still typically runs purifications only when he or she will be in the lab to monitor the collection of precious compounds throughout the run.

Flexible Communication and Control Provides Additional Time Savings

The same computer and communication technologies that allow universal Internet access can also give chemists the

freedom to monitor and control an instrument from any location. The Combi-Flash Companion from Isco, Inc. (Fig. 2) is the first flash chromatography system to implement this type of next-generation networked interface.

This flexibility is due to an internal Linux-based Web server and network hardware that serves a thin-client application. The Companion thus incorporates its own powerful internal processor that automates its operation and processes the data. XML data allows the interchange of control instructions and chromatographic results between the instrument and chemist at a Windows-based computer. Windows-based computers can range from a PDA running the Pocket PC operating system, mobile notebook computers on a wireless network, to the ubiquitous desktop computer. Though the design opens itself to nearly limitless connection possibilities, operat-

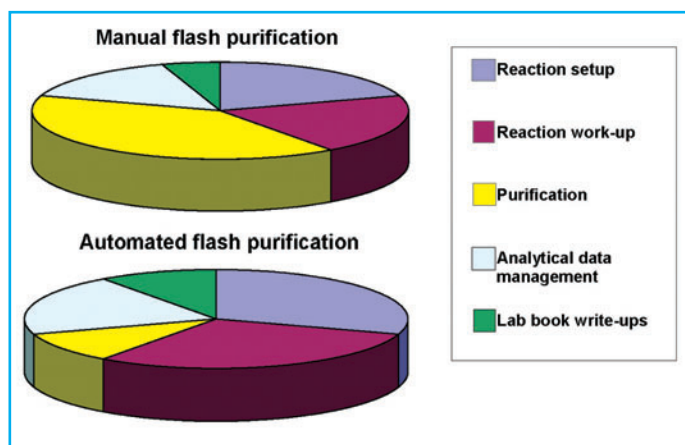


Fig. 1: Manual Flash purification is typically the most time-consuming task for the medicinal chemist performing organic syntheses. Automated flash chromatography with network control can provide an 80% time savings in purification, increasing the number of synthesis projects that can be successfully advanced to a decision point.

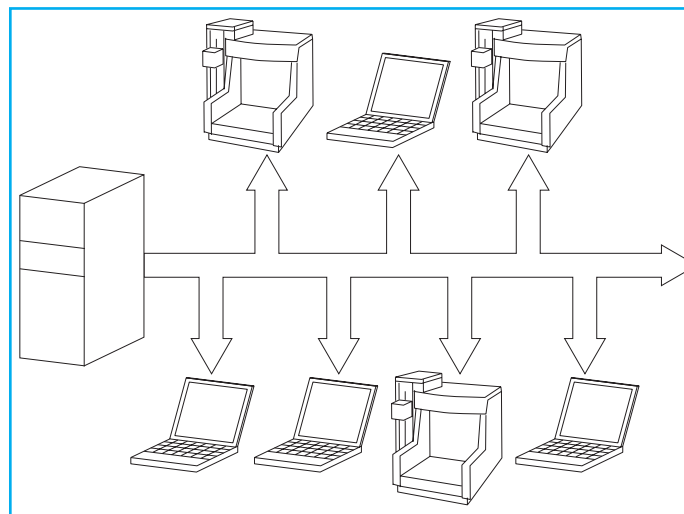


Fig. 2: Multiple automated Flash chromatography systems with network connectivity. Each system is accessible from any web browser connection.

