



Chemical Management Challenges in Research Laboratories

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Challenges for Laboratory CM

Most of the challenges to Chemical Management in laboratory settings stem from the differences between laboratory and industrial programs:

- Program drivers
- Chemicals being managed
- Focus on inventory not usage
- Service requirements
- End users

These differences require that we change the way we look at Chemical Management in this setting.

Program Drivers

- **Regulatory Compliance**
 - Poor inventory data, low confidence level
 - Inventory threshold based regulations
 - Specific materials of interest
- **Inventory Risk**
 - Inventory hidden in labs / cabinets
 - Future disposal liability
- **Chemical access**
 - Availability, not control
- **Cost**
 - Waste Reduction (lab packs and bulk waste)
 - Researcher time

Chemicals Managed

- **High number of unique chemicals**
 - Programs may include as many as 50,000 unique chemicals
- **High cost of individual items**
- **Potentially high hazard levels**
- **Time and temperature sensitive**
- **Quality / grade considerations**
- **Storage compatibility issues**

Focus on Inventory

- **Complete chemical information / data**
 - Identity / synonyms
 - Hazard class / regulatory status
 - Storage compatibility
 - Chemical structures
- **High number of users and storage locations**
- **Need to enable partial use / return / re-use**
 - Secondary container tracking
 - Dispensing
- **Stock and reagent chemicals need to be managed differently**

Focus on Inventory

■ Stock items

- Managed similar to industrial programs
- Complicated by high number of grades, container sizes and storage areas
- Changing requirements based on projects, relocations

■ Small quantity spot buy materials

- Complete live inventory in labs and central storage areas
- Ownership trail for individual containers

Service Requirements

- **High cost of researcher time adds value to lab services**
 - Delivery and point of use stocking
 - Waste consolidation and removal
 - Returnable container / cylinder hook up
- **Addition of non standard chemical management services for laboratories**
 - Receiving/ dock services
 - Mail delivery
 - Glassware management (washing)
 - Consumables management

End Users: Scientists

- ❑ **Research scientists are key personnel in the organization, not maintenance or production personnel**
- ❑ **High degree of freedom regarding what chemicals they chose to use**
- ❑ **Highly supported within the organization**
- ❑ **Will not support small improvements in cost to change the way they work**
- ❑ **Require 24/7 accessibility to stored chemicals**
- ❑ **Not easily managed from the “top down”**

Keys to Success

- **Good data**
 - **Robust information system**
 - **Multiple levels of inventory**
 - **Structure search capabilities**
 - **Direct link between search / inventory / purchase**
 - **Simplified transaction input (Bar code/RFID)**
 - **Substance data verification**
 - **Data capture at all points of movement**
 - **Acknowledge that the system is just a tool**

Keys to Success

- **High quality services delivered by high quality personnel**
 - **Trained technicians performing the work**
 - **Chemical identification /Nomenclature**
 - **Chemical handling**
 - **Spill response**
 - **System use**
 - **On site management and technical staff**
 - **Flexibility in services provided**
 - **Not just traditional chemical management**

Keys to Success

- **Develop new cost savings strategies**
- **Industrial Model for savings does not fit**
 - **Process improvement**
 - **Usage reduction**
 - **Price to price reductions**
- **Savings based on**
 - **Material re-use / redeployment**
 - **Inventory reduction**
 - **Grade selection**
 - **Right sizing**
 - **Insurance considerations**

Keys to Success

- **Create researcher confidence in the chemical management system**
 - **Eliminate the hoarding of stock chemicals in labs**
 - **Clean out cluttered cabinets full of old forgotten chemicals**
 - **Increase re-use of previously purchased chemicals**
- **Embrace researcher autonomy**
- **Make the “right” way the “easy” way**