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Innovative Chemical Supply Contracts: A Source of Competitive Advantage

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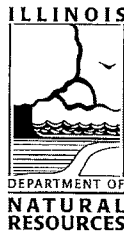
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Innovative Chemical Supply Contracts

A Source of Competitive Advantage

by

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Innovative Chemical Supply Programs

A Source of Competitive Advantage

Larry Petty studied the data he'd collected on the electrocoat process. This was a critical quality step at Chrysler's Neon Assembly Plant in Belvidere, Illinois, providing essential corrosion-resistance to the automobile. Yet, he also recognized that the process was wasting valuable electrocoat paint. In the process of coating key corrosion areas, other areas of the body not subject to corrosion were being coated too heavily, wasting paint, adding weight, and providing no benefit to the consumer.

Traditional chemical supply relationships are inherently wasteful. No business can afford such losses.

After months of study, Petty found a way of remounting the electrodes which applied all the paint needed for corrosion-prone areas, yet significantly reduced both excess paint usage and the time it took to perform the electrocoat operation. Management was thrilled! The

changes reduced the amount of electrocoat paint they needed and saved them a considerable amount of money. Petty was the kind of employee any manufacturer would want to have.

But there is something wrong with this picture. Petty wasn't a Chrysler employee - he worked for PPG, the company that supplied the electrocoat paint! And his hard work significantly reduced the amount of paint that Chrysler would need from PPG! Should Petty start looking for a new job? Not at all. In fact, at PPG and a growing number of other suppliers, these sorts of changes result in an employee bonus! Petty is part of a Chrysler/PPG team working to continuously reduce chemical costs and wastes at the Belvidere plant.

For manufacturer's using an innovative chemical supply relationship which we call **Shared Savings**, these are everyday experiences. They have radically changed their approach to chemical management and found a way to turn their chemical supply relationships from being a headache and a burden into a source of profit and competitive advantage. These manufacturers no longer buy chemicals, they only buy chemical performance. Under the financial incentives for *Shared Savings*, suppliers actually make more money by helping manufacturers use less chemical.

This booklet explains the basic elements and benefits of Shared Savings. Four manufacturing plants, with over 30 years of combined Shared Savings experience, are profiled to illustrate the actual application of these programs. Included are names and telephone numbers of contacts at each plant who are willing to provide

additional information about their experiences. However, it is first useful to examine what is wrong with traditional chemical supply strategies and how these can lead to many of the chemical problems that companies experience every day.

Why it's Time to Change Your Chemical Management Strategy

In this booklet, we profile four manufacturing plants that have used *Shared Savings* to dramatically improve their chemical management programs. All of them faced the same external pressures that are squeezing most companies today:

- **Quality** - increasing customer expectations for product quality.
- **Service** - increasing customer expectations for service.
- **Cost** - increasing demands for efficiency and cost reductions.
- **Timeliness** - rapidly changing market conditions and customer expectations.
- **Regulations** - increasingly complex regulatory requirements.

For most companies, these five external pressures have taken their toll on internal chemical management programs. The list of typical symptoms may sound familiar:

- *Controlling chemical purchasing is a nightmare* - its hard to keep track of who has purchased what.
- *EHS compliance for chemicals is overwhelming* - maintaining current MSDS's, employee training, environmental reporting, and other requirements are a never-ending struggle.
- *Regulatory changes are hard to keep up with* -- it's difficult to be certain which laws and regulations apply.
- *Improvements in process technology are hard to keep up with* - improving technology is essential, but it can be expensive, confusing and risky.
- *Chemical expenses continue to increase* - the price of chemicals just keeps going up.
- *EHS expenses continue to increase* - as compliance costs rise, EHS looks like more and more of a burden to the company.

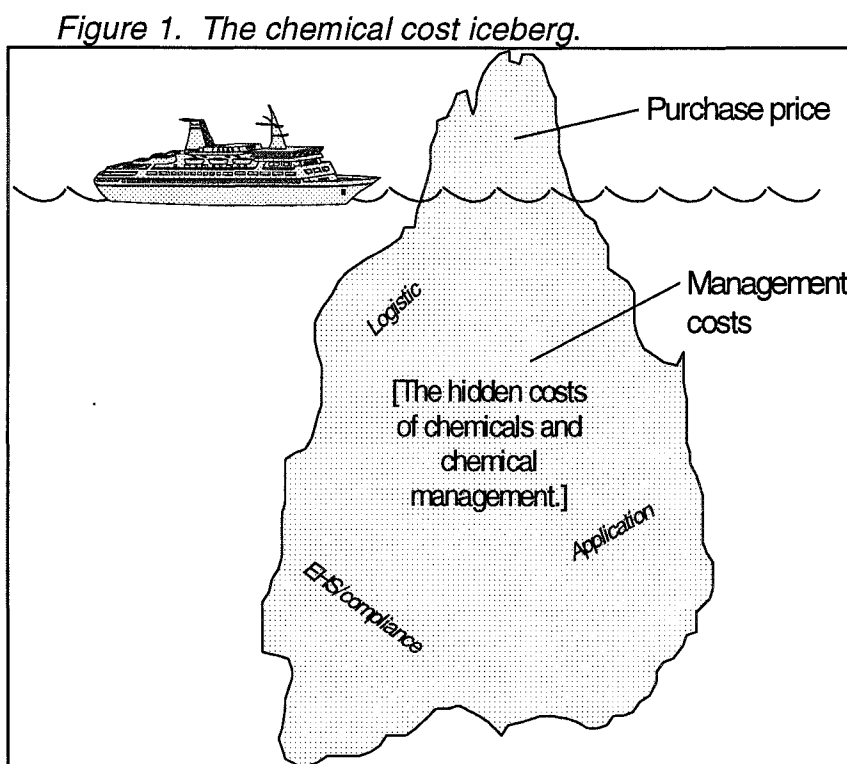
A major factor contributing to the existence of these problems is that most companies' chemical supply strategies have not kept pace with the external pressures they face, placing an overwhelming burden on their chemical management program. This is why it may be time to change your chemical management strategy. Traditional chemical supply relationships are inherently wasteful and drain a company's resources. Innovative supply relationships, particularly *Shared Savings*, not only reduce waste but expand environmental capabilities and help a company cope with its external pressures. Moreover, the *Shared Savings* process can change recognition of EHS programs and personnel from that of being cost burdens to being valuable assets contributing to the competitive success of the firm.

programs and personnel from that of being cost burdens to being valuable assets contributing to the competitive success of the firm.

The Real Cost of Chemicals

Imagine chemical costs as a large iceberg (Figure 1). The visible portion of the iceberg - the part above the water - represents chemical purchase costs. However, the use of chemicals creates a series of "hidden" costs for the firm, such as ordering, storage, compliance, treatment, or waste disposal costs (see Table 1). Chemicals can also create headaches for companies such as dealing with problems of chemical quality, incompatibility with the production system, paperwork, or health and safety concerns. These all represent the hidden cost of chemicals - the portion of the iceberg below the water.

Most "hidden" costs fall into one of three categories: logistic, EHS/compliance, and application. *Logistic costs* include all those related to acquiring and handling the chemicals. *EHS/compliance costs* are those required to maintain regulatory compliance and assure the desired level of environment, health, and safety (EHS) performance. *Application costs* are those related to the performance of the chemicals in the production process. All categories include not only chemical-related expenses, but other impacts on competitive strength, such as lower product quality and poor working conditions. Examples of each type of "hidden" cost are presented in Table 1.



Thus, chemical purchase costs are only a small portion of total chemical costs for the typical chemical user. In fact, one U.S. auto company estimates that hidden costs, the portion of the iceberg below the water, is 5-7 times greater than the purchase price of the chemicals, the tip of the iceberg. As with real icebergs, the portion above the water often attracts the most attention, but the portion below the water produces the greatest threat. The relationship between a chemical user and chemical supplier can have a dramatic effect on the size of the chemical cost iceberg.

Table 1. Examples of “Hidden” Chemical Costs

<u>Logistic</u>	<u>Application</u>
Chemical purchasing system management	Value of material in waste
Inventory management	Equipment and tool life
Chemical handling	Lost production time from poor chemical quality and incompatibility
	Lost production time from chemical handling and maintenance
<u>EHS/compliance</u>	Product defects from poor chemical quality and incompatibility
Waste treatment	
Waste disposal fees	
Environmental compliance	
Health and Safety compliance	
Insurance	
Liability	
Keeping up-to-date with regulations	
Labor concerns about health and safety	

Knowledge and Core Competence

Consider the size of the chemical iceberg from your own company’s perspective (or from a company you know). From Figure 1 and Table 1, consider the hidden costs, below the water line, as well as the purchase price of these chemicals. On a scale of 1 to 5, with 1 being “very small” and 5 being “very large,” estimate the size of your own chemical cost iceberg (you may use the worksheet provided in Figure 2).

Do you know how to reduce the size of that iceberg? How certain are you about what regulations apply to the chemicals in your plant? What technologies are available to reduce chemical waste? Or how to maximize the efficiency of your chemicals? On a scale of 1 to 5, with 1 being “I know exactly how to reduce my chemical iceberg” and 5 being “I haven’t got a clue about how to further reduce my chemical iceberg,” estimate your own level of certainty.

Using Figure 3, estimate in which Quadrant your company is located. If you are in Quadrants I or II, you are very fortunate - chemicals place a relatively small burden on your firm. If you are in Quadrant III, you have probably devoted significant time and resources to maintaining your chemical expertise, and now your path to a smaller iceberg is somewhat easier. If you found yourself in Quadrant IV, you are not alone. Most manufacturers have a large chemical iceberg yet they are uncertain about how best to reduce it.

If you are in Quadrants III or IV, one concern should be “core competence.” Most companies are not in the “chemical business.”; their core competence is metal fabrication, printing, assembly, manufacturing ,etc. Maintaining a high level of expertise is an expensive and time consuming activity. In fact, companies in Quadrants

Figure 2.

Chemical Impact Worksheet

1. CHEMICAL IMPACT

Consider the chemicals used by your company. How significant are your.....

	No Problem			Just Terrible	
• Purchase costs	1	2	3	4	5
• Ordering costs/headaches	1	2	3	4	5
• Waste disposal costs/headaches	1	2	3	4	5
• Environmental compliance costs/headaches	1	2	3	4	5
• Potential environmental liabilities	1	2	3	4	5
• Health and Safety concerns	1	2	3	4	5
• Inventory management costs/headaches	1	2	3	4	5

2. UNCERTAINTY

Do you understand how to reduce the impact of chemicals on your company? Do you know how to....

	I've got the answer			I've got no clue	
• Improve efficiency of chemical use	1	2	3	4	5
• Simplify purchasing	1	2	3	4	5
• Reduce waste volumes and costs	1	2	3	4	5
• Keep up to date on regulations and reduce compliance costs	1	2	3	4	5
• Minimize environmental liabilities	1	2	3	4	5
• Reduce or eliminate health and safety concerns	1	2	3	4	5
• Simplify inventory management	1	2	3	4	5

3. MARK DIAGRAM- Summarizing your overall response to Questions #1 and #2, above, please mark your approximate position on the diagram in Figure 3.

management represent a drain on production capability. In reality it is an attempt by the chemical user to duplicate the knowledge and expertise of their chemical supplier - who's core business is chemicals. Many chemical suppliers could provide in-plant chemical management services far more efficiently than the companies using the chemicals, were it not for the conflicts that arise from an inherently wasteful relationship.

Inherently wasteful relationships

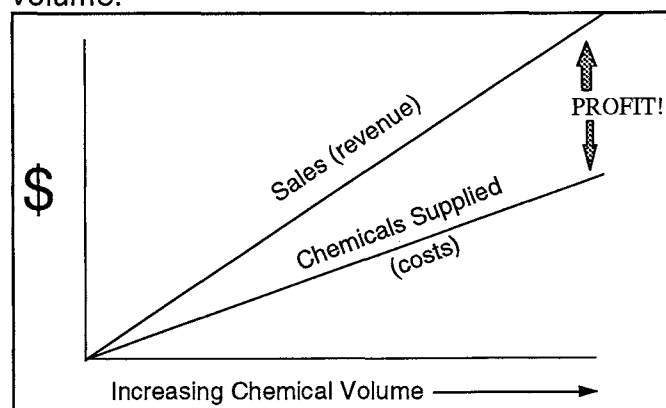
Ideally, chemical suppliers should be applying their expertise to reduce the chemical cost iceberg. Yet, we have found that the nature of traditional relationships between chemical users and chemical suppliers makes significant reductions difficult. In many instances, the relationship produces continuous *increases* in chemical cost rather than reductions.

There are two major problems with traditional chemical supply. First, the relationship creates the wrong financial incentives for the supplier. The traditional chemical sales model rewards waste and inefficiency rather than performance and efficiency. Second, the division of responsibilities between chemical user and chemical supplier is based on traditional or arbitrary boundaries. This arbitrary division of responsibilities completely ignores the efficiency and effectiveness with which each party can perform necessary activities associated with the chemicals, and further disconnects the supplier from the ultimate performance of their product.

Financial Incentives

In traditional chemical supply relationships, the supplier increases profit by increasing the volume of chemicals sold (see Figure 3). The supplier is continuously driven to increase chemical sales to increase profit. Aside from promoting waste, this "volume conflict" creates an inherent adversarial relationship which inhibits the free flow of useful information that could reduce chemical usage and costs. Subsequently, it creates a degree of mistrust between users and suppliers, reducing the ability of both parties to work together to improve the total financial potential of the relationship.

Figure 3. Traditional supplier relationship - a supplier's incentive to increase chemical volume.



In addition, chemical performance typically occurs long after the chemical has changed ownership on the loading dock and the supplier has been paid, separating the supplier

from direct responsibility for chemical performance. Though a supplier may be called in to address chemical performance problems, it is “after the fact” and only indirectly related to the supply transaction, encouraging suppliers to focus more on sales than performance.

Division of Responsibilities

Traditionally, chemical responsibility and ownership change on the loading dock of the manufacturer, as a chemical drum is unloaded from the supplier’s truck and received by the manufacturer’s employee. This would seem to be a natural point for transferring management and legal responsibility while simplifying accounting practices, but it produces enormous inefficiencies. This arbitrary division of responsibilities completely ignores the knowledge and experience that each party can contribute to the relationship regarding the application and management of the chemicals.

Can chemical users tap this tremendous latent profit potential in chemical supply relationships? Some examples from the automotive industry suggest they can.

Chemical Supply Alternatives

Chemical supply relationships can be setup in a number of different ways. Figure 4 present a hierarchy of chemical supply relationships. Movement up the hierarchy represents increasing value for the chemical user. Each level in the hierarchy is discussed briefly, below.

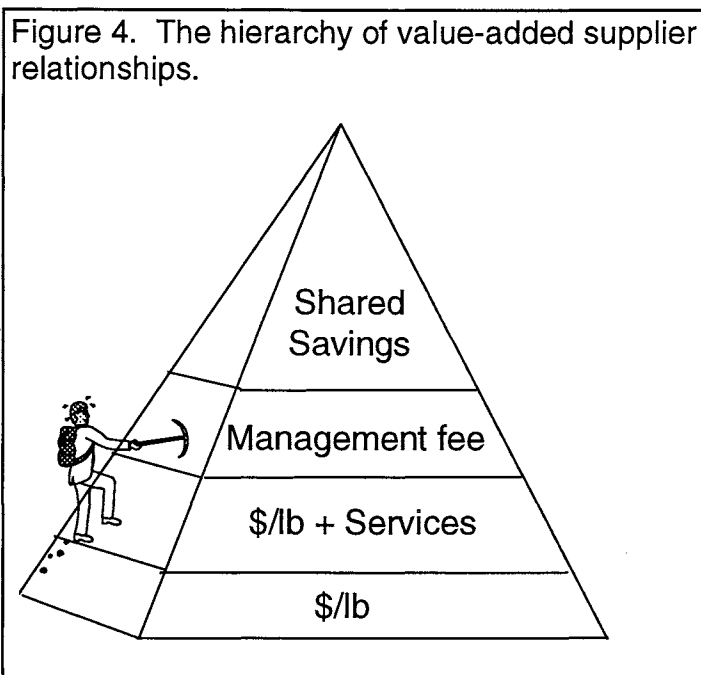
In a ***\$/lb*** relationship, chemicals are sold on a dollar-per-pound (or gallon) basis. Chemical suppliers compete for business primarily on the basis of price alone and profit through sales margins on their chemicals. Suppliers may provide some value-added services, such as timely delivery, but services are usually not a driving force in these relationships. This is a simple and well understood transactional relationship. However, it promotes narrow, short-term decisions and rewards the supplier for the user’s chemical waste by linking supplier revenue to chemical volume.

A ***\$/lb+Services*** relationship represents a significant increase in value for the chemical user. Chemicals are still purchased on a dollar per pound basis, but associated chemical management services are a much more prominent part of the package. In fact, the additional services can be the primary factor for users selecting a specific supplier. Prices are competitive, but not the lowest. Suppliers profit from slightly higher margins, but also hope to retain or expand customer sales by providing better value-added services than their competition. Services typically fall into three general categories: *logistic*, *EHS/compliance*, and *applications*.

In a ***Chemical Management Fee*** relationship, the supplier receives a fee to provide specific chemical management services. The cost of chemicals is still passed through

to the user based on volume, but management services are paid for as an itemized fee rather than through higher chemical prices.

Chemical users benefit from the Chemical Management Fee relationship in two ways. First, many chemical management activities previously performed by the user can be shared with the supplier, who is able to bring greater knowledge, resources and experience. This includes chemical management ideas and technologies not previously available to the chemical user. Second, the use of a management fee which is independent of chemical purchase costs, reduces the incentive for the supplier to increase chemical volume in order to increase revenues. More of the supplier's revenue is linked to services rather than the volume of chemical sold.



A **Shared Savings** strategy, however, is very different. In a *Shared Savings* relationship, financial incentives align the supplier's performance goals with those of the chemical user. In a chemical management relationship the goal is to continuously reduce chemical use and waste while continuously improving product and process quality. The supplier and the user then "share the savings" gained from reduced chemical volume and improved processes. To achieve these chemical operating efficiencies, the responsibilities associated with all aspects of chemical management program are divided between the two parties based on respective core competencies. Simply stated the user defines chemical performance specifications and the supplier takes direct responsibility for insuring the performance of all chemicals.

The typical financial arrangement in a *Shared Savings* relationship is a fixed fee mechanism. Instead of purchasing chemicals, the user pays a fixed fee (per month or per unit of production) to the supplier. The supplier agrees to meet the "chemical performance needs" of a plant or process. In other words, the supplier provides chemical services and chemical performance rather than the chemicals themselves. Typical features of a *Shared Savings* relationship are presented in Table 3.

Since the supplier's revenues are fixed, it has an incentive to reduce chemical costs in order to increase their profits. Cost reductions come primarily through improvements in chemical management and use efficiency. As shown in Figure 5, the cost reduction incentive aligns the interests of the chemical supplier with the interests of the chemical

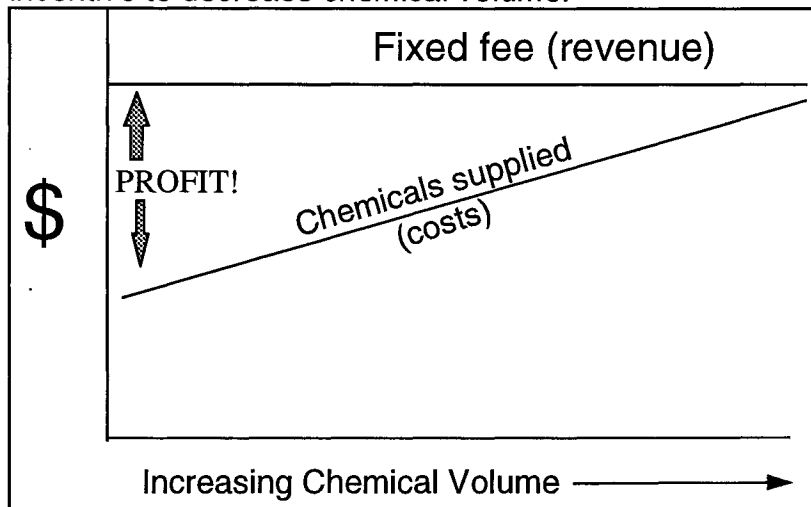
user - to drive chemical volumes down. This is just the opposite of the typical chemical sales relationship (Figure 3).

In addition, this aligning of interests between user and supplier provides a foundation for sharing a wider array of chemical management responsibilities. Because there is a greater basis for trust, both parties are able to share information more openly and invest jointly in projects with large, yet longer-term, payoffs.

Simply stated the *Shared Savings* relationship is one strategy to turn the

inefficiency and waste of traditional chemical sales relationships into increased profit for both the chemical supplier and user. Some examples of companies using *Shared Savings* relationships, and the benefits they have enjoyed, are summarized below.

Figure 5. *Shared Savings* relationship - a supplier's incentive to decrease chemical volume.



Shared Savings Case Histories

We studied the *Shared Savings* programs at four manufacturing plants.

- Navistar International's engine plant in Melrose Park, Illinois (Castrol Industrial, supplier),
- Chrysler's Neon assembly plant in Belvidere, Illinois (PPG Industries, supplier),
- Ford's Taurus assembly plant in Chicago, Illinois (PPG/Chemfil, supplier), and
- General Motors' Truck and Bus plant in Janesville, Wisconsin (BetzDearborn, supplier).

These case histories are available in a separate publication from the Illinois Waste Management and Research Center. But, key elements of the four *Shared Savings* relationships are summarized in the breakouts on the following pages.

Common Contract Structure

Though the *Shared Savings* program at each of the four plants have many characteristics in common, two components of the contract were the most essential, one that promotes chemical performance, and a second which drives continuous cost reduction. Each is discussed below.

Performance

Chemical performance is promoted through the use of Performance Expectations, and corresponding Performance Fees:

Performance Expectations: Chemical users must begin by defining their chemical performance expectations. Chemical users must clearly define what the chemicals are expected to *do*, not just the type and volume of chemicals required. Performance expectations may include product quality expectations, equipment operating characteristics, tool life expectations, corrosion limits, etc. Services, such as inventory management or chemical quality assurance, may be included as well. In some cases, specific cost or chemical reduction targets may be included in the Performance Expectations.

Performance Fees: The supplier is then paid a “performance fee” for meeting the Performance Expectations. This fee is typically in the form of a fixed fee per month, or fixed fee per unit of production (known as a “unit price”). The Pay-as-Painted program at Chrysler is an excellent example. Their paint supplier, PPG, is paid a predetermined amount for each vehicle which leaves the paintshop with a finish meeting Chrysler’s Performance Expectations for finish quality. If the vehicle does not meet specifications, PPG does not get paid. This connection between supplier revenue and chemical performance focuses suppliers on assuring the performance of their chemicals rather than simply supplying them.

Continuous Cost Reduction

To drive reductions in the chemical cost iceberg *beyond* the levels set forth in the Performance Expectations, a mechanism must be used to share these additional savings between both parties. Two commonly used mechanisms are the fixed fee payments and gainsharing.

Fixed Fee: Because supplier revenue is fixed through the Performance Fee, and not tied to chemical volume, the supplier can increase profit by finding ways to *reduce* chemical volume and management costs (see Figure 3). In other words, the supplier increases profits by decreasing chemical volumes, just the opposite of traditional supply relationships. Ultimately, some of these savings must be shared with the chemical user so that both parties have incentive to make further cost reductions. One way to do this is to “rebate” some of these savings to the chemical user. Another way is for the chemical user to reduce the Performance Fee to reflect the new, lower chemical costs. A third way is to increase the chemical performance or services provided for the existing fees.

Gainsharing: Another way that savings can be shared is through “gainsharing”. Gainsharing addresses chemical-related costs which are not covered by the Performance Expectations of the contract. These are costs which are borne by

the chemical user, but not the supplier. For example, a supplier may have a technology which would reduce hazardous waste generation which it is not related to the chemical they supply. Since the disposal costs are paid by the chemical user, the supplier has no direct financial incentive to implement the new technology. Under a gainsharing program, the chemical user agrees to share a portion of these savings generated by the supplier's technology with the supplier. The manner in which savings are shared may be determined on a case-by-case basis, or established for the term of the contract.

Common Benefits

The benefits of the *Shared Savings* programs at all four companies have been surprisingly similar (Table 5). Chemical costs have generally remained stable or declined. This is quite a remarkable accomplishment given the length of time that these programs have been in operation. All have experienced additional savings, including reduced purchasing expenses, inventory costs, laboratory and consulting fees. All have achieved improvements in product quality as well as decreases in rework and production downtime. Each company indicated dramatic improvements from the supplier's chemical tracking services, from easier environmental reporting, to better health and safety compliance, to greater control of the production process.

Small Beginnings

Another important insight from the case histories is that all the programs started small, even though the reasons for starting each program varied (some focused more on waste reduction and cost control, others on improving production processes and product quality). This limited the risk for both parties. As the parties earned each other's trust, supplier responsibilities and chemical footprints expanded. It also allowed the programs to expand at a pace that was conformable for both management and production personnel.

<p><i>Table 5. Typical benefits from Shared Savings Relationships.</i></p> <p><u>For the Chemical User</u></p> <ul style="list-style-type: none"> • Reduced chemical volumes and costs. • Reduced waste volumes and costs. • Diverting staff to greater "value-added" activities. • Reduced emissions. • Cash rebates. • Reduced production downtime. • Improved product quality, reduced rework. • Reduced wastewater loading. • Improved inventory control and reduced inventory costs. • Improved health and safety protection. • Easier compliance reporting. <p><u>For the Chemical Supplier</u></p> <ul style="list-style-type: none"> • Expanding chemical and service footprint. • Expanded revenue opportunities. • Customer loyalty. • Opportunities to expand to other plants. • Inside information for market research and development. • Product R&D test opportunities. • Experience that could be used to obtain new accounts.

Navistar Engine Plant, Melrose Park, Illinois

Began first *Shared Savings* program: 1987

Name of current program: Chemical Management Services (CMS)

Supplier: Castrol Industrial North America

Chemical Footprint: Machining coolants, cleaners, and associated additives.

Financial Terms:

- Fixed monthly fee based on historical chemical usage.
- Staffing fee for full time in plant support personnel
- Formula for sharing large financial gains or losses, including rebates to Navistar for large reductions in chemical usage.

Performance Expectations: Quality and performance specifications, including rust prevention.

Supplier Services:

- Chemical acquisition
- Inventory and distribution management
- Container management
- Quality assurance and maintenance oversight
- Testing and lab analyses
- Product and process engineering development
- EHS studies and training
- Process and waste problem solving

Benefits:

- Coolant usage reduced by over 50%, coolant waste haulage reduced by over 90%.
- Up to \$10,000 per year as rebates for reduced chemical usage.
- Reduced production downtime.
- Improved product quality, reduced rework.
- Reduced wastewater loading.
- Improved inventory control and reduced inventory costs.
- Improved health and safety protection.
- Easier compliance reporting.
- Illinois Governor's Pollution Prevention Award.

Ford Taurus Assembly Plant, Chicago, Illinois

Began first *Shared Savings* program: 1988

Name of current program: Total Fluids Management, Total Solvents Management

Supplier: PPG/Chemfil

Chemical Footprint: Most chemicals in the plant, with the exception of paints, sealers and lubricants.

Financial Terms:

- Fixed fee-per-vehicle ("unit pricing") based on historical chemical usage and production.
- Fixed annual fee for selected chemicals which cannot be linked to production volume.

Performance Expectations: Expected annual reductions in the fee per vehicle as well as a "productivity reduction" - a negotiated level of savings to be realized by Ford

Supplier Services:

- Chemical acquisition from Tier 2 suppliers
- Inventory and distribution management
- Container management
- Quality assurance and maintenance oversight
- Testing and lab analyses
- Product and process engineering development
- VOC emission reduction training
- EHS studies and training
- Process and waste problem solving

Benefits:

- VOC emissions reduced by 57% in 18 months.
- Reduced wastewater sludge generation by 27%, saving over \$50,000 per year.
- Steady or declining chemical costs.
- Improved product finish quality, reduced rework.
- Improved inventory control and reduced inventory costs.
- Improved health and safety protection.
- Easier compliance reporting.
- Illinois Governor's Pollution Prevention Award application

Chrysler Neon Assembly Plant, Belvidere, Illinois

Began first *Shared Savings* program: 1989

Name of current program: Pay-As-Painted

Supplier: PPG

Chemical Footprint: all chemicals and systems related to cleaning, treating, and coating the autobody.

Financial Terms:

- Fixed fee per quality vehicle painted ("unit pricing") based on historical chemical usage and production.

Performance Expectations: Quality and performance specifications drive the agreement. PPG's fee is based on producing a quality finish.

Supplier Services:

- Chemical acquisition
- Inventory and distribution management
- Container management
- Quality assurance and maintenance oversight
- Testing and lab analyses
- Product and process engineering development
- EHS studies and training
- Process and waste problem solving

Benefits:

- Over \$1 million in savings from the first year of Pay-As-Painted.
- Dramatic reductions in VOC emissions and other wastes.
- Improved product quality, reduced rework.
- Improved inventory control and reduced inventory costs.
- Improved health and safety protection.
- Easier compliance reporting.
- Four Illinois Governor's Pollution Prevention Awards.

General Motors Truck and Bus Plant,
Janesville, Wisconsin

Began first *Shared Savings* program: 1992

Name of current program: Chemicals Management Program (CMP)

Supplier: BetzDearborn

Chemical Footprint: Water treatment chemicals (powerhouse, cooling towers, wastewater treatment, air houses), paint detackification and booth maintenance, lubricants, maintenance paints, commodity chemicals, purge solvents.

Financial Terms:

- Fixed fee-per-vehicle ("unit pricing") based on historical chemical usage and production.
- Management fees for selected services

Performance Expectations: Unit prices to be steady or declining. Targets for overall plant savings, including annual savings equal to 5% of the value of the contract.

Supplier Services:

- Acquisition and inventory control
- Monitor and coordinate chemical usage
- Research and improve chemical performance
- Maintain lab for chemical and regulatory testing
- Ongoing reporting and communication
- Product and process engineering development
- EHS compliance and training
- Continuous waste minimization

Benefits:

- Over \$ 1 million in savings.
- 8% decrease in chemical costs with significantly expanded services.
- Improved inventory control and reduced inventory costs, as well as product consolidation.
- Training and other programs to improved health and safety protection.
- Chemical tracking for easier compliance reporting.
- Reduced VOC emissions and sludge disposal.
- Reduced downtime and labor cost for sludge clean-out.
- Many other improvements which reduce labor overtime, improve process efficiency, improve product quality, and reduce rework.

Making *Shared Savings* Work for You

Shared Savings may provide a significant competitive advantage to your company. Though implementing a *Shared Savings* program might seem overwhelming, it can actually be accomplished in a series of small, low-risk steps. In fact, before considering a *Shared Savings* program, a company needs to determine where it currently is on the “Value pyramid” and consider moving the supply relationship up to the next step (Figure 4).

A $\$/lb$ supply program can be moved to a $\$/lb + Services$ program either with the same supplier or a new one. Consider which services - logistic, compliance, or production - would be most beneficial to you. Find a supplier who’s service capabilities match your need. This may also be a good point to consider supplier and product consolidation.

**There are many ways
to start a small *Shared
Savings* program**

Existing $\$/lb + Services$ programs can be moved to a *Management Fee* program by contracting for some existing services, or new ones. If existing services are switched to a fee-for-service basis, chemical prices should decline toward the low end of the market price range.

Moving up the pyramid one step at a time can give a company a chance to try out higher-value supply programs without taking undue risk. It can also give a company an opportunity to work with its current supplier to develop a higher-value supplier relationship. An alternative approach is to find a new supplier who can better meet the company’s chemical management needs. A company may wish to move directly into a *Shared Savings* program by selecting a single chemical or process and implementing a program without intermediary steps. Either way, the first *Shared Savings* program does not need to be large or complex. It can start small and expand as a company-specific model is developed.

Though all the companies featured in the case histories now have implemented large *Shared Savings* programs worth hundreds of thousands of dollars, or more, they all started quite small. They all recognized that these high-value programs require a different way of doing business and a different way of working with a supplier - and developing that mindset takes time. Both the manufacturers and suppliers needed to earn each other’s trust before expanding the programs.

Fortunately, there are numerous ways to start a small *Shared Savings* program. At the Navistar engine plant, a *Shared Savings* program was initially implemented with coolants. Castrol started with only one of five central coolant systems. In fact, Castrol began the program by assuming total chemical responsibility for the system experiencing the worst problems in the plant. Navistar believed if the program could solve the problems with that system, it was worthy of further evaluation. Castrol now manages all the coolant systems in the plant. The Ford Taurus plant started with paint detackification, while Chrysler’s Neon plant started with phosphating and paint

detackification. Even GM's Bus and Truck plant, having years of experience at other GM plants to draw on, started their program with only a limited number of chemicals. From these small beginnings, all four programs have grown dramatically. The Ford Taurus plant even changed their supplier several times before settling on PPG/Chemfil.

Gainsharing is another way to implement a *Shared Savings* program on a limited scale. Gainsharing is strategy to share savings resulting from a project initiated by the supplier. The savings split can be negotiated on a case-by-case basis, or a standard share can be established. GM considers gainsharing one of the most valuable components of their programs, since it encourages savings everywhere in the plant rather than just the systems covered by the contract.

Another valuable aspect of gainsharing is that it can be integrated with any of the other supplier programs on the value pyramid (Figure 4). For example, a supplier in a *\$/lb + Services* program for water treatment chemicals, may develop an idea that allows a manufacturer to recycle wood pallets instead of disposing of them. The savings could be shared between both parties. This has some of the same benefits as a fixed-fee program, in that it creates an incentive for the supplier to help save the company money, yet it does not require the other components of a Shared Savings contract.

Common Misconceptions about *Shared Savings*

"I'm already doing that."

Supplier's offer many different chemical management programs with different names. Program names and descriptions are not always a good indicator of the actual type of program they are promoting. When examining existing or proposed supplier programs, consider the following questions:

- What is the financial arrangement with the supplier? That is, what is being purchased: chemicals, or services? Who owns the chemicals in the plant?
- What sort of "volume driver" does this financial arrangement create for the supplier? Will the supplier make more money if chemical volume increases or decreases?
- What services, if any, is the supplier providing (compliance, logistic, or production)? Are the services provided on-site or off-site?
- Are these services based on a analysis of the company's needs and the core competencies of the supplier?
- How are services paid (as part of the chemical price, as a management fee, or as a unit price or other fixed fee)?
- Can the supplier profit from cost saving ideas they bring to the company (gainsharing)?

These simple questions can assist in objectively evaluating a supplier's program. Some suppliers may argue that competition provides an incentive for them to find

strategies to save the company money, reduce chemical use or provide other benefits. While this may be true in some cases, it works only as long as the supplier feels seriously threatened. Routine threats or frequent supplier changes can produce even more wasteful supply relationships. It is much more effective to create the right financial incentives which allow the supplier to share in the value they bring the company.

“I can’t trust my supplier.”

The fixed fee used in *Shared Savings* poses a dilemma: “if my supplier makes more money by reducing chemicals costs, what is to stop the supplier from cutting corners to cut costs, leaving me with a bigger problem in the future?” For example, a supplier of boiler water treatment chemicals might substitute lower quality chemicals in order to reduce their costs, resulting in increased corrosion of boiler pipes.

Avoiding this problem requires that both parties view the relationship as *long-term*. In other words, it must be the ongoing relationship, rather than purely short-term opportunities, that is recognized at the greatest source of profit. In addition, the manufacturer must understand it’s own chemical systems well enough to develop appropriate performance expectations. For example, a chemical user should be able to set reasonable annual pipe corrosion limits, or link supplier compensation to the annual amount of pipe corrosion. With successful *Shared Savings* relationships spanning more than a decade, many companies have clearly addressed this problem.

“I don’t want to give up control.”

This is a legitimate expectation. But it is important to clarify what “control” means. Every manufacturer should retain control over the performance of their own systems. This should never be sacrificed in a *Shared Savings* contract. Unfortunately, when some people say “control” what they really mean is the right to make decisions without supporting data.

Invariably, the people we interviewed at each of the four case study companies spoke of having *greater* control over performance than they had ever had before. This is because the data and expertise at their disposal were more thorough and detailed than ever before. All of the suppliers we interviewed agreed that the customer has the final say in any chemical management decision. However, we found that some people who feared “losing control” under *Shared Savings* were concerned not about performance, but their own prerogatives or privileges. Continuing wasteful practices because “we’ve always done it that way” or buying a particular product because of the “perks” provided by the sales representative are practices which companies are eliminating, whether or not they are adopting a *Shared Savings* program.

“It threatens jobs.”

History has demonstrated that *Shared Savings* initiatives don't work as “headcount reduction” programs. One major automaker has found that plant managers who perceive *Shared Savings* programs as head count reduction programs have encountered numerous problems in program implementation.

Though the efficiencies created through *Shared Savings* can mean that some activities can be performed with fewer people, this usually means that personnel are redirected to more valuable activities. In the companies we studied, suppliers went out of their way to avoid replacing union workers as well as professional staff. Employees were typically overloaded with responsibilities and tasks. These personnel frequently appreciated the assistance of suppliers. This was particularly true of environmental managers, who found the programs not only allowed them to accomplish more, it also raised their profile within plant.

The same is true for the supplier's staff. Fritz Benton, on-site chemical manager for BetzDearborn at the GM Truck and Bus plant provided an excellent example:

“We were going into another plant with a (Shared Savings) contract that included the wastewater treatment plant. The chief operator was getting ready to retire at the time of the contract. However, after we came in and provided advice and helped make a lot of process changes, he said his job had improved so much that he decided to stay another two years!”

Conclusions

The “chemical chaos” experienced by many companies today can be linked, in part, to a chemical supply strategy which has not kept pace with changes in the business environment. The traditional chemical supply relationship uses financial incentives which promote waste. In today's markets, few companies can afford such a drain on competitive strength.

“Shared Savings has proven effective in reducing both waste and the overall costs of chemical use. Supplier revenue is linked to chemical performance, rather than chemical supply, harnessing the resources of the supplier to assure and improve chemical performance. Financial incentives reward chemical volume reduction, promoting continuous improvements in chemical use efficiency. Responsibilities are divided according to the core competence and expertise of each party, reducing overall chemical costs and allowing the chemical user to devote more resources to its core business.

Companies have structured their *Shared Savings* programs in a variety of ways, depending upon their own needs and circumstances. Programs usually begin small,

and expand as both parties build trust in each other. The benefits have been dramatic, with significant decreases in chemical use and waste, as well as reductions in overall chemical costs. The success of *Shared Savings* has been demonstrated in a many manufacturing plants, with some having over 10 years of experience.

Some creative changes in *Shared Savings* may be needed to apply the strategy to smaller manufacturers, or manufacturers with a highly fluctuating production rate or product mix. However, it appears to be currently applicable to a large number of manufacturing plants throughout the world. The primary barrier limiting application of *Shared Savings* will be resistance to the types of changes this relationship entails. However, the competitive edge will go to those companies who are first to overcome this resistance.



Shared Savings Case History

Chrysler Corporation and PPG Industries Belvidere, Illinois Neon Assembly Plant

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Chrysler and PPG at Belvidere Assembly

No one had done it before! Bob Conrad from Chrysler's corporate Paint and Energy Management group was very proud. Scratches or blemishes on the surface of a car after assembly were a major concern for Chrysler, as they are for any automaker. The original paint is cured by high temperature baking, a process that cannot be repeated once the car is assembled. So, traditionally, repairs are made using chemicals which emit large amounts of volatile organic compounds (VOCs).

Now all that had changed. Through extensive research, a method had been developed to use the original paints in a high-temperature baking process, without risking heat damage to other components in the car. This not only produced a higher quality product for the customer, but it also significantly reduced VOC emissions. In addition, it reduced the amount of chemicals needed by the plant and saved Chrysler money.

Larry Petty was just as proud - and Petty works for Chrysler's chemical supplier, PPG! In fact, Petty had initiated the project, and worked jointly with Chrysler to perfect the technology, even though it meant fewer chemicals supplied to the plant. Actually, because it meant fewer chemicals supplied to the plant!

Summary

The Chrysler Neon Assembly Plant in Belvidere, Illinois has had a Shared Savings relationship with PPG since 1989. Originally implemented to service phosphating and paint detackification systems, the program, known as "Pay-As-Painted", now covers all chemicals and systems related to cleaning,

treating, and coating autobodies. The process begins with cleaning the incoming sheet metal and ends with the final clear coat finish applied to the car. PPG is paid a fixed-fee per vehicle. But to fully integrate quality into PPG's responsibilities, the fee is not paid until the vehicle passes a quality inspection leaving the final painting operation.

Working together, the benefits for both companies have been tremendous. Chrysler saved over \$1 million in the first year alone. VOC and solvent usage were dramatically reduced. (The Belvidere plant has won four Illinois Governor's Pollution Prevention Awards.) PPG's chemical footprint in the plant has expanded significantly, and they have Chrysler as a loyal customer.

"The first year at this plant alone there was approximately a million dollar savings in usages - because we're focused now on reducing costs"... Larry Petty, PPG On-site Manager.

The Belvidere Assembly Plant

Built in the early 1960's, the Chrysler assembly plant in Belvidere, Illinois, has produced a variety of vehicles for the Chrysler Corporation. Today the plant assembles over 1,000 Neons each day.

The plant uses an unusual organizational approach to environmental management. The traditional environmental management office is headed by Bob Godare. He and his staff oversee environmental compliance and management for the hundreds of different chemicals used at the assembly plant. However, Chrysler also provides an environmental specialist, Bob Conrad, who is from the corporate Paint and Energy Management program. Conrad focuses his time and efforts on paints and anti-corrosion chemicals used to prepare and treat the autobody surface. Godare and Conrad work closely with one another to coordinate their activities plant-wide.

Together, Godare and Conrad have confronted many of the same challenges that press on other environmental managers. Traditionally, environmental concerns must vie for priority with other concerns - such as quality, cost, and production schedules - for resources and management attention. Integrating environmental interests into the production process is no simple matter in any plant. But the Pay-as-Painted program with PPG has facilitated the integration process. Environmental performance is a key feature in the Shared Saving's agreement and a priority issue on the production floor. The environmental staff play a key role in management of the Pay-as-Painted program.

PPG

PPG Industries began in the late 1800's as a plate glass manufacturer, but expanded into chemical manufacturing as it grew, specializing in industrial paints and coatings. Today, PPG is the world's largest manufacturer of automotive and industrial coatings. Its coatings and resins division manufactures automotive primers and finishes, refinishes, adhesives, and sealants.

"It requires a whole different kind of thinking." - Bob Conrad,
Environmental Specialist,
Chrysler Corporate

PPG's purchase of Chemfil in 1986 provided the capacity to supply a variety of additional chemicals and chemical services. The Chemfil division of PPG now plays a significant role in marketing and servicing their Shared Savings market.

The Chrysler/PPG Relationship

THE CONTRACT*

Chrysler's relationship with PPG as a paint supplier goes back many years. But the innovative Shared Savings program which has developed between them began only in the late 1980's and early 1990's. Known as the "Pay-As-Painted" program. It is named after the most unique feature of the program - PPG is paid per vehicle painted. The program is implemented by a cross-functional Pay-as-Painted team, which includes Chrysler staff from a variety of departments as well as PPG on-site personnel.

PPG is responsible for all the chemicals used to clean, treat, and coat the autobody. The process begins with cleaning the incoming sheet metal and ends with the final clear coat applied to the car. It also includes key quality steps such as phosphating and electrocoating prior to painting. These processes are critical to Chrysler's corrosion protection guarantee.

Bob Conrad, environmental specialist with Chrysler's corporate Paint and Energy Management group explains the program,

"The way it works is that we pay our supplier, PPG, for their chemicals and services every time we produce a good car out of the paint department. We don't own the chemicals, PPG is responsible for them. If there is a problem with a chemical, they take it back or do what's necessary to correct the problem. We don't own the chemicals until they have worked successfully on our product.

THE "PAY-AS-PAINTED" CONTRACT*

- 1. Chemical Footprint** - all autobody surface preparation, treatment, and coating chemicals (excluding solvents).
- 2. Financial Relationship**
 - fixed fee per quality painted vehicle
 - PPG owns chemicals until used
- 3. Risk/Reward** - Cost savings are shared between both parties during model year. Usage targets and fees may be adjusted downward at end of model year. "Reconciliation" procedure available to adjust for short-term excess usages.
- 4. Responsibilities** - lists the responsibilities of Chrysler and PPG. PPG activities include:
 - Acquisition
 - Enhanced inventory and distribution management
 - Container management
 - Quality assurance and maintenance oversight
 - Testing and lab analyses
 - Product and process engineering development
 - EHS studies and training
 - Process and waste problem solving
- 5. Performance Requirements** - Quality and performance specifications drive the agreement. PPG's fee is based on producing a quality finish.

*Actually, Chrysler uses a one-year purchase order instead of a contract. The P.O. contains pricing information, but other terms of the agreement are contained in a lengthy set of standard attachments.

The point is that you pay only for a quality finished product. You pay your supplier for products that are actually salable.

”

Larry Petty, on-site program manager for PPG puts it this way,

“Instead of a vendor wanting to sell more product to a customer, now the vendor is working with the customer to optimize and reduce the excess in the system. The first year at this plant alone there was approximately a million dollar savings in usages - because we’re focused now on reducing costs. Some people might say that’s a detriment to the vendor because he’s losing business, but it’s given us an opportunity to expand into other areas that we weren’t in before.”

Not only does the contract cover the process of coating the autobody, it also covers the full range of responsibilities required to manage each chemical from ordering and inventory management through waste treatment and disposal. A key component of this service is chemical data management—inventories and usages are monitored closely by PPG. PPG developed and patented a software package to systematically analyze and compare projected and actual usages as well as costs. This computer program allows the Pay-as-Painted team to quickly identify paint usage variances.

Establishing the fee per vehicle is simple in concept. It is based on historical costs for each chemical divided by the number of vehicles produced. However, the task of establishing this payment ratio for paint is complicated by the fact that different paint colors can have different costs. PPG’s data management software collected the initial data needed to establish these baselines. The task of establishing such baselines is even more daunting in some of Chrysler’s other plants where there may be hundreds of different paint combinations applied to the vehicles.

The Pay-as-Painted “contract” is actually an annual purchase order (P.O.) with a set of attachments specifying standard Chrysler P.O. conditions and contingencies. Price (the fee per vehicle) can be readjusted annually to reflect underlying changes in chemical usage. In addition, a “reconciliation” mechanism is available to adjust for unanticipated increases or decreases in chemical use. Excess usage by Chrysler is paid for by Chrysler through this mechanism. It provides a financial incentive to minimize waste, even though the chemicals belong to PPG.

“The point is that you pay only for a quality finished product. You pay your supplier for products that are actually sellable.” - Bob Conrad, Environmental Specialist, Chrysler Corp.

The fee per vehicle creates a strong incentive for PPG to help the Pay-as-Painted team reduce chemical use. Again, Bob Conrad explains,

“Our supplier makes money immediately if the Pay-as-Painted team can eliminate waste. As efficiency improves, we split those savings with them. Then, at the start of the new model year, the targets are reset. If we are using less of a material

because of an effort made by either ourselves or our suppliers, the payment per vehicle is reduced.”

A parallel program to Pay-as-Painted is known as the Solvent Management program. It covers all processes which could significantly effect VOC emissions. Though most of PPG’s responsibilities are the same as in the Pay-as-Painted program, Solvent Management is not a Shared Savings relationship. Instead, PPG is paid a management fee for its services. However, Chrysler and PPG plan to move the Solvent Management program to a cost-per-vehicle Shared Savings program in the coming years.

Larry Petty, PPG on-site manager, explains how the Solvent Management program works:

“The way the program works is that it places a very strong focus on the volume of usage’s, location of usage’s, and monitoring each step in the process of how a solvent is used. The information is put together by PPG, producing a detailed guide for every product that is used. Then we start from the top down, with the highest VOC emitter. When Chrysler began the Solvent Management program with PPG, they wanted us to incorporate new products into the system that were safer for the environment, as well as to find ways to manage the day-to-day operations and practices in the plant without using any of the contributors to VOC emissions.

“We’re constantly looking for ways to improve processes. For example, we helped Belvidere win the Illinois Governor’s Pollution Prevention award back 1992, even before the formal Solvent Management program. It was due in part to a paint stripper product which PPG introduced into the Pay-as-Painted team. We have made so much progress under Solvent Management since then, that now that particular product is the largest VOC emitter that we have. What got us the award then is now the biggest chemical we need to replace because we’ve come that far.”

“Instead of a vendor wanting to sell more product to a customer, now the vendor is working with the customer to optimize and reduce the excess in the system.” Larry Petty, PPG On Site Manager

Many of the chemicals covered in the two programs are not supplied by PPG. Instead, PPG serves as a Tier 1 supplier, contracting with different Tier 2 suppliers and overseeing the management of these chemicals in the plant.

THE PEOPLE

One of the most unique aspects of Pay-as-Painted is the team approach used at both the plant and corporate levels. “The team approach is what really makes this a successful program,” explains Ernie Schmatz, Pay-as-Painted coordinator with Chrysler’s Paint and Energy Management group. At the plant, representatives from the

paintshop, maintenance, environmental control, finance, production control, and others, meet with on-site PPG personnel on a weekly basis. The group reviews usage and cost data, identifies problems, and works out solutions. A parallel team exists on the corporate level to oversee the Pay-as-Painted process across plants.

PPG currently has eight, full-time people on-site. Six work with the Pay-as-Painted program, each taking responsibility for different systems in the production process. Two people, out of PPG's Chemfil Division, work in the Solvent Management program.

Larry Petty is PPG's on-site manager for the account. He and his staff work extensively with Bob Conrad on a daily basis. However, they also work closely with the Paint Center manager, area managers, and the spray booth hourly workers. In addition, each PPG employee has responsibility for different autobody treatment and coating operations, and must work closely with Chrysler staff involved in those operations.

Evolution of the Relationship

GETTING STARTED

In the late 1980s, PPG had a traditional supply relationship with the Belvidere plant. At the corporate levels, Chrysler and PPG had been discussing innovative ways of restructuring their relationship to involve PPG more closely in product quality, and reward them for improvements in process efficiency. The program was designed to address Chrysler's desire to improve budgeting, avoiding the spikes in chemical expenditures which made planning and budgeting difficult. In 1989, the decision was made to begin with the phosphating and paint detackification systems at the Belvidere plant. The plant manager championed the program and provided the support it took to put it in place and make it work.

Tim Gillies was the PPG/Chemfil phosphating representative to the plant at the time. He explains the original program:

The decision was made at PPG that our objective was to integrate ourselves better with our customers. We looked at this program as a way to really become a true partner, but to do it, we knew we had to make some investment in our customer's plants. It was a commitment - we're in it for the long haul.

We launched the program with phosphate and detack. We designed a cost per vehicle, using historical chemical use and production data. The idea behind the program was for it to be advantageous for both parties. If last year it cost \$1 per vehicle to run the process, and now we could get it down to 95 cents, that was profit we could share."

The program worked. In fact, it was so successful in improving quality as well as generating savings, that it was quickly expanded to include paint booth clean-up. Chrysler had been working to reduce VOC emissions from paint booth clean-up and hoped the program would accelerate that process. The resulting VOC reductions were so dramatic, they contributed to winning the plant's first Illinois Governor's Pollution Prevention Award. The plant has since gone on to win the award three more times.

PAY-AS-PAINTED

In 1991, PPG and Chrysler began laying the groundwork for integrating the painting systems into PPG's contract and implementing the "Pay-As-Painted" reimbursement program that had been originally envisioned. As Tim Gillies explains,

"Incorporating the e-coat process was relatively easy. We understood the system very well, and every car gets treated the same. But the paint shop is different. There are so many different painting schemes, and so many factors affecting the system. We needed extensive baseline data on all our materials."

Larry Petty developed a software package that allowed PPG and Chrysler to develop unit costs for their various vehicle painting options. In 1992, all painting systems were covered under the PPG contract and paid for on a per-vehicle basis. At this time PPG - rather than its Chemfil division - became the dominant player in the program because of the high profile coatings and resins.

The contract incentives were also fine-tuned to ensure that everyone had the right incentives to reduce waste and improve efficiency. Petty explains:

"In order for the program to succeed you have to have incentives. Incentives for the customer as well as the supplier. This program has built-in incentives that keep everyone focused. My accountabilities are to help maintain the program and to optimize it. If I let the program go excess, not only Chrysler is going to be dissatisfied but my people are going to be dissatisfied. Every rep on site is focused on what he's doing."

Again, the expanded program proved extremely successful, producing over \$1 million in savings the first year of implementation. The plant manager who implemented the program has now moved on to another plant, taking the program concept with him. Several other Chrysler plants have implemented Pay-as-Painted as well. Yet implementation in other Chrysler plants has been gradual. In part, this is because of the time it takes to collect the accurate production data and prepare the plant personnel for the new relationship. But implementing such a radically different chemical supply relationship actually takes more than this: as Chrysler's Conrad puts it, "It requires a whole different kind of thinking."

SOLVENT MANAGEMENT

The recent Solvent Management program evolved naturally out of Pay-as-Painted. The need for additional reductions in VOC emissions has meant that Chrysler has had to investigate innovative ways to maintain product quality and performance while minimizing VOC's. There is a strong link between solvent use and surface treatment operations associated with painting. For example, the use of solvents to flush paint hoses and guns is related to both the quality of the paint finish and the amount of paint waste generated.

However, the Solvent Management program does not employ unit pricing, the fixed-fee per vehicle which is the revolutionary idea behind the Pay-as-Painted program. PPG's Petty explains why,

"When we went into the Pay-as-Painted program, we used three years of history to establish pricing. For the products in Solvent Management, there wasn't enough good historical data. Now we're establishing that data. In addition, you've got to know the system and get it under control. If you establish pricing and you don't have the system in control yet, it's going to be impossible."

As a result, Chrysler and PPG are currently using a management fee program. Most of the solvents are provided through a Tier 2 supplier, not by PPG, and continue to be purchased by Chrysler on a traditional cost per gallon basis. PPG receives a fee to manage the chemicals inside the plant. In the process, PPG and Chrysler are studying the use of solvents, working to bring solvent systems under better control, and collecting usage and cost data. As Petty puts it, "The next step for the Solvent Management program is unit pricing."

The Benefits

The Pay-as-Painted program produced over \$1 million in savings in the first year of operation. Many of these savings were split between PPG and Chrysler. Once usage targets and fees are readjusted to reflect efficiency improvements, those savings accrue to Chrysler - forever.

Because PPG is not paid until a quality car rolls out of the paint department, they have a vested interest in the quality of the painting operation. So while costs have declined, quality has improved. Chrysler already has a reputation as a low-cost producer in the industry, yet Belvidere has both the lowest cost and highest quality painting process of

all Chrysler plants. If finish-related quality problems should be found after a Neon is shipped, it's a team of Chrysler and PPG personnel who perform the field investigation.

Two of the innovations which PPG helped initiate at Belvidere under the Pay-as-Painted program are the water-based paints and powder anti-chip paint. The water-based paints replaced solvent-based paints, reducing VOC emissions while maintaining finish quality. Powder-based anti-chip has been applied to the front and lower body sections of the Neons to reduce chips and nicks. The powder produces a thicker, more chip resistant coating, while dramatically reducing VOC emissions. VOC reductions were achieved not only because powder anti-chip replaced solvent-based paint, but powder anti-chip does not require the use of solvent in ancillary maintenance operations such as hose purging or booth cleaning.

SELECTED BENEFITS FOR CHRYSLER

- Over \$1 million in savings from the first year of Pay-As-Painted.
- Dramatic reductions in VOC emissions and other wastes.
- Improved product quality, reduced rework.
- Improved inventory control and reduced inventory costs.
- Improved health and safety protection.
- Easier compliance reporting.
- Four Illinois Governor's Pollution Prevention Awards.

Another improvement was an innovative technique to improve the application of electro-coating. Electro-coating is a critical corrosion-resistant coating deposited on the body using electrodeposition. A common problem associated with electro-coating is depositing sufficient material on high-corrosion areas, while limiting the amount of material on other body areas with minimal exposure to corroding elements. PPG's e-coating innovations significantly reduced over-deposition in non-corroding areas. This saved money since less material was used to provide the same level of corrosion protection.

In addition, the software developed by PPG to monitor chemical usage and cost - key variables affecting PPG's profitability - has allowed the

Pay-as-Painted team to control the painting system at levels that had not been achieved before the contract. According to PPG's Petty,

"This system makes it very easy to monitor costs and usages. We track most systems on a weekly basis. We track paint on a daily basis. When we need to refine a system, we can even compare usages across shifts, or actually split a shift. When we study a process in that detail, that's where we can get the biggest reductions."

Most recently, the Pay-as-Painted team initiated a research program which has led to a proprietary technology to repair paint scratches or blemishes created during assembly, using the same paint and high temperature baking methods used to apply paint to a car in the normal painting process. This innovation improves the quality of the paint finish

and significantly reduces the VOC emissions associated with the older repair methods. Finally, it saves money both PPG and Chrysler money. With these improvements, they've applied for *another* Illinois Governor's Pollution Prevention Award!

An important, additional benefit of the program, but one that defies quantification, is that as the strength of the Chrysler/PPG relationship continues to grow, PPG is better able identify and meet Chrysler's needs, even to the point of customizing chemicals for specific plant applications. Bob Conrad summarizes it this way:

"They know better than we do what the chemical capabilities are. We know better than anyone what our needs are. When we get together, we combine that knowledge. It's a lot better than someone coming in off the street and saying, 'I can solve your problem.' They don't even understand our problems! With this program we've got someone who's not just coming in the door to sell us things. They are here to work with us to solve the problems that we have."

A powerful, underlying benefit of Pay-as-Painted is that both Chrysler and PPG personnel end-up performing higher value-added activities. As Bob Godare, Environmental Manager at the Belvidere plant, points out,

"We've got supplier personnel in here looking at everything, running tests that we used to run, balancing systems, and much more. We don't do that anymore. Its done by supplier personnel at a much lower cost than we could internally."

Chrysler has been able to reassign their personnel to improve activities closer to Chrysler's core business, building cars. Because PPG staff specialize in chemical systems, and have the expertise and resources of their company at their disposal, they can be both more effective and efficient in performing these activities. They also perform higher value-added work from PPG's perspective. Instead of trying to sell more chemicals, they are building customer loyalty and expanding PPG's chemical services footprint within existing customers' accounts.

We had to face the facts that only if we get our suppliers to cooperate and become part of our team can we solve some of the tough problems and stay competitive - Bob Conrad, Environmental Specialist, Chrysler Corporate

Customer loyalty is a critical component in PPG's long term strategic marketing program. Though Chrysler expects continuous improvement from its suppliers, they recognize that the constant threat of being displaced by a competitor does not produce the greatest performance from a supplier and is not in the long-term interest of Chrysler. "An important benefit for PPG is that they have a captive market," says Conrad. "They have our business and they know we aren't going to bring someone in here tomorrow against them."

Nevertheless, Chrysler maintains a "keen eye" on costs, and they expect their suppliers to respond. As Chrysler's Ernie Schmatz explains,

"We monitor costs on a constant basis. When you pay by the unit, as you examine usage, you're examining costs. And that's the whole point."

The result is that the future of Chrysler and PPG become more critically linked, with each trying to help the other improve processes and increase profitability. As PPG's Petty puts it, "It's not a program that was set up to take advantage of one party or the other. It is a program to optimize the system for both parties in a partnership - either losing or gaining together. So when Chrysler gains, we gain. When Chrysler loses, we lose. That's an incentive."

The Problems

In most corporations, there is no shortage of new programs. Few succeed and become established corporate practices. What was different about Pay-as-Painted? Petty explains.

"I came out of the steel industry and I know - there have been so many programs. They come around each year. It starts at the top, 'this is a new thing, we all need to do this', but by the time it gets down to the front line supervision it seems like another pie in the sky project and it fails. Pay-as-Painted was a program that started that way, but it worked. You had champions at each plant for the program who made sure that things got done. Also, everyone was convinced of the savings and the efficient operation of the system."

Of course, as with most firms, the notion of relying on one supplier for a wide array of chemicals and chemical services made some people nervous. But Bob Conrad explains Chrysler's philosophy,

"We had to look at the big picture and get together with our supplier. It meant putting a lot of eggs in one basket, but we had to face the facts that only if we get our suppliers to cooperate and become part of our team can we be able to solve some of the tough problems and stay competitive. Yeah, I may even have to pay a little more for purple paint than I did, but I'm going to save a ton of money and trouble in other ways - reduced waste costs, improved environmental performance, better relations with our neighbors."

Tim Gillies, the first on-site manager for PPG, recalls one of his most vivid memories of the difficulties in getting the program started and showing that it can work:

"A lot of responsibility for monitoring the program was given to the controller's office. At the beginning of the program - and I'll never forget it as long as I live - we were up there meeting the controller in charge of the program. He started by telling us, 'I

don't trust you, I don't like you, and I don't think this is going to work'. After getting over the shock, it became clear that this guy was our target. We had to do whatever it takes to prove this program to him.

"And, you know, he really made us better. I credit him for making us focus. He made it clear we had better have everything straight every day. Guys like him are hard to win over, but we won him over by proof, by facts. We put it in front of him, and if we were wrong, we said we were wrong. If we were right, we stood our ground and he respected that. He finally became one of the program's strongest proponents. He called me up before I left and told me how much respect he had for me and the program. He was really grateful that it had worked."

The long-term relationship between Chrysler and PPG, as well as the thorough study of the painting system by both companies, helped make the implementation of Pay-as-Painted a relatively smooth process. The immediate results convinced everyone that it was a program worth keeping for the long-term.

The Future

Whether the Shared Savings program at Belvidere will expand to include even more chemicals and chemical systems is unclear. Though many chemicals, such as those used in water treatment, are not currently covered under the program, they are a much lower priority for Chrysler in terms of cost and environmental impact.

Both Chrysler and PPG intend to move the Solvent Management program to a unit pricing scheme. It's logical to harness the same incentives which have proven so successful in Pay-As-Painted. However, it is going to take time to collect the data and develop an understanding of the process sufficient to establish appropriate unit prices as well as baselines against which to measure progress. The Pay-as-Painted program is also likely to continue to expand into additional Chrysler plants. PPG's experience will prepare it to compete for these new contracts. Despite the progress and the success to date both Chrysler and PPG believe that they have more to learn about this innovative approach to chemical supply.

Contacts

To learn more about the Chrysler/PPG Pay-as-Painted relationship, contact any of the following members of the Corporate Pay-as-Painted Team -

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Shared Savings Case History

Ford Motor Company and PPG/Chemfil

Chicago, Illinois
Taurus Assembly Plant

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Ford and PPG/Chemfil at Chicago Assembly

"Don't unpack your bags, you won't be staying that long." was the comment that Tim Gillies heard, in one form or another, from people all over the plant. Gillies, a field engineer with PPG/Chemfil, had just arrived at the Ford Chicago Assembly Plant to implement a Shared Savings program. "Those were tough times," he recalled. PPG/Chemfil had replaced a very popular supplier at the plant, and many people were suspicious of this new program. They did not trust the new concept - it just didn't make sense.

That was 1993; today, not only has PPG/Chemfil stayed, their relationship with the Ford plant and it's personnel has flourished. The Shared Savings program which Tim Gillies implemented had worked - and worked so well it is spreading throughout the plant and today covers the majority of chemicals use in the Ford Assembly Plant.

Summary

Ford Motor Company has been using the Shared Savings concept at the Chicago Assembly Plant since the late 1980's. It's relationship with PPG/Chemfil as a major Shared Savings supplier dates back to 1993.

PPG/Chemfil is responsible for most of the chemicals in the plant, with the exception of paints, sealers and lubricants. The two Shared Savings programs, known as

"Total Fluids Management", and "Total Solvents Management" have produced dramatic environmental and cost benefits, including a 57% reduction in VOC emissions and a 27% reduction in wastewater treatment sludge, while maintaining or reducing chemical costs.

This program provides much more help in maintaining control than I've ever had. - Dan Uhle, Environmental Engineer, Ford - Chicago

However, both Ford and PPG/Chemfil have experienced many additional benefits. Product finish quality, environmental compliance, and employee health and safety have all improved as well. For PPG/Chemfil, the value of the Chicago Plant account has increased three-fold over the short life of the program.

The Taurus Assembly Plant

In 1914 Ford Motor Company began assembling Model "T" Touring Sedans in Chicago. After moving operations to their present location in 1924, the plant has undergone many expansions and renovations, including a \$178 million dollar renovation in 1985 to prepare the plant for Taurus and Sable assembly. Today, the plant occupies 2.5 million square feet and employees over 3,000 hourly and salaried workers. Production exceeds 250,000 vehicles per year.

The plant uses a large variety and volume of chemicals, ranging from commodity water treatment chemicals to high-value vehicle paints and coatings. Dan Uhle, Plant Environmental Engineer, is responsible for environmental management and compliance

of all chemicals used in the plant. Prior to the Total Fluids and Total Solvent contracts with PPG/Chemfil, Uhle experienced many of the difficulties faced by environmental managers. Of particular concern at the plant were chemicals containing Volatile Organic Compounds, or VOCs. Reducing ozone levels in the Chicago area has required strict control of VOC emissions, but progress in the plant has been slower than desired. He also faced many of the problems associated with maintaining control over the hundreds of chemicals purchased, inventoried, used and discharged from the plant - from proper health and safety approval to preventing waste. The new programs have changed all this.

PPG/Chemfil

PPG Industries began in the late 1800's as a plate glass manufacturer, but expanded into the chemical industry as it grew. Today, its predominant chemical market is industrial paints and coatings. However, its purchase of Chemfil provided the capacity to supply a variety of additional chemicals and chemical services. The Chemfil division of PPG now plays a significant role in marketing and servicing their Shared Savings market.

PPG/Chemfil perceived the potential value of a comprehensive Shared Savings program years ago. Though other companies were offering Shared Savings contracts on selected chemicals, Chemfil developed a program to provide such benefits on the full array of chemicals needed by major manufacturing facilities. Today, PPG/Chemfil is one of only two chemical suppliers authorized to provide "Total Fluids Management" at Ford facilities. They currently manage programs at 10 Ford plants. Chemfil understands that the Shared Savings approach to chemical management is an important business strategy.

The Ford/PPG Relationship

THE CONTRACT

The Shared Savings relationship with PPG/Chemfil at the Ford Taurus Assembly Plant covers nearly every chemical in the plant. Paints, sealers and lubricants are the only major chemicals supplied outside the relationship. The program between Ford and PPG/Chemfil is actually composed of two separate contracts. "Total Solvents Management" covers all the solvents used in the plant. "Total Fluids Management" covers most other chemicals in the plant.

Both the "Total Fluids" and "Total Solvents" contracts are three-year agreements. Though the Chicago plant began their first Shared Savings program in the mid-80s as a local program, today the basic elements of these contracts are negotiated at the

corporate level of both PPG and Ford with the contractual details being left to the individual plants' personnel.

PPG/Chemfil is compensated on a fee-per-vehicle, or "unit price" basis. The fee is based on historical costs and volumes for both chemical usage and vehicle production. In turn PPG/Chemfil, in cooperation with Ford personnel and production requirements, purchases all the contract chemicals for Ford, including many chemicals which are not manufactured by PPG/Chemfil.

Because PPG/Chemfil's fee is fixed per unit of production, they work continually to improve Ford's chemical use efficiency. They can improve their own margins by reducing the amount of chemical they must supply to Ford under the fixed fee arrangement. Ford benefits by negotiating targeted annual reductions in PPG/Chemfil's per-vehicle fee. In addition, when PPG/Chemfil experiences a significant cost increase or reduction, the additional costs or savings are shared with Ford on a case-by-case basis.

Dan Uhle, the Environmental Engineer at the Chicago

assembly plant, describes the dynamic incentives for the supplier:

"For the supplier, the more the responsibility and the greater the contract value, the more they want their people to be in here managing their chemicals to be sure we aren't using more than we should to build a car. We're paying them the same price for every car that we build. So when they start to control their usage to meet the same specifications - for example, cleanliness of the spray booths- if they can use

THE CONTRACT

1. **Chemical Footprint** - solvents, cleaners, surface treatments, water treatment, and most other plant chemicals other than paints, sealers, and lubricants.
2. **Financial Relationship**
 - fee/vehicle for solvent management
 - fee/vehicle for management of other chemicals
 - fixed annual fee for selected chemicals unrelated to production.
3. **Risk/Reward** - provisions for adjusting contract terms. This can cover large changes in chemical costs, large unexpected gains or losses, or other factors affecting contract terms.
4. **Responsibilities** - lists the responsibilities of Ford and PPG/Chemfil. Ford UAW employees provide most of the hands-on work, including chemical changes and additions. PPG/Chemfil activities include:
 - Purchasing from Tier 2 suppliers
 - Inventory and distribution management
 - Container management
 - Quality assurance and maintenance oversight
 - Testing and lab analyses
 - Product and process engineering development
 - VOC emission reduction training
 - EHS studies and training
 - Process and waste problem solving
5. **Liabilities** - sets out an eight-step process to be followed in establishing the root causes of a problem and the responsible parties, if any.
6. **Performance Requirements** - expected annual reductions in the fee per vehicle as well as a "productivity reduction" - a negotiated level of savings to be realized by Ford.

less material then they save money and their margin increases. It becomes more and more important for them to have management involvement in the plant."

In addition, PPG/Chemfil is expected to provide a "productivity reduction" equal to 5% of the value of the contract. This can take the form of any documentable savings to the Ford plant.

The majority of the chemicals provided under these contracts are not manufactured by PPG/Chemfil. Instead, PPG/Chemfil manages an array of Tier 2 suppliers who provide both chemicals and chemical services to the Ford plant. Many of these Tier 2 companies were suppliers to Ford prior to the development of the Shared Saving relationship and Ford wanted to retain them as suppliers when the Total Fluids Management program was implemented. Yet PPG/Chemfil, as a Tier 1 chemical manager, assumes the full responsibility for the management and performance of all the chemicals under the contract footprint. They support a full range of chemical services from purchasing to waste reduction for both their chemicals and those of the Tier 2 suppliers. (see "The Contract" box).

THE PEOPLE

PPG/Chemfil maintains a full-time manager and a full-time service technician on site at the Taurus assembly plant.. Many of the Tier 2 suppliers provide either full or part-time on-site representatives as well.

Ted Camer, PPG/Chemfil's on-site chemical manager, works with many different Ford employees on a daily basis from the line production staff to the plant manager. He communicates routinely with the supervisors and union personnel responsible for the maintenance of production equipment. In fact, Camer considers his working relationship with these individuals to be one of the most critical aspects of his job. "Their attention to the functioning of equipment, and the timeliness of their responses to our requests are key to the success of this operation," comments Camer. "As a result," notes plant environmental manager Dan Uhle, "cooperation of hourly workers with the PPG/Chemfil manager is even better than with Ford staff, even though he has no direct authority over their work. He takes the time to let them know how much he appreciates their efforts."

Camer also routinely participates on various teams in the plant. One team is headed by Greg Kohut, Manager of Manufacturing Engineering. The team oversees the Ford/PPG relationship at the plant, resolving any problems or concerns which might arise. Though the team scheduled frequent meetings when the relationship first began, only quarterly meetings are now required. Instead, Camer's participation in the daily production process and production-oriented teams has become more important and financially rewarding. A recent example is Camer's involvement in a team which is working to make continuous improvements in surface finish quality.

The Ford/PPG relationship has evolved into a “true” partnership. The on-site manager knows that working in Ford’s best interest is in PPG’s best long-term interest as well. Ted Camer explains, “If a problem comes up in the plant, even if it’s unrelated to our chemicals, I try to help out. I have an interest in Ford and the quality of their products.” In return, PPG has gained Ford’s trust and loyalty. They know Ford is interested in more than just the contract price. As Ford’s Dan Uhle puts it, “A supplier who is trying to get a foot in the door may bid a bit less, but the supplier trying to get a foot in the door isn’t offering the same total service.”

Evolution of the Relationship

DETACKIFICATION

The start of the Shared Savings program at Ford’s Chicago Assembly Plant highlights the underlying power of these supply contracts. In the late-80s the plant was having problems detackifying wastewater generated in the painting booths. The supplier of detackification chemicals blamed it on the painting operation, and recommended additional chemicals at additional cost. This not only failed to resolve the problem; it actually made it worse.

Staff at the Chicago plant were aware of new programs being implemented at other Ford plants where a supplier was paid a fixed fee per vehicle in exchange for meeting process performance requirements. This concept focuses a supplier on product performance rather than product sales. In addition it provided a significant incentive for the supplier to reduce chemical usage and ultimately chemical costs. They decided to evaluate it with the paint booth system at the Chicago plant. A supplier was selected to manage the *performance* of the paint detackification system.

The fixed-fee program worked very well. Detackification problems were significantly reduced and they experienced additional reductions in maintenance and operating costs. This convinced plant management that the approach could be used to improve performance and reduce costs in other areas of the plant.

TOTAL FLUIDS MANAGEMENT

At the corporate level, Ford was developing the “Total Fluids Management” concept in cooperation with PPG/Chemfil and other chemical suppliers. The program specified that a Tier 1 chemical supplier would receive a fixed-fee per vehicle to manage a large chemical footprint (excluding paints, sealers, lubricants, commodity chemicals, and solvents). Ford would no longer purchase these chemicals, only “chemical services” from the Tier 1 supplier. PPG/Chemfil received contracts to provide Tier 1 chemical management services for 10 Ford plants.

PPG/Chemfil initiated the Chicago Assembly Plant contract in early 1993, beginning with the management of only the electro-coat system. The first on-site chemical manager was Tim Gillies, who had transferred from a successful Shared Savings program at the Chrysler plant in Belvidere, Illinois. His goals were to reduce supply, inventory, and management problems while working to improve chemical performance. Another priority of Gillies was earning the trust of plant employees. PPG/Chemfil replaced a competitor who had established a good working relationship with the production personnel at the plant. "It was difficult, but they (PPG/Chemfil) finally did it." remarks Uhle. "And since then, its just been improving continuously. They got their foot in the door and were given a chance to prove themselves. Now that Tier 1 relationship has grown significantly."

TOTAL SOLVENTS MANAGEMENT

The "Total Solvent Management" program was started at the Chicago Assembly plant in the mid-90s to significantly decrease VOC emissions. It covers all solvents used in the plant. Ford's positive experience with PPG/Chemfil's "Total Fluids" program was influential in helping PPG/Chemfil win the contract and expand their chemical footprint in the plant.

The solvent management program at the Chicago assembly plant was critical to Ford's operation in Chicago since the plant was located in an ozone non-attainment area. The plant was facing severe regulatory restrictions for VOC emissions. The prime performance goal of the Total Solvent program was VOC reduction. Putting solvent management on a fixed fee basis gave the supplier a significant incentive to reduce solvent usage and associated emissions of VOCs. The program has been very successful, reducing emissions by over 57% in the first 18 months of operation, thus helping Ford avoid significant regulatory costs.

We are seeing a major effort on their part to think of ways to lower their cost and save us money. - Dan Uhle, Environmental Engineer, Ford - Chicago.

COMMODITY CHEMICALS

Another indicator of the Shared Savings program's success at Ford's Chicago Assembly Plant was the modification of the Total Fluids Management contract to include commodity chemicals used in wastewater treatment. Specialty chemicals used in wastewater treatment were already covered under the contract. Including all wastewater treatment chemicals allowed PPG/Chemfil to optimize treatment chemistry, reducing the generation of hazardous waste from the water treatment plant by over 25%.

OTHER COMMODITY MANAGEMENT PROGRAMS

Ford found that the same strategies used in Total Fluids Management could be applied successfully to other areas of the plant with other materials as well. Over time, the Chicago Assembly Plant has initiated a Total Waste program, a Total Filter program, and a Total Paint program. Suppliers receive a fixed fee per vehicle for their services, and use contract terms similar to those for Total Fluids and Total Solvents. The financial incentive to reduce waste, along with the associated integration of the supplier's technology and services into plant operations, has made these programs financially successful for both Ford and their suppliers.

The Benefits

The Total Fluids and Total Solvent Management programs have produced stable or decreasing costs for Ford in an area that had seen significant annual increases in previous years. This has produced significant benefits in the highly competitive auto industry. Ford has experienced similar financial benefits from their programs covering wastes, filters, and paints. According to Dan Uhle:

“Certainly one of biggest benefits with this program is that we have been able to get the management help that is necessary for continuous training, continual improvement in waste reduction, and even in improving quality. We’ve been able to do this without raising costs, and in some instances the costs have gone down.”

However, the benefits from the Shared Savings strategy extend well beyond the savings achieved on reduction of chemical costs. Perhaps the most significant benefit has been the reduction in solvent use in the plant with the associated VOC emissions. Ford knew that a good chemical supplier, whose core business was chemical management, could produce better results in a shorter time frame than they could. “We have always made every attempt

SELECTED BENEFITS FOR FORD

- VOC emissions reduced by 57% in 18 months.
- Reduced wastewater sludge generation by 27%, saving over \$50,000 per year.
- Steady or declining chemical costs.
- Improved product finish quality, reduced rework.
- Improved inventory control and reduced inventory costs.
- Improved health and safety protection.
- Easier compliance reporting.

possible to reduce our level of solvents,” explains Uhle, “but we’re approaching it even more aggressively with the Total Solvent contract. PPG/Chemfil is allowing us to reduce VOCs with much more vigor than we could have on our own.” The performance of the Total Solvent Program clearly bears this out. With a 57% reduction in VOC emissions in the first 18 months of the program, PPG/Chemfil has demonstrated the power of a Shared Savings arrangement.

Another important waste reduction benefit produced from the PPG/Chemfil relationship is the reduction in sludge from wastewater treatment. The switch to aluminum for selected body panels had resulted in a reclassification of this sludge as hazardous waste. PPG/Chemfil and Ford began an extensive research program to find ways to reduce sludge generation. In association with Nalco Chemical Company, the Tier 2 supplier of water treatment chemicals, they changed the chemical processes used in wastewater treatment, reducing not only sludge, but the amount of commodity chemicals used in the treatment process. Two related activities contributed to sludge reduction. A magnetic system was installed in the phosphating bath to collect and remove weld balls. Not only did this reduce sludge, it improved the quality of the finish by removing these impurities from the system. They instituted a deluge car wash system to better remove impurities from the surface of the car before phosphating step. In total, these activities reduced sludge generation 27% and have saved Ford over \$50,000 per year. As a result of this work, PPG/Chemfil and Ford have applied for the Illinois Governor's Pollution Prevention Award.

**Ford Motor Company
has said that they no
longer want to be in
the chemical business.**

- Tim Gillies, a PPG/Chemfil
on-site manager

Inventory costs have also declined. Ford avoids the inventory carrying costs (since the chemicals belong to PPG/Chemfil) and benefits from improved inventory management. Out-of-date and off-spec product wastes have declined dramatically while the timely availability of chemicals has improved as PPG/Chemfil moved closer to a Just-in Time inventory system.

In conjunction with improved chemical inventory, chemical tracking has also improved dramatically, allowing variances in chemical use to be identified early and tracked to each machine. This level of control has improved trouble-shooting while greatly simplifying environmental reporting. Dan Uhle explained the benefits from his perspective:

"Chemical tracking has improved environmental reporting substantially. That used to be the hardest part in doing my form Rs - coming up with good chemical usage data. Now they tell me how much they've used. I no longer have to worry about getting the data from purchasing or our own inventory records. Take solvents for example. I had to look at what we bought and get records from the suppliers of all of the different materials that had VOCs in them. I had to make the assumption that the inventory at the beginning of the year was the same as that end. I don't know how much was scrapped and actually went out as waste paint solvent, where we had some recovery, or how much was used. So I had to make assumptions about all of that to the best of my ability using engineering judgment. Now PPG/Chemfil keeps daily records of what they use and the VOCs emitted, and they not only do it by product but they do it by process. This program provides much more help in maintaining control than I've ever had."

With PPG/Chemfil providing a centralized chemical purchasing service, it has been easier to maintain health and safety control data as well. Again, Dan Uhle explains the difference that the PPG/Chemfil relationship has made in the health and safety program.

“Ten years ago we would get some materials in here that didn’t even have toxicology clearance. This was a concern for employees right-to-know because you would be using a material that you don’t necessarily have an MSDS for. But it’s different now. Now its much easier to keep control over all the products. With PPG/Chemfil, if you use it, you’ve got to have a toxicology approval number. Once we have that, I have all the information on a database and I have 100% disclosure of what’s in it.”

The benefits for PPG/Chemfil have been numerous. The combination of customer loyalty and an expanding chemical management responsibility inside Ford plants provides long-term revenue security. Building a close relationship with a customer is a key competitive strategy for PPG. “For PPG, the greatest benefit has been the special relationship we’ve been able to foster with Ford,” says Ted Camer, “There is a continuing trust between the two companies that wouldn’t have been there if we hadn’t gotten into this relationship. Its been very gratifying on both sides.” Since PPG/Chemfil entered the Shared Savings program at the Chicago plant, the value of their account has increased three-fold.

SELECTED BENEFITS FOR PPG/CHEMFIL

- Expanding chemical and service footprint, increasing the value of their account three-fold.
- Customer loyalty.
- Inside information for market research and development.
- Product R&D test opportunities.
- Experience that could be used to obtain new accounts.

The link between profit and chemical services expertise also gives PPG/Chemfil a competitive advantage in the chemical supply industry. Tim Gillies, the first PPG/Chemfil on-site manager points out that “this is a good deal for PPG/Chemfil. It’s designed to make money, while saving Ford money as well. Our fee is based on historical chemical costs. If I can cut those costs substantially, there’s my profit.”

What underlies the benefits for both companies is the ability to focus on their core business. As Tim Gillies, puts it, “Ford Motor Company has said that they no longer want to be in the chemical business.” Or, in the words of Dan Uhle:

“This allows us to concentrate on what our specialty is - building quality automobiles and being able to sell those to the public - we certainly want to build what they want. We are managing the manufacturing business, and passing responsibilities on to people who are more experienced in managing certain subsystems.

"I'll give you an example from my own experience. If we were bringing in a material to do a bench trial out at the water treatment plant, we call up the Total Fluids coordinator and he takes on the responsibility. Before Total Fluids I had to do everything. I had to go get a sample of the material myself, I had to go take it out to the waste treatment plant myself, and make whatever adjustments were necessary to reflect the concentrations that we would see and document it all - and that was very time consuming. Now the Total Fluids coordinator can do it much more efficiently and bring back the results. I have time to more closely review those results to determine what effect they're going to have on our business."

The Problems

Implementation of the Shared Savings programs at the Chicago Assembly Plant has experienced surprisingly few problems. In part this was due to the fact that it grew out of a well defined need at the plant - to bring paint detackification under control. Contributing to the success of the concept was the strong support provided from the corporate level for the implementation of the Total Fluids and Total Solvent programs. Dan Uhle believes the general lack of resistance was due to many of the obvious benefits:

"I think people could see the advantages of this relationship. The maintenance manager knew that without the on-site manager, a supplier would not share responsibility for the maintenance program. Certainly materials handling could see the benefits of reduced inventory carrying costs and having less chemical in the plant to manage. Plus, they no longer had to be responsible for making sure the chemicals were here on time. In terms of production, having someone make sure the chemistry in the equipment is working let us focus more on quality - and everyone's concerned about quality. Another set of eyes and a partner in the process has made significant progress in the quality of our products."

The initial concern of many employees about the Total Fluids program faded after the first few months of the contract. Though PPG/Chemfil replaced a very popular supplier, they proved their value, as well as the value of the new program. It was not long before many employees were asking that the program be extended to other areas in the plant.

There was some initial concern among hourly workers. "Some workers felt that they would have two areas of management where they only had one before," explains Uhle. "They looked at the supplier's involvement as another area of management which was trying to get them to do more." Experience quickly resolved those concerns. "I think everyone's attitude toward quality improvement and waste reduction has changed. Job security is one of their priority concerns, and they understand that if we can't sell a high quality product to the customers at a reduced price, some other company will do it. The supplier can help in this."

Another potential problem which never materialized was legal liability. Though there are provisions for handling liability in the contract, it's never been an issue in the day-to-day operations. As Ted Camer puts it " I guess we understand the liability instinctively, so it's not something we spend much time thinking about."

Resolving problems that arise in day-to-day activities is always a challenge in Shared Savings relationships and a test of the on-site personnel responsible for the contract. Ford and PPG/Chemfil use an eight-step problem-solving approach to find the causes of problems and resolve their differences. The process is critical to identifying the facts about the origin of the problem and resolving it, thus avoiding personal arguments which could damage the relationship.

It's also important to maintain flexibility in the inevitable, but unexpected, gains and losses in the process. Again, Dan Uhle explains:

"In order to keep a good relationship, there has to be a balance of the positive and negative. It can't be a one-sided relationship. There have been times that PPG/Chemfil lost out. For example, we used more product than expected but we didn't know exactly where we used it. So Ford, in return, makes sure PPG/Chemfil sees some gains as well. As an example of that, we have made significant progress in block-painting our vehicles. Under the Total Solvent program, we are paying per unit for the purge solvent. Before, we purged every unit or unit and a half, on the average, because of color change. Now we're purging every three or four units, or even more than that, so the amount of solvents we are using has declined significantly. Now Ford didn't change their cost per unit, even though all of the facility-change costs were borne by Ford. That's an example of the type of positive thing that happens from PPG's involvement in the process."

The Future

The Shared Savings relationships at Ford continue to evolve. The Total Paint Management program is growing, as Ford's three key paint suppliers - PPG, DuPont, and BASF - enter into "fee-per-vehicle" contracts at the individual plants. Paint is one of the highest cost, highest volume and most critical chemicals supplied to assembly plants. The role of the paint supplier in overall chemical management is expected to grow, possibly moving the paint supplier into a Tier 1 position over all chemicals in the plant. The current Tier 1 suppliers in programs such as Total Fluids and Total Solvents would then become Tier 2 suppliers under the Total Paint contract.

Because DuPont is the paint supplier at the Chicago Assembly Plant, this could mean a change in the contract between Ford and PPG/Chemfil at that plant. Whether DuPont becomes the Tier 1 supplier or not, PPG/Chemfil does not foresee great changes in

their role. According to Ted Camer, "To us, our relationship with Ford here at this plant is such that it really doesn't matter either way. Its not going to change the excellent relationship that we have built."

Contacts

To learn more about the Ford - PPG/Chemfil relationship at the Chicago Plant.

Ford, Chicago Assembly Plant

Dan Uhle, Environmental Control Manager, 773/646-7472

PPG/Chemfil

Ted Camer, Chicago Plant On-site Manager, 773/646-7251

Shared Savings Case History

General Motors Corp. and BetzDearborn

**Janesville, Illinois
Bus and Truck Assembly Plant**

**Thomas J. Bierma
Frank L. Waterstraat
Illinois State University
309-438-7121**

GM-Janesville Truck and Bus Plant

Fritz Benton thought it was just another review from "corporate". Benton had been the BetzDearborn on-site chemical manager at GM's Janesville plant for almost five years, and he had been through many corporate reviews. That day his district manager, area manager, and even the corporate field advisor had arrived at the plant. But this was not to be just another review. When the team had assembled with an array of GM personnel, they had a surprise for Benton. He was presented with the company's Customer Satisfaction Award. Benton had been nominated by his superiors, and many of the GM personnel had been involved in the interviews leading to the award. He considers it one of his proudest accomplishments.

What was most unusual about this event was that Benton earned the award by helping GM reduce the amount of chemicals they needed from BetzDearborn!

Summary

The GM Truck and Bus plant in Janesville, Wisconsin has had a Shared Savings relationship with BetzDearborn since 1991. The contract covers a wide array of chemicals and systems including wastewater treatment, paint detackification, power house, maintenance paints, and solvents. BetzDearborn serves as a Tier 1 supplier for all these chemical services at the GM plant. These services are based on a variety of unit-pricing strategies. Known as the Chemical Management Program (CMP), it has produced substantial savings for GM-Janesville through reductions in chemical use and improved chemical management.

Both GM and BetzDearborn have experienced many benefits in other aspects of their operations as well. Improved chemical management in the plant has meant that GM personnel can focus on production, while chemical-related headaches and costs have declined. There are fewer chemical products in the plant, inventory is better managed, chemical use is tracked in detail, and health and safety conditions have improved. For BetzDearborn, revenues continue to grow even while GM is able to reduce chemical use. Perhaps, most importantly, BetzDearborn has won the opportunity to re-negotiate their contract with GM rather than re-bid. A sizable dividend from customer loyalty.

We have seen so many benefits from the program - better information, better inventory control, better management of chemical use, emergency planning support..." - Linda Little, Environmental Engineer, GM Janesville.

The Janesville Assembly Plant

General Motors has been building trucks, busses, and other vehicles at the Janesville assembly plant since 1922. Today, the plant operates two assembly lines. One produces light-duty vehicles, such as the Chevrolet Suburban and Tahoe. The other produces a variety of medium-duty trucks and busses. The production facility occupies over 3.5 million square feet, and employs approximately 5,000 workers.

Environmental programs at the Janesville plant are overseen by Mike Merrick, Senior Environmental Engineer. He and his staff are responsible for assuring compliance and environmental performance for the full array of chemicals used at the plant. Prior to the Chemicals Management Program contract with BetzDearborn, Merrick's staff faced a number of common challenges. With the hundreds of different chemicals used at the plant, purchasing was difficult to coordinate, making environment, health and safety (EHS) compliance an ongoing problem. This ranged from obtaining proper Material Safety Data Sheets and internal chemical safety reviews, to providing employee training and filing complete environmental reports. The CMP program not only reduced many of these problems, it made Merrick's staff more effective and raised their profile in the plant.

BetzDearborn

For many years, Dearborn USA was one of the leading companies specializing in water treatment chemistry nationwide. They served as a supplier of water treatment chemicals to many GM plants as well as those of other automakers. Dearborn responded to General Motor's drive to implement CMP programs with chemical suppliers, and has bid competitively for a number of Tier 1 contracts. At the time Dearborn won the Janesville contract, they were owned by W.R. Grace. Since that time they have been purchased by Betz, another nationwide water treatment chemical supplier. The sale has not changed the GM/Dearborn relationship at Janesville.

Fritz Benton, the CMP on-site manager for BetzDearborn, has never been in chemical sales, and that's an advantage. Instead, he had years of experience in industrial water treatment. Benton was hired specifically for the Janesville contract. The hiring process involved both Dearborn and GM personnel. In fact, he was interviewed four times by Dearborn and twice by GM before being offered the job.

He is comfortable with a job that requires him to apply his expertise to help GM reduce chemical costs and improve chemical performance, rather than sell chemicals. BetzDearborn supports this strategy by paying Benton a salary plus performance bonuses, rather than a commission on the volume of chemicals sold.

“We were assuming responsibility for our supplier's product. If we could get our suppliers to assume that responsibility, it could save us a lot of money” - Mark Opachak, GM.

The GM/BetzDearborn Relationship

THE CONTRACT

The Chemical Management Program contract at Janesville covers most non-production (indirect) chemicals, including water treatment chemicals, solvents, commodity chemicals, lubricants, and maintenance paints. However, the focus of the contract is not so much chemicals as the systems which use chemicals - paint booths, wastewater treatment, airhouses, and many more. BetzDearborn shares responsibility for the performance of these systems, including ordering and maintaining chemical inventories, managing chemical use and disposal, research on system improvement, EHS compliance, and employee training. One of the most important responsibilities of the on-site CMP manager is communication, particularly in helping coordinate efforts between manufacturing, maintenance, wastewater treatment, and other departments.

The CMP contract employs a combination of techniques to create the right financial and operational incentives for both BetzDearborn and GM. First, it specifies a series of fixed fees (unit prices) for chemical-specific management services. For many chemicals, these fees are specified on a "dollars-per-vehicle" basis. However, because consumption of some chemicals is only remotely related to the rate of vehicle production, other performance measures may be used. For example, services related to power house chemicals are paid per million pounds of steam produced. Services related to demineralizing water are paid per thousand gallons of demineralized water produced.

THE CMP CONTRACT

1. **Chemical Footprint** - water treatment chemicals (powerhouse, cooling towers, wastewater treatment, air houses), paint detackification and booth maintenance, lubricants, maintenance paints, commodity chemicals, purge solvents.
2. **Financial Relationship**
 - fixed fee per unit of production (unit pricing)
 - unit of production varies by type of chemical - e.g. production of vehicles, wastewater, steam, etc.
 - management fees for selected services
3. **Risk/Reward** - mechanisms for quarterly adjustment of unit price due to significant production or operating changes, significant raw material price changes, other unforeseen factors, or incorrect information from GM. Formula for sharing unusually large financial losses.
4. **Responsibilities** - GM's UAW employees provide most of the hands-on work, including chemical changes and additions. BetzDearborn's activities include:
 - Purchasing and inventory control
 - Monitor and coordinate chemical usage
 - Research and improve chemical performance
 - Maintain lab for chemical and regulatory testing
 - Ongoing reporting and communication
 - Product and process engineering development
 - EHS compliance and training
 - Continuous waste minimization
5. **Liabilities** - basic provisions for ownership of chemicals, prohibition of silicone-containing materials, and financial commitments. Liability associated with individual events is determined on a case-by-case basis.
6. **Performance Requirements** - unit prices to be steady or declining. Targets for overall plant savings, including an annual savings equal to 5% of the value of the contract. Savings may also involve contributed R&D. Use of drums is to be minimized. System performance limits (water discharges, chemical concentrations in boiler water, etc.).

Second, management service fees are paid to BetzDearborn for “extra” services such as chemical tracking and health and safety training programs. These are typically annual fees which do not vary with production or chemical use.

Third, several performance targets are specified. Unit prices for chemical services are expected to be steady or declining over time. In addition, GM requires that cost savings of at least 5% of the value of the contract are achieved annually. However, this does not have to be in the form of reductions in chemical costs alone. In fact, many of the most significant cost savings have come from improvements recommended by BetzDearborn but unrelated to the chemical systems managed by Fritz Benton.

BetzDearborn serves as the Tier 1 supplier, tapping Tier 2 suppliers for most solvents, commodity chemicals, lubricants, and maintenance paints. A similar cost-per-unit system is used by BetzDearborn to pay these Tier 2 suppliers, and several of the Tier 2 suppliers provide on-site chemical managers as well. Though the Tier 2 suppliers work for BetzDearborn, GM is involved in the process of selecting and approving Tier 2 suppliers and their products. On-site representatives from these suppliers often work directly with GM employees. However, all new product ideas, as well as all prospective suppliers, must be approved by BetzDearborn first. GM normally works only with ideas, products, and suppliers brought to them through BetzDearborn.

BetzDearborn is responsible for a full array of chemical management services from inventory management to waste minimization (many of these activities are summarized in “The Contract” box). One of the many important activities is chemical purchasing. All chemical purchasing at the Janesville plant must be coordinated through BetzDearborn. GM employees who need a chemical cannot make independent purchases. The BetzDearborn on-site manager is expected to respond promptly to any employee’s request, yet follow GM’s chemical approval and acquisition procedures. This approach has eliminated the confusion over the number, type, and safety of chemicals used at the plant, as well as the duplication of purchases and the build-up of overstocked and outdated inventory.

“This gives us a huge competitive edge,” Fritz Benton, BetzDearborn

While basic chemical management activities, such as purchasing and inventory management, dominated the early years of the contract; chemical research and development activities have more recently become an important component of the CMP relationship. From reducing paint detackification sludge to new paint booth coatings, BetzDearborn and their Tier 2 suppliers develop dozens of new product and process ideas each year. The supplier’s on-site managers have become more valued as sources of chemical expertise than as sources of chemicals. Fritz Benton provides some recent examples:

“GM Maintenance employees were having a problem with algae growth in the drinking fountains. They came to us for some of our biocides. But this was a problem they could solve with the proper use of bleach. It was a much simpler

solution and saved them money as well. They also had a problem with some of the airhouses - a fishy smell. They asked us to help solve the problem. From water samples, the BetzDearborn labs were able to identify the organism and recommend an appropriate biocide. We also were able to recommend changes in procedures to minimize recurrence of the problem. Another problem was found in the fluid filling area of the line where floors often got slippery. Working with Sherwin-Williams, our Tier 2 maintenance paint supplier, we were able to bring in a floor coating that retained its friction, yet was easy to clean and did not degrade from contact with the fluids."

THE PEOPLE

The BetzDearborn on-site manager and GM personnel enjoy an excellent working relationship. Fritz Benton, BetzDearborn's on-site CMP manager, reports directly to Mike Merrick, Senior Environmental Engineer for the Janesville plant. However, Benton has regular contact with a wide variety of plant personnel, from senior management to hourly workers. Benton and other on-site supplier representatives serve on the Chemical Management Committee. In addition, Benton is expected to meet for regular updates with the booth cleaning supervisor, booth cleaning hourly workers, pipefitter supervisor, and Power House chief engineer. Benton produces minutes from many of these meetings. In addition to Benton and two part-time BetzDearborn technicians, many of the Tier 2 suppliers provide on-site management personnel on a part-time basis. Together, over 5,000 man-hours of chemical expertise are provided on-site each year.

Evolution of the Relationship

CORPORATE ORIGINS

The origins of the General Motors' CMP program date from the mid-1980s during the effort to win back market share from the growing tide of import autos. Measures to identify "non-value-added" activities led a group at GM to rethink the quality control procedures for incoming chemicals. Mark Opachak, one of the members of that original team, explains:

"We realized that each plant spent a tremendous amount of time and money checking and double checking the quality of chemicals that were entering the plant. In some plants we spent well over \$1 million a year. We were assuming responsibility for our supplier's product. If we could get our suppliers to assume that responsibility, it could save us a lot of money. We needed to make it in the best interest of the supplier to take that responsibility. We needed a partnership."

To create that partnership, GM realized they would need to give their suppliers a direct stake in any benefits produced by the partnership. To do this, they used *unit pricing*: paying the supplier a fixed fee per unit of production, regardless of the volume of chemical used. Combined with the supplier consolidation efforts underway at the time, this idea developed into a powerful program that changed the way they handled chemical supply throughout the corporation. GM would focus on its core business, building cars and trucks, while the chemical suppliers would focus on their core business, chemical management.

CMP AT JANESVILLE

At this same time in Janesville, Wisconsin, Dearborn was a minor supplier of wastewater treatment polymers to the Janesville Assembly Plant under a standard chemical supply contract. However, when the corporate Chemical Management Program reached the Janesville plant in 1990, Dearborn had demonstrated its performance abilities and was able to submit a competitive bid to provide chemical management services.

In 1991, Dearborn was awarded the plant's two-year Chemical Management contract, covering water treatment chemicals for wastewater treatment, powerhouse, cooling towers, and welder water systems. It also included paint detackification for the medium-duty truck side of the plant. In 1992, the program was expanded to include paint detackification for the "Suburban and Tahoe" line as well.

EXPANSION

Dearborn won a three-year extension of the contract in 1993, expanding the footprint to include additional paint detackification systems and paint booth maintenance products. This was expanded further in 1994 to include lubricants, commodity chemicals, and maintenance paints, as well as management of the paint line purge systems.

Most of the chemical systems added to the CMP contract were beyond the scope of water treatment and did not involve chemicals produced by BetzDearborn. As a result, BetzDearborn's Tier 1 responsibilities expanded substantially to include managing Tier 2 suppliers who oversee commodity chemicals, maintenance paints, lubrication chemicals, and purge solvents. Many of these suppliers, in turn, managed supply contracts with Tier 3 suppliers.

Because of BetzDearborn's demonstrated chemical management expertise, GM has added a chemical management fee to the contract. This fee pays for overall chemical use tracking and reporting, certain health and safety programs and other management activities. One recent responsibility involves extensive upgrades to chemical safety labeling in the plant. Collecting data needed to document VOC reductions, as well as for EPA's SARA Title 3 reporting requirements have also been significant new responsibilities.

The Benefits

BENEFITS TO GM

Most companies struggle just to keep annual increases in chemical purchase expenditures to a minimum; but under the Chemical Management Program, there has actually been an 8% *decrease* in chemical costs per vehicle since 1993, the base year for the contract at Janesville . And this cost factor includes the management fees paid to BetzDearborn for their expanded services. These savings are the result of a wide array of improvements made by BetzDearborn and the Tier 2 suppliers.

SELECTED BENEFITS FOR
GM-Janesville

- Substantial overall savings.
- 8% decrease in chemical costs with significantly expanded services.
- Improved inventory control and reduced inventory costs, as well as product consolidation.
- Training and other programs to improve health and safety protection.
- Chemical tracking for easier compliance reporting.
- Reduced VOC emissions and sludge disposal.
- Reduced downtime and labor cost for sludge clean-out.
- Many other improvements which reduce labor overtime, improve process efficiency, improve product quality, and reduce rework.

Though GM has requested that specific financial data not be disclosed, the program has produced very substantial savings in chemical-related costs at the Janesville plant. Much of this is due to reduced chemical purchase costs, but more than half resulted from reducing “hidden” chemical costs. For example, the plant saves substantial amounts each year in inventory management costs and in equipment and computers provided by the suppliers. Because the contract requires GM to generate only one purchase order per year, they have significant savings in personnel time related to the chemical acquisition process.

Other projects have also helped to reduce the chemical burden at Janesville. Paint detackification systems typically produce large amounts of sludge. Periodically, sludge settling tanks must be cleaned out. This required that manufacturing operations be shut down, and was often scheduled for holidays or other down times. BetzDearborn recommended changes which reduced sludge clean-out time 80%, saving substantial labor costs. Also related to

the paint sludge system, BetzDearborn did laboratory research on paint sludge chemistry, saving GM consulting expenses. An audit program by Tribol, the Tier 2 lubricants supplier, uncovered three malfunctioning lubricators, resulting in a substantial annual savings for GM. Many of the suppliers provide employee training in proper use chemical as part of their chemical management services.

Many other activities have reduce chemical-associated costs, even though the savings are difficult to quantify. For example, the number of different chemical products has been reduced significantly in all areas, including a reduction of over 50% in the number of different maintenance paints used in the plant. Product consolidation reduces the cost of product approval, health and safety training, and environmental reporting. Chemical inventories have been reduced, including a reduction of over 78% in maintenance paint inventory. Reduced chemical inventories decreases the risk of chemical spills and other chemical-related liabilities. Chemical use audits by BetzDearborn and the Tier 2 suppliers has improved chemical use efficiency while reducing emissions and employee exposure.

GM has also experienced benefits unrelated to the chemicals covered by the CMP contract. For example, the cotton covers used to shield robots from oil and dirt were being disposed of after they were soiled. Working with BetzDearborn's contacts in the industrial laundry field, he set up a program to wash the covers instead of disposing of them. Now covers can be used as many as six times before wearing out, producing a significant savings for GM.

BENEFITS TO BetzDearborn

The greatest benefit to BetzDearborn is the competitive advantage it gives them in their highly competitive industry. "This gives us a huge competitive edge," remarks Fritz Benton. "There aren't many companies who can offer this kind of service."

One tangible outcome of that edge is the opportunity to renegotiate the Janesville contract rather than rebid it. Explains Benton, "We've done a good enough job here that they're pretty happy with us." Rebidding a contract is costly for both sides. BetzDearborn successfully bid the contract in 1991 and again in 1993. Renegotiation would let them put their time and effort into performance and product improvement rather than bid preparation.

Another tangible outcome is expanding business opportunities. Within the GM plant, BetzDearborn's footprint has expanded yearly, both in terms of the chemical systems covered and the services provided. But it also has given them the opportunity to expand into other GM plants, and to use their experience at GM to win contracts with other companies.

SELECTED BENEFITS FOR BetzDearborn

- Revenues from cost reductions.
- Expanding chemical and service footprint.
- Customer loyalty and the opportunity to renegotiate rather than rebid the contract.
- Opportunities to expand to other GM plants.
- Inside information for market research and development.
- Product R&D test opportunities.
- Experience, including valuable chemical tracking experience, that could be used to obtain new accounts.

BetzDearborn has been able to secure management fees, on top of their existing unit prices, for certain value-added management services. Though these cover a wide array of services, chemical use and emissions tracking has become a prominent management-fee component of the program. Benton notes the competitive value to his company.

Chemical usage, VOC tracking, SARA Title 3 reporting - these are services many companies need. Yet a lot of companies do not have the staff to track and report these as well as they would like. Their environmental engineers are swamped with other duties. Chemical use is our business, and we have aligned ourselves with some other companies to prepare a total tracking system if our customers need it."

BetzDearborn has developed a new computer program to provide these data and information services for their customers as well as their own chemical operations.

The Problems

"You have to maintain a *cordial working relationship*", explains Benton. "That's how you work through the problems." A good example was how GM and BetzDearborn handled a chemical spill:

"One time a GM employee accidentally put a fork lift tong through a chemical tote. Of course, we responded to the spill and managed the clean-up. But we lost a lot of chemical - and in this plant, it's our chemical. There could have been a lot of arguing about fault and responsibility. But both GM and BetzDearborn know that their relationship is more important than the cost of the lost chemicals. The GM people noted a recent accounting error that had over-credited the BetzDearborn account. The two dollar amounts were about equal, so both sides called it a wash. It has to be a cordial and fair relationship. There has to be a commitment to work through problems, not take advantage of them."

The commitment to work through problems and maintain long-term relationships with chemical suppliers is evident even at the corporate level in GM. Mark Opachak, with GM's World Wide Facilities Group explains.

"Look at the Chemical Management Program as a marriage. Our contract has a 'divorce clause', but in a healthy marriage you don't get married with plans for a divorce, and you don't stay married out of fear of divorce. Fear is not a good motivating factor. There has to be a positive, fair relationship with a desire to be together. The divorce clause is one millionth of the contract's importance. As far as we are concerned, a CMP contract is forever! Divorce is not an option."

Yet coping with change can stress any marriage. While change is inevitable and good for a company, it can pose challenges for a chemical management program. GM has

made recent expansions and equipment changes at Janesville. Why is this a problem? Benton explains:

"It's ideal when you have good baselines and everything stays the same. You can compare your improvements easily to that baseline. But when things start changing out there, how do you know you are doing better? We're working on this together, but to tell the truth, we don't have all the answers, yet."

Getting the program started at Janesville was not without its difficulties, even though it had strong support from corporate and plant management. Winning over the personnel who would be directly affected by the program was a priority. Bill Knick, Chief Engineer for the power house recalls his own experience:

"We understood the old way of doing business - chemical sales. Going to just one supplier, that didn't sound right. And I thought I would lose control of decisions around here. But it hasn't turned out that way at all. I'm still in charge and I can monitor performance even better than before. The supplier brought in someone who really understood boilers and understood my problems. In fact, I was involved in picking the supplier. They have provided free consulting that has saved us money. I'm pleased with the new program."

Linda Little, Environmental Engineer at the Janesville plant, put it this way:

*"Management, unions, environment, health and safety staff - they all have to buy-in. That takes good on-site people from the supplier. They have to be **people people**."*

Mike Merrick, Senior Environmental Engineer and CMP Coordinator at the Janesville plant notes that the program must be implemented carefully, involving everyone along the way.

"GM has a 19 step process that is used to bring CMP in at any plant. From prequalifying suppliers to writing performance specifications, it is important to keep everyone involved."

Susan Kelsey, with GM's corporate World Wide Facilities Group, explains the corporate view:

"To implement CMP successfully requires a team approach. People have to be involved. Failure to use a team approach is the number one barrier to successfully implementing CMP at a plant."

Another problem can arise when the CMP Tier 1 supplier interfaces with other suppliers outside the CMP umbrella. For example, at Janesville, body paint is not under the CMP. Paints are supplied by another supplier on a traditional dollar-per-gallon basis. However, the actions of the paint supplier can affect the chemical management

program. For example, tests of a new paint product required multiple runs through the spray guns, with flushing of the hoses and guns between runs. Both the purge solvent used in flushing the guns, and the waste generated by the tests fall under the responsibility of BetzDearborn and the CMP contract. The added costs required documentation in order to seek compensation from GM. However, instead of responding to these ongoing conflicts through legal or contractual means, BetzDearborn responded "cordially". They moved the office of the purge solvent representative into the paint department, next to the office of the paint supplier, and worked to establish a closer relationship between all the parties. Problems related to the paint testing and cleaning declined significantly.

A potential problem that BetzDearborn and GM have taken seriously is job security. They do not consider this program to be a job reduction strategy. They do believe their actions can relieve some of the headaches from existing jobs and help redirect employee time to production and process improvement. Benton relates the following story as one of his favorite examples of how this program can improve employees' work lives:

"We were going into another plant with a CMP contract that included the wastewater treatment plant. The chief operator was getting ready to retire at the time of the contract. However, after we came in and provided advice and helped make a lot process changes, he said his job had improved so much that he decided to stay another two years!"

BetzDearborn also takes union relations seriously. "We were very careful not to take any union work away," explains Benton, though he admits that sometimes workers move to other jobs when the chemical activities they were performing are no longer needed. Benton continues:

"We try to be an asset to the union members by keeping them informed. I talk with them about upcoming changes and work to make the changes smooth and manageable. Or we may be able to help them with other problems. They were using a cleaner that required extensive personal protective equipment. They came to us for suggestions and we were able to find a product that works just as well, and they don't have to suit-up anymore."

The Future

The future of CMP at Janesville looks bright. BetzDearborn and the Tier 2 suppliers already have dozens of improvement ideas slated for the coming year. These include a plan to install a bulk purge solvent tank which would save money on materials handling; the use of in-line purge solvent flow restrictors to further reduce solvent waste and air

emissions; and placing the lubrication supplier, Tribol, in charge of the lube cycle program for 360 body shop robots.

A major addition to the contract that both sides are looking forward to is the implementation of "gainsharing". Under this program, ideas from BetzDearborn which result in savings to GM, in areas beyond chemical management, could translate into additional revenue for the suppliers as well as benefits for GM. This is intended to further promote the implementation of creative ideas such as those for quicker sludge cleanouts and washing robot covers, which BetzDearborn has generated in the past. Through the gainsharing program, documented savings from such ideas would be shared between GM and BetzDearborn. The gainsharing approach is consistent with GM's vision of the CMP concept. "Gainsharing is where the real benefit lies for GM", explains Mark Opachak. "It's that extra pair of eyes, that fresh look, that an experienced supplier brings to the plant that can help us solve the big problems."

Fritz Benton sees no end in sight. "This program just continues to grow", he says, "there are more opportunities everywhere we look. I love my job!"

Contacts

To learn more about the GM/BetzDearborn relationship at the Janesville Plant.

GM

Mike Merrick, Senior Environmental Engineer and CMP Coordinator for Janesville Plant, 608/756-7686.

Raj Mishra, CMP Director, World Wide Facilities Group, 313/556-6757

Nancy Shilling, CMP Purchasing Manager, World Wide Purchasing, 810/236-6424 (for contract and purchasing information)

BetzDearborn

Fritz Benton, CMP Site Manager, 608/756-7773

Kevin Guy, Corporate Accounts, 215/773-6342

Shared Savings Case History

Navistar International and Castrol Industrial North America, Inc.

Melrose Park, Illinois
Engine Plant

Thomas J. Bierma
Frank L. Waterstraat
Illinois State University
309-438-7121

Navistar Engine Plant

Bob Hendershott had recently designed and implemented a new tracking system for the cleaning solution. Hendershott worked at Navistar International's engine plant, where parts washers are used at many points in the manufacturing process. The new system tracked cleaning solution usage by individual washer, not just department, and on a much more frequent basis than in the past. It wasn't long before he identified a problem. One machine was using far more coolant than the others. A follow-up analysis by Hendershott found that the washer had a faulty filling mechanism, spilling cleaner into the overflow each morning when the machine was turned on. Because the faulty mechanism was inside the washer, no one had ever observed the problem. Without Bob's new tracking system, the leak may have gone undetected for years.

Management was thrilled! Fixing the filling mechanism dramatically reduced cleaner usage as well as cleaner discharge to the wastewater treatment plant, saving money and reducing waste. Hendershott received some well-deserved recognition for his work. But not just from Navistar. In fact, he did not even work for Navistar. He worked for the company that supplied the cleaning solution to Navistar, and the supplier, his employer, was just as thrilled!

Summary

The Navistar International engine plant in Melrose Park, Illinois, has had a decade-long *Shared Savings* relationship with Castrol Industrial North America. The fixed-fee contract, covering coolants, cleaners, and associated additives, has produced dramatic results. The financial incentive for Castrol to improve chemical use efficiency at the plant has resulted in a reduction in coolant usage of more than 50%, and a reduction in coolant waste of more than 90%.

Coolant use was reduced by more than 50% and coolant waste by more than 90%.

But the benefits are not limited to chemical volume. Navistar experiences less production downtime and improved product quality. Potential production, health, and environmental problems are identified and resolved more quickly, before they become significant. Compliance reporting is much easier, given the chemical tracking data provided by Castrol. Overall, the opportunity for each company to focus on their core business has produced superior performance and profitability.

The Navistar Engine Plant

The Navistar Diesel Engine Plant in Melrose Park, Illinois, employs 1,200 people in a 1.5 million square foot manufacturing facility. Originally built in 1941 to make aircraft engines for the B-24 Bomber, the plant now produces about 200 diesel truck and bus engines per day. In 1986, the Navistar International company was born from the dissolution of the International Harvester company after it sold its farm equipment division.

The plant uses a wide array of chemicals, from oils, coolants, and cleaners in manufacturing, to water treatment chemicals in auxiliary operations such as cooling towers, waste water treatment and boilers. The Environmental Control staff at the plant, directed by Jerry Mittlestaedt, are responsible for compliance and waste minimization programs for all chemicals.

Castrol Industrial North America

Castrol Industrial North America, Inc. is one of several metalworking fluid suppliers who provide advanced chemical management services to their customers. Castrol has been implementing *Shared Savings* chemical supply programs since the mid-'80's. Their program can be tailored to meet the specific needs of almost any manufacturing customer, but generally involves a wide array of chemical services through on-site management and a fixed-cost structure for billing.

The Navistar/Castrol Relationship

THE CONTRACT

As with any major manufacturing facility, Navistar uses a wide array of chemicals. The Castrol *Shared Savings* contract focuses on two, high-volume groups of chemicals: coolants and cleaners (and related additives). Other chemical suppliers provide most of the chemicals outside these two groups. Navistar has not yet established *Shared Savings* relationships with these other suppliers.

The program uses a fixed monthly fee, which was established from historical chemical use data. This arrangement provides a significant incentive for Castrol to improve chemical use efficiency and cut waste.

A portion of the savings from improved efficiency are returned directly to Navistar through a rebate program, which has provided as much as \$10,000 or more per year in cash benefits.

THE PEOPLE

Castrol provides a full-time on-site manager, Bob Hendershott, who is assisted by a full-time, on-site technician to support an array of services. Though the Castrol representatives oversee logistic, compliance, and application services, it is UAW workers who still perform the hands-on work. This has promoted a productive, cooperative relationship between Castrol and the union. Bob Hendershott emphasizes that the *Shared Savings* contract "was not implemented as a head count reduction program at Navistar."

The Castrol on-site personnel work directly with Bob Monroe, head of the Machining Business Team Unit (BTU), who reports to the Plant Manager. Hendershott provides monthly progress reports to the

Machining BTU, including chemical usage and savings, but also has a close, day-to-day working relationship with supervisors and the other Machining BTU personnel on the plant floor. He also works with other departments involved with plant chemicals including Purchasing, Environmental Control, and Health and Safety. He serves on several chemical-related committees, and chairs the Coolant Committee for the plant.

Though the contract specifies the services to be provided by Castrol personnel on a day-to-day basis, Bob Hendershott assumes responsibilities beyond the contract. His workday is defined more by the needs of Navistar's production process than by the

THE CMS CONTRACT

- 1. Chemical Footprint** - coolants, cleaners (excluding solvent and aerosol), and associated additives.
- 2. Financial Relationship**
 - fixed monthly fee for coolants and additives
 - fixed monthly fee for cleaners and additives
 - staffing level and additional staffing fees
- 3. Risk/Reward** - formula for sharing unusually large financial gains or losses. This has produced annual rebates to Navistar for large reductions in coolant usage. It also covers significant shifts in chemical costs.
- 4. Responsibilities** - lists the responsibilities of Navistar and Castrol. Navistar UAW employees provide most of the hands-on work, including chemical changes and additions. Castrol activities include:
 - Purchasing
 - Inventory and distribution management
 - Container management
 - Quality assurance and maintenance oversight
 - Testing and lab analyses
 - Product and process engineering development
 - EHS studies and training
 - Process and waste problem solving
- 5. Liabilities** - sets out division of liabilities for chemical management and performance, including rust prevention. Liability from chemical losses prior to unloading from the truck remain with Castrol. Losses after unloading are allocated based upon who was responsible.
- 6. Performance Requirements** - expected chemical volume and cost reductions as well as specific projects to be completed by both Castrol and Navistar.
- 7. Customer Feedback System** - procedures followed by Castrol to assess the level of satisfaction of its Navistar personnel customers.

details in the contract. As Bob Hendershott says “you get to the point where you really start to feel like you’re a Navistar employee. You are looking out for both sides.” With activities ranging from anticipating future regulatory problems to providing coverage for the plant chemist while he’s on vacation, Hendershott routinely exceeds the scope of the contract to meet the needs of Navistar. Though Castrol receives no fees directly for these additional services, they contribute to the strong customer loyalty Castrol has earned at Navistar. As with other successful *Shared Savings* relationships, it’s the strong personal working relationships established between Castrol and Navistar personnel which is most remarkable. After years of working through problems together, both sides continue to “sing each other’s praises.” This explains why the 10 year relationship between Castrol and Navistar is stronger today than ever.

Evolution of the Relationship

Great business relationships often emerge from humble beginnings - and stressful circumstances. This is clearly evident at Navistar.

GETTING STARTED - THE HARDEST PART

The 1980s was a period of “reawakening” for many American industries, and the automotive industry was no exception. It experienced one of its worst slumps in history and took a severe economic beating from a slowdown in the economy and from foreign competition. On top of this, the downturn in the farm economy forced International Harvester Company to sell off its farm equipment lines and reform itself as Navistar International. In the mid-’80s, Navistar plants were downsizing and searching for efficiency improvements. At the Melrose Park engine plant, downsizing meant focusing on their “core business,” reducing costs and improving operational controls. The company was seeking new ways of accomplishing more with less. For Rudy Benath, Plant Chemist, this meant finding a way to perform the numerous responsibilities of the burdened chemical management staff with fewer people.

“Castrol had to earn everyone’s trust over time,” Brian Nordman, first on-site Castrol representative.

In 1985, Benath was approached by a Castrol representative with a novel concept: make Castrol the sole supplier of coolants for the plant. In return, Castrol would accept a flat monthly fee for the fluids - at a rate below Navistar’s current monthly coolant bill. In addition, Castrol would perform many of the routine monitoring tasks which Benath’s staff were struggling to complete, such as testing and maintaining the coolant systems throughout the plant. The fixed-fee arrangement ensured that both Castrol and Navistar would benefit from the improved chemical management and reduction of chemical use in the plant .

The Navistar engine plant was to be one of Castrol's first experiences with what they call their Castrol + Plus™ program, or more generally "Chemical Management Service" (CMS). Today, CMS has become Castrol's fastest growing business segment.

OVERCOMING RESISTANCE

Though CMS provided Navistar with a variety of benefits, the initial champions of the program, the plant chemists, saw it as an opportunity to refocus their limited resources on activities aligned closer to the company's core business - production, quality control, health and safety. In addition, Navistar stood to benefit from the stable chemical costs and assistance in reducing environmental discharges. Rudy Benath and his chemical staff worked long and hard to gain the support and approval of key Navistar decision-makers to implement the new contract. In the beginning, it was rough going. It proved to be a "hard sell" to the various Navistar departments and divisions involved in setting up the new contractual arrangement.

Some of the sources of Navistar's concern were:

- *Manufacturing units* - At that time, Navistar used many different companies to supply their manufacturing chemicals. Castrol was just one of several coolant suppliers. The manufacturing units in the plant were skeptical about replacing suppliers that they had used for years. The thought of relying solely on a single supplier, Castrol, made the manufacturing units very uncomfortable.
- *Purchasing* - Purchasing personnel were initially concerned about setting up an "open" purchase order. Even though the monthly fee was fixed, a purchase order that did not specify quantity and unit price was "hard to swallow." It simply was not consistent with past practice and experience.
- *Maintenance* - Maintenance personnel had responsibility for maintaining machining equipment and fluids. Their concern was that mistakes by Castrol would increase their workload.
- *Legal* - Liability was the primary concern of the legal department. The CMS contract represented a new type of business relationship. Castrol representatives would be performing some tasks which previously were performed by Navistar personnel. It was unclear how responsibilities and the associated liabilities would be assigned. The means of terminating the relationship also needed to be specified.

It took over a year, but eventually all the key Navistar personnel, including the plant manager, took the risk and approved the contract. "It took strong support from plant management," notes Brian Nordman, the first on-site Castrol representative, now a

Castrol site manager at Delphi Saginaw Steering Systems, "it was like a marriage and Castrol had to earn everyone's trust over time."

THE FIRST CONTRACT

To evaluate CMS on a limited basis, Navistar gave Castrol one of the five central coolant systems in the Machining BTU. The 70,000 gallon system supporting the engine block machining process was the system giving Navistar the most problems. The fee was fixed at the previous year's average monthly expense with a small discount. Castrol assumed the responsibility for monitoring the use and condition of all Castrol chemicals in the system. A field representative from Castrol provided these in-house services to Navistar on a part-time basis.

"It saves us tons of money and improves the environment. This whole thing is just good business." - Jerry Mittlestaedt, Environmental Control Manager.

Navistar realized immediate benefits from the new relationship. The chemical staff were able to devote more time to quality control and process improvement with noticeable results. With the routine chemical monitoring provided by Castrol, machining fluids were maintained consistently within operating specifications, resulting in less machine down-time and fewer machining defects. Incidents of chemical injuries (e.g. dermatitis) also declined. The Castrol personnel were experienced with adjusting the fluids to meet performance specifications while controlling chemical concentrations to reduce personnel hazards. Inventory control improved and costs declined. Wastewater discharges declined dramatically as coolant waste was reduced.

An additional key benefit was the reduction of scrapped and reworked engine components. By actively managing process chemicals the performance of the coolants and cleaners improved, machining defects dropped and rusting incidents declined. Rework on engine blocks and heads declined 93%. These factors contributed to reducing production costs by \$1.50 per engine. Within the first few years of the contract, skepticism at Navistar began to disappear, and both sides developed a strong, close working relationship.

FULL-TIME

After almost three years of experience with a part-time field representative, a full-time Castrol CMS site manager was hired. The CMS contract was expanded to cover all five central coolant systems. The on-site manager's responsibilities were expanded to include chemical purchasing, inventory control and distribution as well as assuming an active role in production improvement. Purchasing and chemical management costs for Navistar continued to decline.

The on-site manager also began to take a more active role in several of the quality teams that Navistar had organized, particularly the Coolant Team and the Safety Team. These teams initially had trouble getting off the ground and functioned below their potential. The on-site manager, however, served as a focal point and a resource for these groups and helped them become proactive and productive in addressing chemical management issues in the plant.

It was also in this phase of the relationship that Castrol began to significantly reduce chemical usage. Castrol personnel worked together with Navistar personnel to identify processes and applications where Castrol products would solve fluid use and management problems in the plant. Many coolant applications were switched over from soluble oils to synthetics, extending coolant life and reducing fluid “carry out” on the parts. Navistar purchased a portable coolant repolishing unit upon Castrol’s recommendation, which removed contaminants and tramp oils thus extending the life of the fluid, improving fluid performance and reducing waste.

“Navistar is in business to make engines, the best engines they can. Castrol is in the business of coolants, rust preventatives, cleaners, and that’s what we do 100% of the time.” - Bob Hendershott, Castrol On-site Manager

The CMS manager worked on resolving incompatibilities between coolants and cleaners. Previously, chemical incompatibility problems had resulted in “spotting” on the product, reducing quality. The changes recommended by the on-site manager eliminated the spotting problems and improved product quality. Castrol provided all the analysis and testing resources required in their own laboratories, reducing the R&D expenses for Navistar.

The Benefits

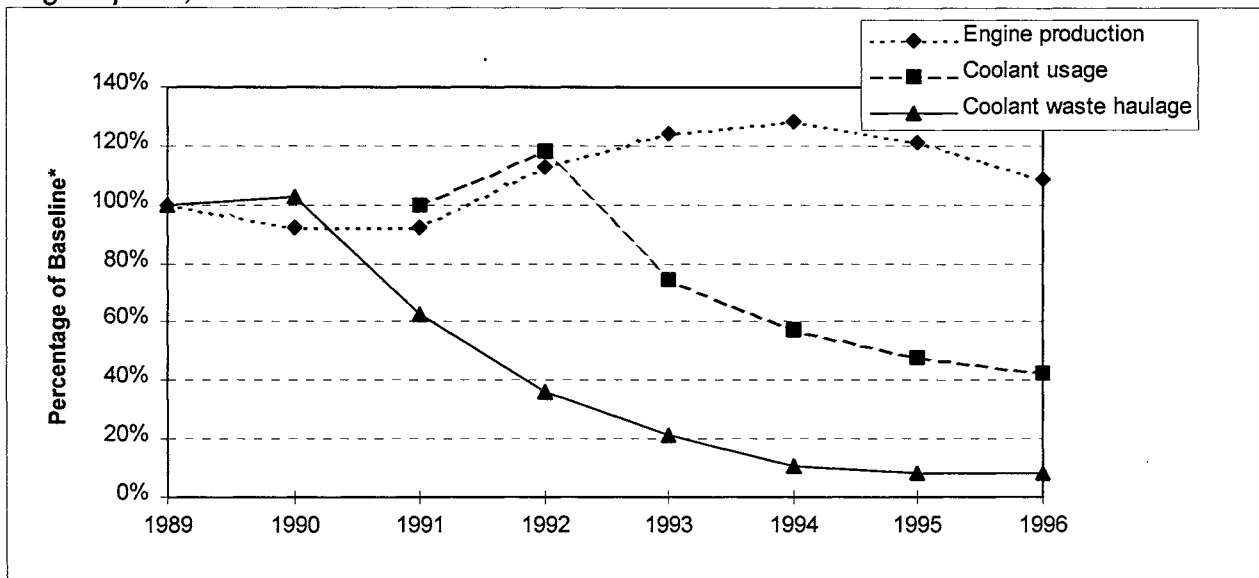
“It’s saved us a lot of money on raw materials and waste disposal,” is the reflection from Jerry Mittlestaedt when asked about the *Shared Savings* relationship. “I’m amazed at what a great program this is.” Mittlestaedt is the Manager of Environmental Control at the plant and an enthusiastic advocate for the benefits of this innovative chemical supplier relationship.

“You can look at the bottom line,” says Castrol’s Hendershott. “You can look at production over time and the reduction in chemical usage. Production is steady or climbing and chemical usage is going down - waste is going down.” Figure 1 illustrates this for coolant usage at the Melrose Park Plant. Though production has increased, coolant usage has been cut by over 50% and coolant waste haulage has been cut by over 90%.

These kinds of benefits are the most dramatic and easily measured. But they are not the only benefits. Coolants and cleaners are critical to the proper operation of machinery, the health and safety of the workers, and the quality of the product. “Not properly managing our coolants and cleaners could *stop* production,” comments Mittlestaedt. “If we don’t run our assembly line at 200 engines in 8 hours that’s a million dollars in lost production. If there is a problem with a part like a crankshaft...you could shut this assembly line down. I can’t tell you how important this [Castrol relationship] is.”

Navistar has also benefited from Castrol’s expertise in coolants and cleaners. As Bob Hendershott summarized it, “you’ve got one rep here but in addition to that you’ve got all the Castrol people that are behind that rep who are here basically every day. Like the other day, questions came up with some health concerns about coolant that had been in the system for quite some time. I called our Toxicologist to assist us with the problem.”

Figure 1. Engine production, coolant usage, and coolant waste haulage, Navistar engine plant, 1989-1996.



*Records on coolant usage not available until 1991.

Sanjay Patel, a Navistar environmental engineer, added to that point. “If we have a problem - such as a metal is creating a problem with this coolant - you can bring that back to Castrol and they will adjust the product to solve the problem. I don’t think we would have the capability to do it on our own. These people [Castrol] are professional. They are always continuously researching new ways to make this better.” To that, Hendershott responds, “Navistar is in the business to make engines, the best engines they can. Castrol is in the business of coolants, rust preventatives, cleaners, and that’s what we do 100% of the time.”

Because chemicals are Castrol's core business, and chemical usage is directly linked to cost, Castrol tracks chemicals more efficiently and effectively than Navistar could. Castrol personnel track chemical usage to individual machines and sumps, rather than units or divisions. They constantly monitor machine usage and chemical inventory levels. This has provided some valuable additional benefits for Navistar. Environmental compliance reporting has become much easier, and no longer requires the environmental staff to make their annual "scavenger hunt" to find chemical use and inventory data.

BENEFITS FOR NAVISTAR

- Coolant usage reduced by over 50%, coolant waste haulage reduced by over 90%.
- Up to \$10,000 per year as rebates for reduced chemical usage.
- Reduced production downtime.
- Improved product quality, reducing engine block and head rework 93%.
- Reduced wastewater loading.
- Improved inventory control and reduced inventory costs.
- Improved health and safety protection.
- Easier compliance reporting.
- Illinois Governor's Pollution Prevention Award.

In addition, chemical use tracking allows problems to be identified quickly. Bob Hendershott, Castrol on-site manager, explains one example:

"One washer had a problem with the flow control for the automatic make-up. Every morning when they would turn it on it would overflow. Nobody saw anything, they'd turn it on and it would seem fine. Now we can track usage by machine...so it was a case where we could see that one month's usage on this particular washer was very high. So I started questioning people, going out there and looking into it. Next month it continued to be high and we were able to get the manufacturer in and found the problem. The usage went down below what it was before the problem."

Rudy Benath, Navistar's plant chemist, added:

"It would've probably gone on for years. Even if we found it when looking at the year-end numbers, we might not have pinpointed that machine - the whole department's usage would've been high."

Having an on-site representative means that Castrol can identify and resolve chemical related problems before they get out of hand. This has produced benefits for both Navistar and Castrol. For Navistar, they've been able to make needed process or chemical product changes quickly and effectively before serious problems develop. When initial concerns began to surface about the health risks of coolant additive DEA, Castrol was able to phase in a substitute without interrupting production. When a coolant or cleaner is causing a problem on the line, a call to the on-site manager usually resolves the problem quickly. Bob Hendershott relates another story. "We had this concern with a maintenance cleaner, its a Castrol product. It has a high pH - 12 or 13. It's hazardous but its compatible with the coolants. So we all talk about it. What

pH range are you looking for? Something around 10, 10.5. I go back to our corporate people to find what would be compatible with the coolant, be a good cleaner, but have a lower pH. We identify a new product. I bring the MSDS and Rudy [the plant chemist] takes it to his meeting and we review it. If it looks fine we bring a sample of it in.”

Jerry Mittlestaedt commented on how well Castrol anticipates problems. Some of the additives they use contain TRI-reportable materials. Jerry was becoming concerned because “some of these chemicals were not over the reporting limit but they’re getting up there.” When he brought the concern up with Hendershott, he found that “Bob’s already got a plan in place and working on it. I couldn’t believe it.”

For Castrol, this means the ability to provide almost complete customer satisfaction. In a traditional relationship, the sales representative might hear about a problem only when someone got mad enough to call. As Bob Hendershott relates, “Being at Navistar on a regular basis allows me to pull samples and do testing on a regular schedule. I identify problems as they occur so problems do not happen very long before I intervene. Therefore problems don’t continue for two weeks until someone calls you and says

‘Castrol, your product isn’t working. We got two weeks of bad parts because of you guys’.” Jerry Mittlestaedt agrees, “With a quick Castrol response we nip the problems in the bud.”

- | <u>BENEFITS FOR CASTROL</u> |
|---|
| • Expanding chemical and service footprint. |
| • Customer loyalty. |
| • Opportunities to expand to other Navistar plants. |
| • Inside information for market research and development. |
| • Product R&D test opportunities. |
| • Experience that could be used to obtain new accounts. |

Castrol has increased the size of their account, not by selling more chemical, but by providing additional chemical solutions to Navistar’s problems. In addition, Castrol also has immediate access to a “real world” production environment to identify new chemical needs and applications as well as a “beta-test” site for their new products.

An unexpected, but valuable benefit for both Navistar and Castrol has been public recognition of their efforts. Based upon the work of the Navistar/Castrol team, the Melrose Park plant was awarded the Illinois Governor’s Pollution Prevention Award. The Melrose Park plant has become recognized as a community and industrial leader in efforts to reduce waste.

The Problems

No relationship is problem-free. Successful relationships come from the ability to work *through* problems and to learn from the experience.

Production problems are not uncommon. "I occasionally get calls at home," relates Bob Hendershott, "from supervisors or process engineers on the floor. There may be parts going through a washer, then all of a sudden they are getting some residue on them, or rust. I am glad that they call because I can go out there and help assess the situation. If there is a day or so lag you're making a lot of parts that may need to be reworked. If you can take care of it right away you can save yourself a lot of trouble down the line."

Rust is an ongoing concern for Navistar, and Castrol's chemicals are designed to help prevent rust. Liability for a rust problem falls to whomever is responsible. Rust prevention is also one of the performance specifications included in the formal contract. "If there are occurrences of rust that are within Castrol's control to prevent then we are liable for it," explains Hendershott. "If it is something that is mechanical, outside of our control, then we are not liable for it. There are provisions for this in the contract."

But establishing responsibility is not always easy. As Jerry Mittlestaedt recalled, "There was one case of rust where the cause could not be identified. Castrol took responsibility and paid for it." Rudy Benath added, "It wasn't really proven whose fault it was, whether it was the product or inappropriate application of the rust preventative. It was never really proven but Castrol, being a good sport about it, had the parts reworked."

The ten-year relationship has seen numerous problems, but all have been satisfactorily resolved.

The ten-year relationship has seen numerous problems, but all have been satisfactorily resolved. Though liability was a significant concern at the beginning of the relationship, it's rarely a problem today. In fact, the Melrose Park personnel have a hard time sympathizing with the liability concerns of many companies who perceive it as a barrier to implementing a *Shared Savings* relationship. "Why are they so afraid of liability?", asks Mittlestaedt, "Isn't that part of doing business?" Hendershott reflects, "You have to take responsibility. If some chemical is being applied or used improperly, you document it in a letter or a memo. It's the same process I would use in a sales situation. If a company is not taking responsibility for its chemicals and an accident happens, they deserve to be liable for that." All agreed that whether it is a traditional sales relationship, or a *Shared Savings* relationship, both companies must take responsibility for their products and decisions.

The Future

Recently, the Navistar/Castrol contract switched back from a fixed-fee format to a variable-fee format, where Navistar pays for chemicals by the pound or gallon. What appears to be a step backward actually represents a maturing of the relationship.

Coolant usage had dropped so low that it was no longer appropriate to support the valuable on-site chemical management services. The contract has been modified to pay Castrol by the pound for chemicals, though the chemicals continue to be managed “on consignment” at the Navistar plant. That is, Castrol owns them until they are used by Navistar. In addition, Castrol receives a management fee for their chemical management services.

The change continues to bring progress in chemical use reduction. Because Navistar now pays for chemical by volume, they are even more sensitive to efforts to reduce waste. In addition, both parties have added a “gainsharing” clause to the contract. Ideas from Castrol personnel which can reduce costs or improve production for Navistar are rewarded through a sharing of the financial benefits. Thus, the *Shared Savings* spirit of the contract continues in the relationship.

Another recent change is the expansion of Castrol’s chemical footprint to include rust preventatives and lube oils. Though services in these areas are more limited, they indicate the success of Castrol’s chemical management efforts and the value they create for their customer.

With all the reduction in chemical usage, it might appear that there would no longer be a need for the Castrol representative in the plant. Jerry Mittlestaedt responded immediately to this issue, “No, no. If he (Hendershott) left it would all go to hell in a handbasket. This is a one-and-a-half million square foot facility. We make over 200 engines a day. It’s cost-effective to have Bob here every day.”

“Somebody has to watch what’s going on,” added Rudy Benath. “You’ve really got to watch. If you don’t control it, it will go all out whack. Water won’t get pumped out, the wrong product will get added, parts will get rusty.” Jerry added the final word, “It saves us tons of money and improves the environment. This whole thing is just good business.”

Contacts

To learn more about the Navistar/Castrol relationship at the Melrose Park Plant.

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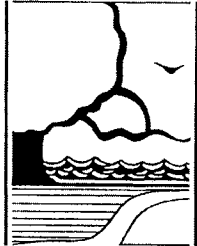
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