



Security of Supply: Multiple Meanings, Maximum Commitment

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In today's world, security of supply has many meanings. Guaranteeing flow of product to customers, ensuring receipt of necessary raw materials, and implementing appropriate measures to protect people, goods, and equipment in the event of a natural disaster or terrorist attack are all aspects of transportation security. The chemical industry is also facing potential new security regulations that will apply to paint and coatings companies as well. Despite the challenges these issues present, the paint and coatings sector has made a strong commitment to identify needed actions and follow through with the implementation of comprehensive programs to minimize the likelihood of the occurrence of any type of problems.

All sectors of the chemical industry take seriously the issue of maintaining security at their own facilities and for any transportation systems they utilize. The paint and coatings industry is no exception. Trade associations such as the National Paint and Coatings Association (NPCA), the American Chemistry Council (ACC), the Synthetic Organic Chemical Manufacturers Association (SOCMA), the National Association of Chemical Distributors (NACD), and the National Petrochemical & Refiners Association (NPPRA) have developed various guidance documents to help their members implement and maintain security programs, with implementation often necessary for continued membership.

The voluntary effort by the industry has been extensive. The NPCA, as part of its Coatings Care® program, has established both a transportation code and a security code for its members to implement. The transportation code includes, for example, practices for selecting and auditing carriers, issues to consider when setting up distribution facilities, risk management tips, recommendations for evaluating and managing inventories, emergency response procedures, and training guidelines for hazardous materials transport. The group's security code covers both site security and security of supply issues as well, and there is some overlap with the transportation code.

NPCA is a partner in the Responsible Care® program launched by the ACC, which also has distribution and security codes. SOCMA's ChemStewards® program, introduced at the end of 2005, places a strong emphasis on implementing appropriate security measures. The Responsible Distribution ProcessSM (RDP) from the NACD includes extensive guidelines for its members as well. NPRA, together with the American Petroleum Institute (API), developed a Security Vulnerability Assessment Methodology approved by the U.S. Department of Homeland Security (DHS) for use in the petroleum industry, and holds frequent workshops on security for its members. In addition to these voluntary efforts, a large percentage of NPRA and ACC members also meet the requirements of the Maritime Transportation Security Act (MTSA), the U.S. Coast Guard-administered program for chemical facility security at facilities with docks. In fact, many companies implement security programs at all facilities whether they are required to or not.

Despite the success of trade groups to increase security measures at member companies, many in the chemical industry and the federal government would like to see national risk-based performance standards established. Both the U.S. House and Senate have recently taken up legislation that grants DHS the authority to oversee chemical plant site security. Representative Pete King (Republican-New York), the chairman of the House Committee on Homeland Security, has indicated that Congress will also be addressing security issues associated with the transportation of chemicals and other hazardous materials.

Separately, an amendment to the appropriations bill for the DHS passed by the Senate requires the DHS to issue regulations establishing minimum security standards for chemical plants and requiring the submission of security plans to the DHS. These regulations would be replaced when Congress passes comprehensive legislation. It is questionable, though, whether Congress will be able to pass such legislation this year, and many in the industry are worried that the temporary regulations could cause serious confusion. The spending bill is a high priority for the Congress and could become law by the end of September if differences between the House and Senate versions can be agreed upon.

Further complicating the regulatory scene, at the end of June 2006 the DHS published the National Infrastructure Protection Plan, an "all-hazards" approach that seeks to establish criteria and regulations for protecting facilities

(plant sites and pipelines, bridges and banks, rail lines and nuclear reactors, etc.) not only against terrorist attacks but also against hurricanes, fires, criminal action, cyber hackers, and even an avian influenza pandemic. This blueprint will be followed with industry-specific protection plans later in the year that will affect all aspects of chemical industry operations and planning, including the design of future facilities.

Congress has also been focusing on hazardous materials rail transportation safety. Higher tank construction standards have come under debate. The chemical industry would like to see tank car design be part of new regulations that also focus on railroad operational procedures and emergency response. The DHS, which is working on its own regulations to enhance anti-terrorism security of hazmat rail transportation, agrees that the level of exposure to attack is not diminished by improving the construction of railroad tank cars. It may, however, be important for reducing the number of fatal railway accidents involving spills of hazardous materials, an issue being evaluated by the Federal Railroad Administration.

How this activity will affect individual companies in the paint and coatings industry remains unclear at this point. What is obvious, though, is that companies are not waiting for legislation to provide the impetus for taking action. Organizations like Rohm and Haas, Air Products, DSM NeoResins, and Lanxess have all taken a very proactive approach to assessing their security needs and implementing necessary measures to ensure top performance. All of these companies also have continuous improvement efforts in place to maintain the highest possible level of security for their facilities and transportation operations.

Because Rohm and Haas is a large chemical company, it does not differentiate between types of chemicals and





therefore does not have a separate security program for its coatings business. The company has a corporate-wide logistics security program and treats the security of all its chemical shipments in a similar manner, whether regulated for transport or not. "As members of ACC we ascribe to Responsible Care," notes Barry Crawford, North American manufacturing and supply chain director for Architectural and Functional Coatings. "Our overall safety and security plan supplements the requirements of Responsible Care with best practices gleaned from other industry sectors. We also use recommendations provided by DHS, U.S. Customs, Border Protection's C-TPAT program, and other agencies involved in security and transportation," he adds.

Rohm and Haas' security program covers all parts of the distribution system including container management on the supply side to raw material procurement, logistics, and manufacturing. "We put substantial time and effort into reviewing the capabilities of our own sites and implementing measures that ensure maximum security," explains Crawford. This effort includes gathering input from local groups such as the police and fire departments and the local emergency planning committee (LEPC).

The logistics organization within Rohm and Haas has recommended security programs for its supply chain partners, including carriers, warehouses, and bulk transfer facilities. These guidelines are based on DOT recommendations. The company adopted several new logistics security initiatives to provide customers with improved security. For example, a corporate-wide standardized procedure was implemented for properly sealing containers (drums and totes) as well as full truck-load packaged truck, bulk truck, rail, ISO tank, and full sea container shipments. In the event that a railcar or

tank truck arrives with a broken or missing seal, the appropriate Rohm and Haas personnel are notified and the shipment is evaluated before it is offloaded.

To determine the most appropriate procedures, the company makes extensive use of vulnerability assessments. "We have found that role playing and the acting out of many possible sce-

narios for all modes of transportation and phases of delivery helps us to identify areas where we need to make improvements in our security measures. This approach is also effective when working with customers and suppliers," Crawford states.

Holding drills and conducting role-playing exercises also keeps everyone sharp. "Complacency can become an issue when there are extended periods of time without any kind of threat. The perception that paint materials are non-hazardous can compound the issue as well. Rohm and Haas is continually striving to ensure that security is taken seriously—within our own company and at transportation and logistics companies as well—and that complacency does not set in anywhere in the supply chain."

Hurricanes Katrina and Rita demonstrated how valuable contingency planning can be, according to Crawford. Because Rohm and Haas had plans in place to address such a situation, customers experienced little or no disruption in supply, even though one plant suffered some problems as a result of the storms. "Our hard work and effort came to fruition," says Crawford. Even so, the company is constantly refining its system and looking for ways to improve. "Often times, changes in simple actions will help improve our response capabilities and enable us to be more prepared in the future."

In the wake of Hurricanes Katrina and Rita, Air Products also revamped its hurricane preparedness and boosted supplies and equipment at plants located in the potential path of a hurricane, according to Bill Koch, global director of process safety integrity at Air Products. Satellite phones have been provided to key personnel such as storm-ride-out crews to avoid communication problems. The company has increased its

lead time for shutting down plants in advance of a major storm as well.

These activities are only part of Air Products' programs to ensure security of supply. Following the attacks of September 11, 2001, the company formed a global transportation security task force made up of professionals in the distribution, security, and process safety disciplines. The team completed Security Vulnerability Assessments (SVAs) on Air Products' own and contracted fleet, common carriers, and international shipments. "As a result of these assessments, we developed and implemented transportation security standards aimed at improving the security of our shipments and implemented a transportation tracking program for shipment of hazardous materials," explains Koch. In addition, employees and handlers of chemicals have been trained on how to recognize and respond to potential security threats.

Koch notes that one of the challenges the industry will be facing in the U.S. is the movement to increase security of HAZMAT shipments. Legislation is being proposed at the city, state, and federal levels. "Product Stewardship has taken on additional meaning. It not only refers to ensuring that our customers can safely use our products, but for HAZMAT materials, it also means making sure that customers properly secure them as well," he says.

For DSM NeoResins, human resource and infrastructure issues are key concerns. "In the U.S., we are very dependent on raw material production facilities located in the Gulf Coast region as well as some materials (both raw materials and finished goods) from overseas. We are also very dependent on the trucking industry to deliver these products. The current driver shortage is a challenge and it is projected to get worse," states Mike Strong, supply chain activities manager for DSM NeoResins. To avoid potential problems, the company carries additional safety stock of key raw materials and finished products to ensure that delays in the supply chain from natural disaster, strikes, etc. will have a lesser impact.

There are also challenges to be faced with regard to waterways shipment of paints and coatings. "The infrastructure of the U.S. ports is forecasted to become a major problem in the future as the volume of import and export shipments continues to increase," Strong notes. He adds that security at the ports will also have to be improved. "We expect that in the future there will need to be some method for analyzing the contents of all containers entering the U.S."

Receiving material on site is another issue. Air Products conducts a complete safety/security inspection of all incoming railcars and trucks to ensure that they are safe to enter the facility. DSM NeoResins uses common carriers exclusively (no company owned transport) and has an established system for verification of driver IDs and HAZMAT certification prior to allowing vehicles to enter any company sites.

Information technology is fortunately making it possible to have more control over HAZMAT shipments. "We have required that HAZMAT carriers provide us with access to their logistics databases so that we can track the shipment of our products," Kocj says. Placing global positioning systems (GPS) on HAZMAT vehicles has also been very beneficial. Carriers now have access to continuous real-time information about their vehicles throughout their operation.

The adoption of radio frequency identification (RFID) by the chemical industry could also lead to reduced security risks as well as lower transportation and handling costs. RFID tags programmed with a unique identification number can be read by proximity scanners throughout a distribution route, allowing manufacturers, carriers, and customers to much more closely track the delivery of chemicals. Most importantly, the tags can be read from several yards away so no interaction (or interference) with the product is necessary for tracking purposes. In addition, advanced tags can monitor and report environmental conditions. RFID standards for the chemical industry are to be evaluated later in 2006.

As technology continues to advance, the industry will be able to pursue more extensive security practices that will further ensure that the production plants and transportation systems in the paint and coatings industry—and the chemical industry overall—remain well protected from natural and unnatural disasters. Further cooperation by industry with the Department of Homeland Security on the development and implementation of national standards for chemical plant site and transportation security performance will also enable companies to assess vulnerabilities and establish the most effective security plans possible. 

Author's note: Transportation security is a very sensitive topic for numerous reasons. I want to personally thank those companies that were willing to share their thoughts on the subject for this article.