

THE 4 UNIQUE CHALLENGES FACING HAZMAT WAREHOUSES & WHAT TO DO ABOUT THEM

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TABLE OF CONTENTS

Introduction	3
Product/Service/Methodology	4
Key Findings	5
Key Findings #1: Abandoned Freight	5
Key Findings #2: Hazardous Waste Compliance	6
Key Findings #3: Training Issues.....	7
Key Findings #4: Fire Hazards & Fire Codes	8
Insights & Solutions.....	9
1. Abandoned Freight: Non-compliant or damaged hazmat freight is a difficult, expensive, and time-consuming problem with very real risks	9
2. Hazardous Waste Compliance: Every hazmat warehouse should be registered as a hazardous waste generator.....	10
3. Training Issues: Know the training requirements: who, what, when.	12
4. Fire Hazards & Fire Codes: Current regulatory environment for fire & building codes is incompatible with the reality of the hazmat industry.	13
Conclusion.....	15



INTRODUCTION

Warehouses are a vital part of the supply chain. Warehouses that store chemicals face a unique set of challenges that if properly managed, can make this segment of the industry an especially profitable one.

STARS is a consulting firm specializing in the transport, storage, distribution, and disposal of hazardous materials (“hazmat”). We assist those in the hazmat supply chain with regulatory compliance, risk management, training, safety, operational procedures, litigation, and more. Our clients include manufacturers, shippers, carriers, warehouses, and others. Our consulting services are highly customized to our clients’ needs, materials, and operations, meaning we never expect our clients to fit in to a predetermined idea of what we think they should be doing. Instead, we work with their existing culture and operational realities to help develop a plan to improve safety, increase profitability, and enhance compliance in a way that works best for them.

Through our interactions with the warehousing industry, our clients in diverse sectors, and large world-wide distributors, we learned that the storage segment of the supply chain is experiencing similar challenges across the spectrum. STARS is positioned to help this community solve their difficulties, be more profitable, and provide even better service to their customers. To determine how we could best serve this industry, we analyzed common challenges, unique concerns, and specific needs. This paper was developed to analyze the most pressing concerns of the warehousing industry and provide options for addressing those concerns.



METHODOLOGY

The best way to understand the difficulties and common issues facing the warehousing industry, especially as it pertains to the chemicals business, is to go right to the source. We identified a wide range of warehouses across the US that store chemicals and interviewed their senior representatives. Among the interview questions were:

1. How often do you experience delays with hazmat freight you cannot move due to regulatory non-compliance?
2. How often do you experience delays with hazmat freight you cannot move due to damaged goods or packaging?
3. What are the top four pain points regarding hazmat in your organization that keep you up at night?

The first two questions produced a wide range of answers, from rarely (1-2 times per year) to frequently (1 or more times per week). The final question, however, was the most enlightening. We were surprised by how consistent the answers were between completely unrelated companies from different locales – it seemed that this segment of the industry was sharing very similar problems, even when their businesses looked very different.

The top four concerns senior warehouse representatives experience universally involve:

1. Abandoned Freight
2. Hazardous Waste Compliance
3. Training Issues, and
4. Fire Hazards & Fire Codes.

Disclaimer: This paper is a sampling of observations, anecdotes, and information relayed to STARS by chemical warehouse representatives. If you have a different experience and are willing to be interviewed regarding your issues and concerns, please contact me.

KEY FINDINGS

Key Findings #1: Abandoned Freight



When asked how often the interview subjects experienced delays with hazmat freight that could not be moved because it is either non-compliant with relevant regulations or the material and/or packaging was damaged, the answers varied widely. Some reported this to be a frequent problem, occurring more than once a week, while others stated it rarely happens, maybe once or twice a year.

Regardless of how often this takes place, one concern jumped right out when we discussed how these delays were resolved. Almost universally, facilities expected shippers to resolve any problems with the freight themselves, unless it is damage caused by warehouse personnel. Not all shippers respond to this request for resolution and some do not have the ability or expertise to properly advise the warehouse. Therefore, resolution can take quite a while and often results in abandoned freight.

When we discussed the possible reasons why the shipper may fail to address the problems with their freight, the speculation usually centered on a lack of knowledge about either the regulatory requirements for that particular situation or about the solutions available to solve the problem. This was especially true with internationally based shippers who may not fully understand the US regulations. Given the United States is the most restrictive country in the world with the most “state-specific” requirements (meaning country, not US State), that was not wholly unexpected.

Abandoned materials end up being stored at the warehouse for prolonged periods of time, subjecting the warehouse to the risk of exposure to their employees, package degradation, regulatory findings of non-compliance from EPA or OSHA, and more. Some abandoned freight had been sitting around in warehouses for more than ten years!

Even with proper instructions from the shipper, many warehouses are reluctant or unqualified to accept the responsibility and liability for disposing of, or otherwise resolving issues with, problem freight. Several executives expressed that when they do choose to accept the liability, their staff is not trained, and they do not have the expertise to properly handle the issues. As a result, the companies were subject to

substantial risk and liability, as well as long delays in achieving resolution due to indecision and ignorance about how to deal with the problems.

Key Findings #2: Hazardous Waste Compliance



Almost all the chemical warehouses involved in our interviews were not registered as hazardous waste generators, and the few that were, had only done so recently in an attempt to add value for the customers and develop an additional source of revenue.

Due to the nature of the hazmat industry, it is difficult to imagine a chemical warehouse being in business for any length of time and not legitimately generating hazardous waste. Normal activities in a hazmat warehouse that typically generate hazardous waste include spills, expired product, packages arriving damaged or being damaged onsite, unsold inventory, and freight that does not comply with transportation regulations so therefore cannot be sold.

A hazmat warehouse that has legitimately generated hazardous waste but fails to either (a) identify and manage it as hazardous waste, or (b) properly dispose of it, leaves themselves open to substantial fines and penalties for regulatory non-compliance under the Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act (RCRA) regulations. As of 2020, the maximum civil fine is \$74,552 *per day, per violation*. The warehouse operator/owner is responsible for those materials from "cradle to grave," which effectively means forever. In addition, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) may hold the company monetarily liable for damage (e.g. remediation, monitoring and restoration) in perpetuity should those materials cause contamination or damage of any kind to the environment. Any exposures or injuries to your employees could likely lead to OSHA violations as well.

Key Findings #3: Training Issues



Proper and adequate staff training was a top priority for every company representative we interviewed. There are three primary concerns when it comes to adherence to training requirements for warehouse hazmat employees.

The first concern was how to keep existing employees trained. Not only was their concern about delivering initial and recurrent training on time and to the correct personnel, but also with understanding the required course content. There was a great deal of confusion between regulatory requirements vs. recommendations, industry standards, and best practices. What is required vs. what is recommended? Who actually needs the training? Who qualifies as a hazmat employee?

Second, there was confusion concerning what training is required, especially when onboarding new customers or new materials. The staff needs to know how to handle different products, but the interviewees felt that training requirements for the various roles are cumbersome and unclear. It is made more complex by the ever-changing needs of customers in terms of product mix, quantity of material, packaging sizes, etc. Each of these changes has the potential to affect training requirements for personnel involved in handling these new materials. Understanding evolving requirements at any given time is extremely difficult, never mind planning and coordinating how that training will be executed.

Third, warehouse owner/operators make substantial investments in providing classroom and on-the-job training to hazmat employees. Unfortunately, there is a relatively high turnover rate for forklift drivers, pickers, and packers. It is expensive and difficult to keep personnel trained properly only to have them leave soon after training is completed.

Key Findings #4: Fire Hazards & Fire Codes



Chemical warehouse representatives consistently expressed that they were struggling with understanding what the local fire codes required for their businesses. The regulations are difficult to understand or sometimes even to locate. They are not well publicized in many jurisdictions and the regulated public feel they do not have a reliable source of information as to what they must do to comply.

Further complicating this problem is inconsistent enforcement and interpretation amongst various inspectors, which lead to confusion, non-compliance, and unnecessary expense.

In some cases, the effort to comply with fire codes leads to even greater headaches and costs than could be reasonably anticipated. One warehouse executive had never-ending problems with their required sprinkler system, the most annoying of which was frequent false alarms. The most serious incident occurred when their foam bladder ruptured. The foam bladder is the equipment that holds firefighting foam used to smother fires of materials that are lighter than water, such as oils, to prevent the fire spreading when the burning material floats on the water used to extinguish the flames. When this bladder broke inside their chemical area, it flooded the entire room, resulting in a substantial insurance claim for damages, both to the building and to the products stored therein.

Another warehouse executive told me a story that took place at his warehouse recently. They were storing miscellaneous class 9 materials, usually a very low-level hazard. Their fire marshal advised them during a routine inspection that they needed to have hose reels in their building, spaced every 150 ft. They complied to the tune of \$250,000, but it also caused a space shortage for them. This meant they now had less capacity to store material than they had before this requirement was imposed, resulting in a \$1.2 million loss for them. That fire marshal later retired and when the new marshal came to inspect, he told them all those hose reels were unnecessary and that they could take them all out. While the new interpretation gave them their space back, they had to make a further investment to have them all removed. The expense of both time and money resulting from this inconsistent interpretation cost them dearly, and all for a very low-level hazard.



INSIGHTS & SOLUTIONS

1. Abandoned Freight: Non-compliant or damaged hazmat freight is a difficult, expensive, and time-consuming problem with very real risks

When hazmat freight arrives in a condition preventing it from being sold - whether it does not comply with regulations or is damaged - it often ends up sitting for long periods of time because no one is willing or able to deal with it; in short, it is abandoned at the warehouse. Typically, shippers are asked to remedy the problems but often those requests go unanswered.

In the warehousing industry, employees are expected to take on numerous roles. With hazmat especially, those responsible for compliance often had other unrelated duties within the company first and were unexpectedly asked to take this on as well, usually with little to no experience or training. Even the employees with regulatory compliance as part of their job functions did not always have the time or ability to deal with the various issues they faced. In addition, smaller companies, those that are overseas, and those that are solely distributors may not have the expertise to fix compliance problems. With that knowledge, it is not surprising that requests from warehouses to fix problem freight often go unanswered.

The warehouses are typically reluctant to take responsibility for the abandoned freight because to do so assumes a substantial liability. In order to dispose of the chemicals properly, warehouse personnel must determine if it is hazardous waste. If it is, this makes the warehouse the generator of this waste, making them responsible for EPA administrative requirements (e.g. securing an EPA Identification number for the site, recordkeeping, and subsequent reporting requirements); managing the waste properly onsite while it is being stored before shipment; using a Uniform Hazardous Waste Manifest as a shipping document; finding an approved treatment, storage and disposal facility ("TSD") to receive the waste; and determining land disposal restriction information that must be supplied to the TSD. In addition, since they are arranging for disposal, they will be liable under CERCLA in perpetuity should the waste ever contaminate the environment. It puts an enormous expense and logistical nightmare squarely in their lap.

THE UNIQUE CHALLENGES FACING HAZMAT WAREHOUSES & WHAT TO DO ABOUT THEM

What is the solution? Consider having a third-party provider available on a project or retainer basis to handle those abandoned, damaged, or non-compliant products on your behalf.

The third-party provider can determine whether they can be brought into compliance so they can be sold, or if they must be properly disposed of, then take the appropriate action. That provider should be able to address your typical problems:

- Writing or translating safety data sheets (SDS),
- Applying correct marks or labels,
- Creating shipping papers,
- Repacking damaged materials if it can be done safely, thus allowing them to be sold,
- Preparing the package for hazardous waste disposal if it cannot be safely repacked and sold,
- Helping you navigate the hazardous waste regulations
- Helping your shippers understand what is required to send safe, compliant packages to the US or Canada by whatever mode(s) of transport they are using to prevent recurrence,
- Doing hazardous materials classification and determination,
- Sending the material for testing if necessary, and more.

When STARS provides these services to our clients, we can reduce the need for hazardous waste generation and increase profitability by making previously unsaleable freight viable again and freeing up space for revenue generation. STARS' activities reduce the risks involved with long-forgotten freight degrading, thereby reducing exposures to employees and the public. Our involvement also alleviates the burden on the shipper to deal with these issues when they are hundreds or thousands of miles away, which is an added value to both your shippers and their customers.

Such an arrangement would help the warehouse ensure that those products do not linger in the facility, taking up valuable revenue-generating space while exposing the employees and surrounding community to substantial hazards. By ensuring you are compliant and making informed decisions every step of the way, you will reduce your exposure to unnecessary risk and liability.

2. Hazardous Waste Compliance: Every hazmat warehouse should be registered as a hazardous waste generator.

It is difficult, if not impossible, to imagine a scenario in which a facility that handles hazardous materials never generates hazardous waste, unless the only material you are handling is neither a listed waste nor exhibits any of the characteristics that make it a waste.¹ That is a fairly small list and may include things like certain environmentally hazardous substances, "hot" products, and a few others. Activities conducted in the normal course of business in a hazmat warehouse are likely to result in at least a minimal amount of waste, most of which will be hazardous waste.

¹ For regulatory information on waste characteristics, see 40 CFR 261.33 (e) and (f) for unused commercial chemical products, 40 CFR 261.21 for ignitability, 40 CFR 261.22 for corrosivity, 40 CFR 261.23 for reactivity, and 40 CFR 261.24 for toxicity.

THE UNIQUE CHALLENGES FACING HAZMAT WAREHOUSES & WHAT TO DO ABOUT THEM

If you generate very little hazardous waste, there is very little regulation to which you must adhere (i.e. very small quantity generator: < 100 kg non-acute hazardous waste, < 1 kg acute hazardous waste). However, if you keep abandoned material at your facility for long periods of time, there are significant consequences. The failure to properly dispose of your waste in a timely manner may be a violation of the hazardous waste (RCRA) rules, which can be quite costly. Unfortunately, it does not stop there.

Abandoned freight can also cause other problems: there is the increased risk of spills or leaks, increased exposure to your employees, and possible degradation of the packaging or labeling which may lead to Occupational Safety and Health Administration (“OSHA”) and Hazard Communication (“HazCom”) violations as well.

There are a set of steps you can take to remedy this situation:

- Consider hiring a third-party contractor that can help you minimize waste from non-compliant freight by helping you and the shipper resolve problems as soon as they occur. This company can also help you solve the problems with any abandoned freight immediately. (See sections above on abandoned freight.)
- Establish a relationship with a Treatment, Storage and Disposal Facility (TSDF) that can properly dispose of your waste. More than one such relationship may be helpful because not every facility can take every type of waste. Your third party should be able to help you vet these providers to select the best one(s) based on your typical product mix.
- Establish a policy to bill customers for expenses incurred when they abandon freight. Send an invoice for the costs of disposing of that material, including testing required to develop the waste profile, and make it payable in keeping with your current billing policies (i.e., 30 days). Add this clause to all new contracts. It should be added as an amendment to any existing contracts wherever possible
- Establish a policy that if you engage the help of your third-party contractor to help solve freight problems in order to try to avoid disposal, those costs are also billable under your current invoicing policies and add that to new and existing contracts as well. This could be a new revenue center for you, as well as a value-added service to your clients.

Train your employees how to handle hazardous waste – it is different than what they typically do with hazardous materials and they must be trained for it. DOT training for new employees (or anyone newly assigned hazmat duties) is required within 90 days (and they must be immediately supervised in the interim) and every 3 years thereafter by anniversary date. Large quantity hazardous waste generators must train personnel handling hazardous waste within 6 months (immediate supervision is also required in the interim) and annually thereafter. Small quantity generators have a slightly different standard. Your third-party vendor can help you determine your site’s needs.

Taking these steps will provide added value to your customers. If you work with a third party to resolve freight issues without having to dispose of the material, you will increase your customers’ profitability and prevent future recurrence, thereby reducing their risk. If you have abandoned material in your facility that

hurts someone or spills and enters a sensitive environment, the cost to that shipper is going to be very high, including negative publicity and regulatory scrutiny for both of you. Your disposal of that material in a safe manner that complies with the regulations is protecting your client's interests. Taking these steps also demonstrates your commitment to being a safe, sustainable organization who helps their customers in every way. In a world of tight margins and ample competition, what better way to set yourself apart than by providing value that is a win-win for everyone!

While there is no doubt that generating hazardous waste is costly, it must be viewed as a necessary part of the warehousing business and undertaken with the same care and due diligence as any other regulatory compliance tasks in the hazmat field. If those costs are properly accounted for in the initial contract with customers, warehouses can take steps to mitigate the out-of-pocket expenses they incur by making those costs reimbursable by the customer. A note of caution: this is often a touchy issue since the customers are likely to disapprove of this tactic. Even so, abandoned freight is a very real problem with steep consequences and must be discouraged at every opportunity.

3. Training Issues: Know the training requirements: who, what, when.

One of the most frequent violations issued by government regulators in the hazmat industry is a failure to train the right people on the right material at the right intervals. If you do not know the answer to these questions, you can seek help from your various regulators (EPA, DOT, OSHA and others depending on the products you are storing) or you can consult with a third-party industry expert. Either way, you cannot possibly comply with the rules if you do not know what is expected of you. The regulations are not usually written in plain English so if you need help understanding exactly what applies to you and how to determine what is required for your specific business, a third party that can:

- Evaluate your entire operation,
- Determine which rules you are subject to,
- Interpret those rules and determine the optimal way for you to comply, and
- Develop the training required to operate under those rules.

Not every employee in your company needs the same training. In fact, they usually do not since function-specific training is the largest part of the training requirements and depends entirely on the job function the employee is performing. This understanding can help you plan your training curriculum, determine the best training platform – classroom, hands-on, computer-based, or some combination – and figure out who to train on what subjects. These decisions will control costs and help you plan a reliable, affordable budget.

Every hazmat employee in the US is required to undergo a minimum of training including:

- General awareness of hazardous materials including the risks and how to recognize them,
- Function specific training relevant to their job function, and
- Security awareness training to explain the risk of terrorism and unauthorized persons gaining access to the hazmat they have onsite and how to prevent that from occurring.

Some hazmat employees will also need:

- Safety training to prevent exposure to themselves, their coworkers, the public, and the environment; and
- In-depth security training, which is company and site specific expectations for how the employees are supposed to execute that company's security plan at that location in the event of various types of security risks or breaches, (e.g., a hole is discovered in a perimeter fence or an unauthorized person is spotted on the property).

A hazmat employee is anyone whose job function affects the transportation of hazmat in any way. This includes the clerk that develops shipping papers or the secretary that maintains those documents according to DOT record-keeping requirements. It is the person who applies labels to boxes, or determines the materials' hazards, and the person who writes the emergency response information or packs the boxes. It is the person that signs off on the checklist or the shipping papers that everything has been completed and the package is ready for transport. It is also the supervisors of these employees.

Contracting with a company that can offer customized training that can be tailored to your needs, your products, and your operation is the ideal way to deal with this situation. Online training, for example, will allow the training to be delivered consistently and in a readily available, streamlined manner that covers exactly what your personnel need to know at any time. Online training should offer exercises that can reinforce the concepts taught in the class, which really helps the students apply what they have learned and retain it long term. Consider periodically offering in-person and hands-on training as well to ensure a thorough understanding by all staff since this is the most effective way to learn for most of the population.

STARS Hazmat Academy has just recently started offering customized online training to our clients, which is available for company subscription or for individual use. We have historically offered only classroom and hands-on training in person because this is what is best for most students, but in our new environment of social distancing, our clients have requested additional options. We have built our classes to incorporate as much of the hands-on experience as possible in a virtual environment and we continue to innovate in this area so as to make online training the most valuable experience it can be.

4. Fire Hazards & Fire Codes: Current regulatory environment for fire & building codes is incompatible with the reality of the hazmat industry.

The nature of the warehouse industry is that the customers have very fluid storage needs and a variable product mix, which under current regulations in nearly all jurisdictions, means constantly changing fire code requirements. The way the regulations are written assumes a static, predictable product load, which just does not reflect reality. Adding to the complexity is that these regulations are locally developed and locally enforced, meaning that warehouses storing the same material, owned by the same people, on opposite sides of the same county, could have vastly different requirements for fire code compliance.

The fire and building codes are particularly problematic when it comes to the hazardous materials industry. They typically require a storage plan, upon which fire code regulations are applied (i.e., the type and amount of fire suppression technology) but it does not allow for the inherent need for flexibility in this industry. A storage plan created today could be out of date tomorrow as seasonal, cyclical, and other

THE UNIQUE CHALLENGES FACING HAZMAT WAREHOUSES & WHAT TO DO ABOUT THEM

fluctuations necessarily change the product mix in any warehouse on a regular basis. When that inventory is hazardous, the problem is compounded because it is nearly impossible to ensure you are always in compliance with such rigid regulations.

Even when a business believes the instructions from the fire inspector or building inspector are improperly applied or unnecessary, there is little opportunity for them to appeal. First, it is usually a high priority, urgent matter to do what the inspector required because “non-compliance” for any length of time can cause the fire marshal in a jurisdiction to shut down their business. Second, several companies I spoke with expressed reluctance to appeal, for fear of future reprisals from that inspector. They were afraid of being targeted at that facility or at sister facilities in nearby areas for stepped up inspections or enforcement.

In addition, compliance is exorbitantly expensive, and that investment may be necessary even when the inventory mix that caused the requirement is temporary. Add to this a large variation in the level of enforcement within each jurisdiction with little opportunity to appeal and the problem can quickly become overwhelming.

Unfortunately, there is no easy or quick solution to this problem of complex, static regulations. It seems that those that develop the rules for this industry fail to understand the realities of the industry and the rules certainly do not accommodate the true nature of these facilities. The only real recourse is a regulation change which is time-consuming, expensive, and unlikely to happen on any large scale such as state- or nation-wide, due to the local nature of these rules.

The best we can do for the foreseeable future is work with local regulators, fire inspectors, and government officials to try to help them understand why the rules are so cumbersome for this small but vital industry and what it would take for these facilities to be able to comply in a way that does not impose such severe expense. Additionally, any rule changes should allow for more flexibility in the stored product mix before expensive modifications must be made to adjust to the variable, often short-term, needs of their customers.

The next best thing is for companies to independently determine what is required based on their current holdings and to understand how those requirements will change if they change their product mix. Cost estimates to meet those requirements would be helpful as well. By understanding what is required at various thresholds, the warehouses can then make informed decisions about how much material of any type to accept and which customers they should court or avoid. The downside is the possible reduction in revenue from refusing customers or inventory because you already have your limit on that type of hazmat. This would also be hard on the shippers because the market will be more competitive with smaller capacities. If possible, warehouse representatives should consider hiring a fire-code expert to help them identify and interpret the rules that apply to their facility and then help them to keep up with the changes that inevitably take place.



CONCLUSION

The warehousing industry faces unique challenges because you handle materials you do not own. It is essential to create a plan of action for the times freight cannot be moved as expected in an expeditious manner. The warehouse owner/operator must take into consideration unique environmental, health and safety issues that may result from delayed or abandoned freight.

Since these issues are complex and can require adherence to regulations mandated by the EPA, DOT, OSHA, and local fire authorities, it may be prudent to secure the services of a third-party provider to assist your site with compliance. Your provider can help you:

- Assess your operations and uncover potential areas of concern,
- Develop a plan of action to avoid accidents, fines and penalties,
- Do a gap analysis for your training needs, and develop and deliver training courses;
- Help you identify and comply with fire code requirements both now and long-term while keeping your costs as low as possible; and
- Give you recommendations and tactics to provide value added services for your clients.

To find out how your warehouse can be more profitable, increase regulatory compliance, improve safety, and provide even better service to your customers, call STARS today at **(844) 88-STARS** or email us at Info@STARSHazMat.com for a free quote!
