

Chemical Management Services Workshop: Greening the Supply Chain

**Marriott London County Hall Hotel
February 25, 2003**

Summary

Chemical Management Services Workshop: Greening the Supply Chain, brought together 56 representatives from 40 different organisations to hear presentations about the CMS model and its implementation in both the US and Europe. Highlights of the day included case study presentations from GM and Haas TCM, Castrol/Airbus, International E-Chem, the Austrian Environment Ministry, PPG Polska, and Henkel. In the afternoon, a panel discussion provided a broad forum to discuss the barriers and opportunities for CMS in the UK and Europe.

Companies and Organisations in Attendance

Adam Opel AG, AGA Gas AB, Air Products and Chemicals, Analog Devices, Austrian Environment Ministry, Castrol Specialised Industrial, Chalmers University of Technology, Chemical Industries Association, Chemical Strategies Partnership, DEFRA, DTI, Environment Agency, Environmental Services Association, European Parliament, Fiat – GM, General Motors, GlaxoSmithKline, Green Alliance, Haas Oemeta Europe, Haas TCM, Henkel, Institute of Manufacturing, University of Cambridge, International eChem, Lambson Fine Chemicals, Oakdene Hollins, PPG Industries, Quaker Chemicals, Robinson Brothers, Shanks, Shell Services, SusProNet, Sustainable Technologies Initiative, Unilever, University of Bradford, University of Surrey, University of Teeside, University of York, Vivendi Water Industrial Outsourcing, Yorkshire Forward RDA

Sponsors

Thank you to the following organisations for their support of this event: Green Alliance, CMS Forum, Chemical Strategies Partnership, DTI's Sustainable Technologies Initiative, Bradford University/UKCEED, the Chemical Industries Association, TXU Energy, and Yorkshire Forward RDA.

Welcome and Introductory Remarks

Rebecca Willis, Director, Green Alliance

Green Alliance is a UK-based environment organisation, which works to promote sustainable development by ensuring that the environment is at the heart of decision-making. They work with senior people in government, business, academia, and the environmental movement to encourage new ideas, dialogue, and constructive solutions. This conference on CMS is part of a broader Green Alliance research project, looking at the potential for the service model to improve the resource efficiency of the UK economy in key sectors such as chemicals and energy.

What is CMS?

Tom Votta, Deputy Director, Chemical Strategies Partnership

CSP is a non-profit project helping to promote the economic and environmental benefits of CMS. CSP's mission is to reduce chemical use, waste, and cost through the transformation of the chemical supply chain. CMS is a business model that is based on the concept of "servicizing"- producing a

change in compensation for the supplier from volume of product supplied to quality and quantity of services provided.

CMS is a strategic, long-term relationship in which a service provider supplies and manages a customer's chemicals and services. It goes beyond invoicing and delivering product to include optimising processes, reducing chemical lifecycle costs and risk, and reducing environmental impact. Under the CMS model, formerly conflicting incentives between supplier and customer are now aligned – both supplier and customer want to decrease chemical lifecycle costs. The CMS model is widely used in the US automotive, electronics, aerospace, and metalworking industries. Case studies have shown that the benefits of CMS include but are not limited to: chemical use reduction, improved data management, reduced chemical costs, and improved inventory management. To further the take-up of the CMS model, CSP conducts pilot programmes to help organisations assess their total chemical lifecycle costs and to develop a CMS programme.

Discussion focused on the potential barriers to implementing CMS. It was argued that competition between supplier and customer is a perceived rather than actual barrier, as chemical sourcing can remain the customer's decision. The difficulties associated with trade union contracts were discussed, and it was stressed that communication with unions is critical to promote understanding within the organization. CMS is not a simple outsourcing model - it adds resources rather than switching resources. Participants also questioned who the potential losers would be in implementing CMS, such as the waste management industry. However, it was emphasised that the regulations and costs to reduce hazardous waste are already creating a decline trend for the waste management industry – it is not simply a result of CMS programmes.

CMS Partnerships in Action

General Motors

Mike Knoblock, Worldwide Facilities Group, General Motors

GM has thirteen different Tier I chemical managers in North America implementing CMS in 95 per cent of GM North American plants. GM's CMS programmes only cover their indirect chemicals – such as the paints used in their facilities, not direct chemicals used on the product vehicles. But for every direct chemical used, Mike estimated there are 10 – 15 indirect chemicals. The GM Poland plant does incorporate direct chemicals in the CMS programme, but elsewhere, there have been difficulties with the inclusion of direct chemicals, such as greater risk; cultural barriers (paint personnel do not want to hand over the responsibility to outsiders), quality issues, and determining who has the responsibility or liability.

GM summarised the successful integration of CMS into GM facilities as a paradigm shift in the approach to supplying chemicals and chemical services and a cultural change in the way suppliers are received into the manufacturing team. GM is now looking to develop a common approach to CMS that can be implemented across Europe and North America.

For GM, benefits of other CMS programmes have included the increased accountability and ease of reporting to the government. In addition, there have been some unexpected benefits resulting from CMS, such as implementing closed-loop material conservation and recycling programmes – they are able to trace the recovery and recycling rates on a facility and chemical basis. Finally, through the CMS programmes, GM is able to think strategically and technically about the substitution of less hazardous chemicals.

Looking at some of the potential difficulties of implementing CMS, Mike stressed that CMS is about partnership - GM needs to be a good customer to the chemical services provider, to find their

requirements and know what they are asking their suppliers to do. It is crucial to understand the scope, requirements, and expectations of the programme, and for GM to define its expectations and commitment. In addition, phasing in a CMS programme according to a set plan will ease the transition process.

Stan Klocek, Executive Vice President, Haas TCM

Haas stopped producing chemicals in 1995, and now exclusively provides chemical services to 120 facilities worldwide. They have customers in the automotive, aerospace, electronics, and aviation industries. Their chemical management offering is based on a total cost approach – in addition to the cost of purchase of the products, there are additional direct costs, labour, waste, safety, administration, spill, and compliance cost factors. Benefits of CMS include cost reduction and chemical use reduction, and in addition, reduced insurance cost. The majority of cost savings for the customer come from management costs, not from squeezing down the purchase price of chemicals. In addition, savings made in management costs are repeatable, consistent savings, whereas purchasing costs will always fluctuate.

To overcome the potential difficulties of implementing CMS in a union facility, Haas manages its relationship with unions by emphasising that they are creating a safer environment for people to work in. Stan stressed that the partnership element of CMS is very important toward understanding how the customer is approaching the contract. In drawing up the financial model, it is important to link baseline chemicals use to production levels. From Haas' experience, CMS does not work on a fixed fee basis, as the customer has no incentive to make changes.

Discussion focused on the long-term role for the CMS provider. Haas suggested that a typical model is that the CMS provider continues to make profits from reducing costs, because the customer-supplier relationship is a dynamic process, which is constantly changing, particularly when new facilities are included in the program.

Airbus

Mark Davies, UK and Nordics Key Account Manager and Tina Fairley, Business Development Manager – Aerospace Industries, Castrol – Specialised Industrial

Castrol has both a product and a service business, and each has a separate management team. They manufacture and supply metalworking and high performance lubricants to the equipment manufacturing industry, and currently have 300 sites providing fluid management.

For Castrol's program with UK Airbus, the initial customer for total fluid management was the maintenance department. They moved from simply outsourcing non-core activities to integrating Castrol into the value-chain as part of the process. The fluid management system at Airbus is an outsourced fluid management programme providing a strategic and unique partnership involving people, products, and processes. A significant driver for moving towards a fluid management system (FMS) was environmental issues-- UK Airbus lacked consistent knowledge and data of their chemical use and wanted to increase the amount of chemicals getting recycled. Other drivers included risk management, misting, monitoring need, and cost avoidance.

There have been significant up-front benefits of implementing FMS - the challenge for Castrol now is to maintain these advantages and find additional benefits. In Phase A, they have introduced recycling and a swarf process, resulting in cost savings, reduction in swarf volume, greater risk control, and EHS improvements. In implementing Phase B of the Airbus project, the programme will incorporate procurement and management of chemicals and investigation of cost improvement programmes. This model will be taken to other sites.

Implementing the model has created some difficulties, in particular with the unions. In addition, there are cultural barriers to overcome in shifting from a commodity/price driven mindset to savings through the service programme. Castrol identified some key lessons for companies entering into FMS projects, including partnership, clarity of common objectives, benchmarking, openness of information, change management, and recognition that benefits go beyond the product price.

Case Studies of CMS in the UK and Europe

Paul Hodges, Chairman, International E-Chem

Paul related the experience of ICI Watercare, a CMS programme in the UK providing integrated water treatment solutions based on the application of chemistry, process control, and engineering. In this model, ICI moved to gainsharing through partnership, and customers benefited from a lower-cost solution which they couldn't have developed themselves, using ICI's membranes technology and expertise. ICI sold the combined expertise of technical staff as well as the commodity. Environmental benefits of the programme included reduced chemical use and innovative use of clean technologies that resulted in reduced risk.

Because of this experience, ICI learned that it is essential for customers to buy-in at all levels of the organisation, benefits often incur short-term costs, and there are cultural barriers to overcome in implementing the model. But in summary, this business model is profitable for everybody concerned, and enables both the supplier and their customers to add value at an economic, environmental, and social level.

Andy Benson, Account Manager, PPG Polska

PPG Industries is a global supplier of coatings, glass, fibre glass, and chemicals. At a greenfield Opel site in Poland, they are implementing a CMS programme that covers direct materials, process management, mix room, logistics, storage, quality control, maintenance, cleaning, indirect materials, consumables, and chemical management. PPG is fully integrated in Opel's processes, for example process engineering and operating the plant.

For PPG, CMS is based on partnership – the mindset of the customer and supplier has to change for a program to be successful. It relinquishes the need of the customer to deal with sub-suppliers (Tier II), as these are now managed by PPG. If PPG wants to change the Tier II supplier for an indirect chemical, they can do so without approval from the customer. If it is a direct chemical, PPG needs to obtain engineering approval.

Working with Opel has achieved cost savings and chemical reduction both by changing processes and introducing new materials. Environmental achievements of the programme include reduction in chloride concentration in waste water and a reduction in waste water sludge. The programme is generating cost savings for the customer of 10,000 Euro/month. In addition to providing a cradle to grave approach, PPG offers hazardous materials expertise, including expertise on local regulations.

Thomas Jakl, Head of Chemicals, Austrian Environment Ministry

Thomas outlined the Austrian approach to CMS. The Austrian government has conducted a study of the potential for this model to be applied in the Austrian chemicals industry. The objectives are to decouple economic growth and product turnover, focus on the functions provided by chemicals, investigate the potential win-win results, and ensure the Austrian chemicals industry is fit for the new EU chemicals policy. He stressed that the new EU chemicals policy mandates a close

relationship between upstream and downstream chemicals industry, especially to meet the information management necessary within REACH.

Whether companies adopt a leasing model or the CMS model will be decided on a case by case basis, but the Austrian government is encouraging the change of ownership offered by CMS. They are currently looking to disseminate best practices. There are, however, some outstanding issues to be addressed, for example, the potential for waste management companies to lose out from this model.

Brian-James Rothwell, European Industrial Manager, Henkel

Henkel provides a complete range of chemical management services, managing the process related to the use of chemicals and taking responsibility for the agreed result. Customers are therefore able to concentrate on design, manufacture and marketing of their products.

Through a chemical management system, Henkel can guarantee total cost reduction, including a reduction in capital costs. Customers benefit from process improvement, the ability to concentrate on core competencies and onsite support from Henkel. Environmental benefits of their programmes include the introduction of environmentally-friendly products, single source of product formulations, a clear inventory of chemical consumption, an inventory of waste sources, reduction in chemicals consumption, and reduction in the quantity of effluent water produced.

Software and IT links are very important in delivering the exchange of information required in implementing the CMS programme. The overall key to success for implementing CMS was highlighted as a good customer relationship, defined as top management support of the customer, active involvement from the customer, and a commitment between both companies for financial success.

Panel Discussion: Barriers and Opportunities for CMS in the UK and Europe

Chair: Peter James

Panel: David Bowe, MEP

Mike Knoblock, General Motors

Geoff Drury, PPG Industries

Andrew Leech, Quaker Chemical Corporation

The discussion focused on what needs to be done to implement the CMS model in the UK. The chemicals industry is the third largest industry in the UK. As such, participants felt that the Government and European Commission have the role of stimulating CMS. The regulatory climate and a strict liability regime are important drivers. Legislation is going to continue to change and CMS offers a solution based on knowledge of that legislation. For example, through OSPAR there is a commitment to significantly reduce emissions by 2020. CMS offers guaranteed compliance with that legislation. The upcoming REACH legislation will mean that chemicals go off the market. Chemical users are not yet aware of how the legislation will impact their chemical use, and they are going to need their suppliers to provide a new package very quickly, as existing chemicals are taken off the market. This presents an opportunity for CMS providers. Participants agreed on the need for a regulatory framework that supports the take-up of CMS, but some felt that REACH policy was actually just creating uncertainty, for example on liability.

CMS makes good business sense. The manufacturing companies themselves can push for CMS, when they realise they are managing far too many chemicals. Through a technical review, it is possible to find the right chemicals for the purpose. In addition, customers want new materials

technology and new process technology, which can be offered through CMS. Some participants felt that overall, economic costs drive the case for CMS. Disposal costs can be much more important than the environmental benefits of implementing CMS.

Meanwhile, it was stressed that there are CMS programmes in place in Europe (there are five GM plants with CMS), and that we simply need to work out how to make this more widespread. Suppliers are very important and there needs to be a demand pull from, for example, the auto industry. Participants felt that difficulties arise when the customer doesn't value the service their chemical supplier is offering, so there is a need both for a good quality CMS solution, and also for it to be valued.

The following points summarise the key suggestions to take this model forward in the UK:

- A successful pilot project with measures to ensure it will be used to disseminate best practice and encourage widespread take-up of the CMS model;
- A matchmaking service to bring suitable CMS providers and customers together. Participants felt that there needs to be much more partnership along the supply chain and distribution network, and connection between different trade associations through the supply chain;
- Lobbying Environment Ministers;
- A grant scheme for chemical companies to implement CMS (for example, in France there is a grant for wastewater technology);
- A tax to raise revenues and provide incentive;
- Education of chemical users- the customer is not aware of what chemical management costs;
- Communication with the Engineering Employers Federation, and getting them to inform their customers and members;
- Training people who are going to become chemical managers, as part of their education;
- Getting the environmental movement to demonstrate what is happening with CMS and the environmental benefits of the model.

Future Directions for CMS and Closing Remarks from Participants

Rebecca Willis, Director, Green Alliance

Tom Votta, Deputy Director, Chemical Strategies Partnership

Green Alliance will be taking this work forward, looking both at chemical management services and the service model more generally. Further details of our future project activities are available at www.green-alliance.org.uk/Programmes_ServiceInnovation.htm and through the email network (see website for details of how to join). CSP and International E-Chem have a proposal to set up a pilot project in the UK, to start in autumn 2003. For further details, contact Tom Votta, Deputy Director, CSP at tvotta@tellus.org.

The key finding from this workshop is that CMS is actually further along in Europe than we initially thought. In some industry segments, CMS is advanced. There are full CMS programmes in place, particularly in the automotive and aerospace sectors. It is necessary to make use of these existing case studies and historic data to establish best practice information. Moving forward, there is a need to systematically test the potential barriers and opportunities for CMS in the UK – which is a key aim of the joint CSP/International E-Chem project. The main direction for future work will be raising awareness of the CMS model in the UK and Europe, in particular amongst downstream users and manufacturing companies.