

RFID Twist: Liquid Logistics Equals Reduced Risk

Risk exists in every supply chain, but a supply flow built for liquid products goes a long way to reduce risk factors. Discrete methods simply can't compete with liquid-based methods

'The risk of bad information can result in improper logistics planning and execution.' By Wally Klatch A Porsche 911 moves faster than a dump truck. It's built that way. Although both are motor vehicles, they have different design characteristics that lead to vastly different results in performance. In the same way, although every supply chain moves products, a supply chain designed and built for liquid products leads to very different results than a standard supply chain built on discrete principles. In the critically important arena of supply chain security and risk, many supply chain risk factors may be mitigated or eliminated by building a supply chain on the logistics characteristics of liquid products. It's important to understand the key differences between a supply chain for liquid products and one constructed with traditional discrete techniques. Chemical producers and users are actually dealing with liquid products — the chemicals themselves. As soon as the product is put into any form of packaging, such as bottles, jugs, IBCs, 55-gallon drums or other containers, the product is converted from a liquid to a discrete item (the package) for logistics and supply chain purposes. In doing so, the massive logistics benefits of liquids are lost — the ability of liquids to flow versus the need to move packages, the ability to measure quantity without counting product, the flexibility of storage in limited-access tanks versus the need to use valuable warehouse or work space — together with their financial, operational and environmental benefits. At the same time, using discrete techniques in a supply chain that actually handles liquid products increases risk in the operational flow. Let's take a look at risk within the major risk categories related to logistics — physical risk and informational risk — to understand how this happens. Physical risk is an obvious part of any logistics flow since logistics is based on the physical movement of product. Physical risks include the pervasive but elusive "inventory shrink," the term used to describe product that has been lost to theft, damage, mislabeling, misplacement or other acts of attrition. Physical risk also covers damage to facilities, equipment and personnel during logistics activities as well as sabotage, tampering and other forms of product contamination whether intentional or accidental. All these forms of risk are heightened when liquid is handled in many relatively small containers such as bottles or jugs. Each individual container represents an opportunity for shrink to occur. Each container requires physical movement that increases the likelihood of damage. And, each container is subject to tampering or product abuse. In a supply stream designed for liquids, on the other hand, access to the product is greatly reduced and much more tightly controlled. It's held in tanks and piped from location to location to create what amounts to a "closed system" that extends from

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Published on Chem.Info (<http://www.chem.info>)

production through distribution and goes right to the point of dispense or usage. Opportunities for inventory shrink are greatly reduced. Product, rather than packaging, moves through the process so that there is very little chance for damage. Also, access to liquid-holding tanks can be easily secured to limit opportunities for tampering. A liquid-based logistics system addresses and reduces many of the physical risks that are characteristic of traditional discrete-based approaches. A second type of supply chain risk involves the information needed to drive the supply flow. Information is used in a supply chain to maximize service levels in order to avoid stock-outs, and to minimize inventory levels in order to avoid product aging and inventory investment. The risk of bad information can result in improper logistics planning and execution and lead to actions that cause unfulfilled customer orders, missed production runs, overstocking or understocking of inventory, the need for product returns, the chaos of expediting and other inefficient logistics activities. In a traditional supply chain, information risk has many causes. Source information may be erroneous or missing, especially in cases in which logistics information is based on manual product counting or data entry. Information may not be transmitted fully or in a timely fashion to the required points in the logistics flow. To the degree to which information is manually generated, tabulated and used, there may be differences in understanding along the logistics flow as to exactly what the information means or on what it is based. A supply chain for liquid products, on the other hand, provides complete, highly accurate, near real-time and clearly definable information to any point in the supply flow. It does this by using liquid level sensors and flow meters to continually measure product balances and movement at any point along the supply chain and transmitting that data as needed to any user in the logistics flow. This ability to have such a complete and clear information flow significantly reduces information risk in a supply chain built on liquid logistic principles. The discrete world is making mighty efforts to achieve this capability through RFID, bar-code and other techniques, but discrete methods simply can't achieve the completeness and accuracy that are available from liquid-based methods. Manufacturers and users of liquid chemical products should make sure their supply chains are designed and built to achieve the best result for their operations, particularly in the area of security and risk control. You can paint racing stripes on a dump truck but that won't make it a Porsche. Similarly, trying to mitigate risk in a discrete-based supply chain can't produce the results that are inherently available from a liquid-based logistics flow. *Wally Klatch, vice president of operations of LiquiChain, is a supply chain professional with more than 25 years of experience designing and implementing supply chain solutions. His work spans the chemical, beverage, lubricant and cleaning solutions industries. He founded the Supply Chain for Liquids and RFID for Liquids disciplines and wrote the book, "Supply Chain for Liquids: Out-of-the-Box Approaches to Liquid Logistics." Klatch also wrote the Trend.Info article titled "It's Time to Look at RFID Technology in a New Way" in the April issue of CHEM.INFO, which can be found, along with many other archived articles, at www.chem.info. Questions about Klatch's articles can be addressed to him at Operations@LiquiChain.com or by calling him in his New York office at 914-595-4723.*

Source URL (retrieved on 01/25/2015 - 7:54am):

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