



## **Chemical Management Services** a next generation chemical supply strategy

Chemical Strategies Partnership 423 Washington Street, 4<sup>th</sup> Floor, San Francisco, CA 94111, USA www.chemicalstrategies.org

### What is the Chemical Strategies Partnership?

- The Chemical Strategies Partnership (CSP) is a non-profit project funded by foundations, government, and private companies
- CSP is helping to promote the economic and environmental benefits of improved chemical management

### The CSP Mission

To reduce chemical use, waste, and cost through transformation of the chemical supply chain

### **Chemical Strategies Partnership (CSP)**



Chemical Strategies Partnership"

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### "Green Servicizing"

A business model that provides a more eco-efficient alternative to an existing economic function and moves to dematerialize economic activity.

Waste hauling $\longrightarrow$	pay \$/lb for waste> hauling	"resource management" services
Energy	buy energy (/kwh) $\longrightarrow$	buy energy efficiency services
Meetings>	fly or drive to meet $\longrightarrow$ in person	use telepresence conference systems
Personal mobility $\longrightarrow$	own an automobile $\longrightarrow$	use car-sharing services

Producing more economic activity with less energy, material inputs, and waste

### What are Chemical Management Services (CMS)?

- Strategic, long-term contract for chemicals *and* associated management services
- Goes beyond invoicing and delivering product; CMS optimizes processes and continuously reduces chemical lifecycle costs, risk, and environmental impact
- High quality, low cost system for expert chemical management and continuous improvement
- Aligns incentives for business and process efficiency improvements that reduce chemical volume and costs
  - From "more is more" to "less is more"
  - Documented cost savings

# Under the CMS Model, formerly conflicting incentives are aligned



### The chemical lifecycle's unique requirements



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### The enterprise cost of chemical use is significant



Source: Tom Bierma, Illinois State University

These management costs can be large: up to \$3 for every \$1 spent on chemicals.

However, these are often overlooked because they are hidden among many department budgets.

### CMS case Study: Raytheon Company

## Drivers for Raytheon to improve chemical management:

- Reduce costs
- Outsource functions that were not a core competency
- Improve data management

#### Key findings of baseline analysis

- Ratio of chemical purchases to management costs were about 1:1
- 20 discrete organizational functions supporting chemical management
- 6 different information systems



#### **Chemical management cost baseline**

### CMS case study: Raytheon Company

#### Scope of the CMS program

- 45 sites
- 98% of Raytheon N. America chemical spend

#### **Improved Service and Quality**

- On-time delivery increased from 82% to more than 96%
- Scrap rate reduced by greater than 90%

#### **Reduced Costs**

- Payback of the program in the first 6 months
- 18% net savings in first 2 years (after paying for the CMS provider fees)
- After 5 years, greater than 60% gross savings

**Streamlined Operations** (started with ~20,000 chemicals, 1000 waste profiles)

- Automated ordering, chemical gate-keeping, consolidated sourcing
- On-line MSDS and EHS data for reporting
- Chemical use and waste generation tracking
- Off-site inventory management and JIT delivery to points of use
- Full quality and certification flow downs
- Process efficiency improvements to reduce chemical use and waste

### CMS case study: Raytheon Company

Benefits	Before	After
Commodities Cost Savings	Minimal	15.5% (greater than 40% when adjusted for CPI-Chemicals)
Accounts Payable (FTE)	5	1
Purchase Orders/Yr	43,000	0
Sites in Program	0	45
Suppliers	1,300	1
MSDS Processed/Yr	2,000	0
Inventory Turns/Yr	3	52
Inventory Value	\$7 MM	\$0.5 MM
Warehouse Floor Space	>120,000 sq. ft.	<9,000 sq. ft. (93% reduction)
Inventory Spoilage	\$3,700,000/Yr	\$280,000/Yr
Acceptance Rate	96.93%	99.9%
Headcount	75	35 (Mostly CMS Provider staff)

### **CMS Case Study: Raytheon Company savings**



### **Raytheon's GHG Profile**



### CMS case study: Seagate Technology

### Benefits realized in first twelve months at one facility

- Aligned incentives and guaranteed savings supplier generates no profit from volume sales
- Reduced onsite chemical inventory/handling
  - Reduced 10,000 sq. ft. of inventory by 50%
  - Reduced \$800,000 in carrying costs of chemicals
  - Eliminated chemical scrap approx. 7% of inventory
- Improved chemical processes/shared best practices
  - Photo-resist process: substituted more benign product and extended bath life 3-5 times, resulting in savings of \$50,000/month
- Eliminated distributor markup on chemicals

### **CMS** market penetration

12 major market sectors utilize CMS services.

All sectors have shown increasing or steady use of CMS over the past five years, except for the automotive sector.

TABLE 3. Providers' Estimates of CMS Market Penetration in the U.S.			
Sector	Avg. Market Penetration 2009 (%)	Est. Market Penetration 2004 (%)	
Automotive	57	75-80	
Automotive Suppliers	41	30-40	
Heavy Equipment	33	15-25	
Aerospace	45	25-30	
Electronics	33	30-40	
Air Transport	41	40-50	
Energy/Utilities	17	<10	
Steel Manufacturing	22	20-30	
Misc. Manufacturing	19	<10	
Food/Beverage	15	<10	
Research/Laboratory /Schools	16	<10	
Pharmaceuticals /Biotech	26	<10	

Source: CMS Industry Report 2009

### CMS program cost savings

Providers estimate their customers' Year One hard savings as a result of their CMS program to be as high as 41-50%.

Customers continue to realize savings through Year 10 of their CMS programs.



Source: CMS Industry Report 2009

### How does CMS reduce costs?



### **International CMS activity**



Source: CMS Industry Report 2009

# CSP continues to address barriers and promote improved chemical management

- Introduce CMS into new sectors with public/private funding (university/research labs, municipalities, pharma/biotech)
- Assist in developing CMS programs to accelerate adoption in sectors already using CMS (electronics, aerospace, etc)
- Develop tools (metrics, manuals, etc)
- Disseminate information (workshops and trainings)
- International initiatives (Asia, Europe)

# CSP conducts these activities with support from the US EPA, state governments, foundations and CSP members

### Questions

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