

The Chemical Management System

Edinburgh's School of Chemistry uses ScQuest's *Chemical Manager* software to manage chemical purchases. This shares data with the University's own eProcurement system to avoid data re-entry. Derek Burgess and colleagues within the School have customised the software into a 'cradle to grave' system which tracks the chemicals through storage, use and disposal. The key is bar coding of all chemical containers to provide details of their contents, and precise location within the School. A local company collaborated in developing special two-dimensional bar codes (as one-dimensional ones don't work on very small containers), and label materials with high chemical resistance and durability for day-to-day handling.

The system allows users to view current in-house chemical inventory when ordering. This often reveals unused stocks so no purchase is needed. Re-use is encouraged by a mutual 'knock for knock' agreement amongst researchers that, generally, no internal charges will be made. (Very expensive chemicals can be 'hidden' from general view, and/or charged for, but the latter has not yet happened). Once chemicals are delivered, stores attach a 2-D label and researchers then use in-lab scanners to track all movement and usage (which connect to the systems via USB and any networked computer).

The system began in 2008 in a pilot laboratory, and now covers most of the School. Compliance is enforced by regular monthly audits of sample chemicals by Derek Burgess. "If a group isn't tracking use", he says, "I'll invite them to a meeting with tea and biscuits, and explain why they need to do it. To be fair, though, the benefits of the system are so apparent that most people are motivated to do it anyway."

The system is attracting world-wide interest, amongst universities and others, and ScQuest is using it as a reference site. A chemical supplier was also so impressed that they provided a database of 500,000 chemicals free (normal price £20,000), to enable chemical structure-based sourcing.

The system also supports the University's Sustainable Procurement Strategy, which requires Whole Life Costing for all major (over £25,000) procurement decisions.



*Derek Burgess, Procurement
Manager, School of Chemistry*

Key Points

- The School of Chemistry is the world's first academic body to institute 'cradle to grave' tracking of chemicals
- The system involved joint innovation with a local company
- The School has saved £100,000 of chemical purchasing costs
- An additional £12,000 per annum management and disposal costs have been avoided
- Researchers benefit through fast access to chemicals, and budget savings
- Compliance is achieved by regular chemical audits
- Health and Safety inspections now demonstrate much better housekeeping in labs
- The software integrates with the University's eprocurement system

S-Lab Case 2 – Better Chemical Management

Key Benefits

Reduced chemical purchases and costs – the School holds around 30,000 chemicals, with an inventory value of £400,000. By undertaking an automated check of existing stock when ordering, the system encourages the sharing of existing chemicals, reducing purchases and associated administrative costs. Accurate information on volumes also helps achieve better costs or conditions from suppliers. As a result, £100,000 fewer chemicals have been purchased in the first year, and further procurement savings are likely in future.

Reduced management and disposal costs – once acquired, chemicals have considerable carrying costs, including tying up capital and space, and labour. Disposing of them safely is also expensive. Derek Burgess estimates that the system is saving an additional £12,000 a year in carrying costs.

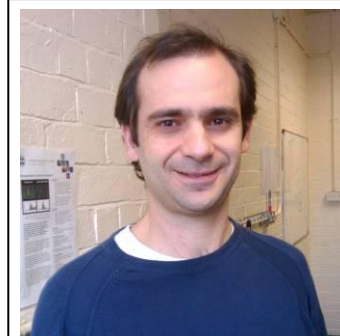
Reduced spoilage – More sharing means that fewer chemicals reach their 'use by' dates. The system can also alert users if chemicals are approaching these.

Reduced environmental footprint – Manufacturing chemicals is usually energy-intensive, and often involves hazardous processes and by-products. Disposal also consumes resources and creates potential hazards, even when done legally. Reducing chemical use and spoilage therefore avoids considerable environmental impact.

Improved health and safety – Fewer chemicals means fewer hazards. The system also encourages lab users to return chemicals to their proper (safe) location after use. The School Health and Safety Group now reports much better housekeeping in its regular lab inspections.

Enhanced research – academics can often get chemicals more quickly (which can be crucial to successful experiments) and save research budgets by using in-house stocks.

Improved legal compliance – accurate records help achieve, and certainly demonstrate, compliance with regulations on hazardous substances and waste disposal.



Dr. Juan Diaz Mochon

Views

"I'm responsible for chemical orders and the system now tells me if there are unused chemicals around the School that we could use instead of a purchase. We've reduced orders a lot as a result, but without an extra time burden for me. The system speeds up research by avoiding delays while waiting for deliveries. It also makes us more imaginative, as we can do reactions that we'd like to test, but aren't essential. If we had to order the chemicals specially, we'd think it wasn't worth it."

Dr. Juan Diaz Mochon, Senior Researcher

"We've seen a significant reduction in the number and cost of chemicals and reagents we have purchased, and better housekeeping."

Professor David Leigh, Forbes Chair of Organic Chemistry

Further Information – www.goodcampus.org; Derek.Burgess@ed.ac.uk

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