

The background features several thick, wavy, overlapping lines in red and grey. One prominent red line starts at the top left, curves down and then back up towards the right. Another red line starts from the right side, curves down and then back up towards the left. Grey lines follow similar paths, creating a sense of motion and depth.

Minimizing Unsalable Product

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Introduction

Crimped cans and battered boxes can keep a supply chain manager awake at night. Each blemish represents damage that occurred during shipping and undermines even the most meticulous quality assurance program in the manufacturing environment.

It's not just obvious damage that causes problems, however. For some products, even perfect-looking packaging is unacceptable if the products have experienced vibrations or temperature excursions. Food, pharmaceuticals, chemicals, electronics, art, and medical equipment are all susceptible to environmental damage.

Consequently, depending on the item, these damaged goods must be discarded, repaired, or sold through secondary markets, reducing their value and costing the manufacturer revenue.

For the customer, receiving goods with dings, dents or temperature issues may indicate serious problems in the supplier's logistics organization. Even when there is no actual product damage, the appearance of damaged packaging makes buyers question the reliability of the product and the commitment of the manufacturer to develop and deliver products that meet agreed-upon standards.

“ Financial losses aren't the only consequence of unsalable products. ”

Impacts on Supply Chain

Impact and temperature damage can occur throughout the supply chain, affecting raw materials as well as finished goods. Jolts to sensitive electronic components, or temperature excursions for chemicals or biologics, for example, can cause delays that ripple down the production line and throughout the supply chain, causing bottlenecks and backlogs. Therefore, costs must be measured not only in terms of actual delays, but also in lost opportunities and the unbudgeted costs of efforts to catch up or to replace items.

Savvy companies are improving handling procedures and are deploying technological innovations to reduce the financial loss caused by damage. Organizations that maintain business as usual, however, report billions of dollars lost to damage each year.



According to a 2008 study published by the Grocery Manufacturers of America, damaged goods account for 1.21 percent of gross annual sales among retailers and distributors. Among manufacturers, damaged goods accounted for an average of 0.83 percent of gross sales. Across all industries, the cost of unsalable goods averaged \$15 billion per year. Some experts say it takes the sales of seven items to recoup the damage of one.

Financial losses aren't the only consequence of unsalable products. Damages to reputation and consumer loyalty can create long-term challenges that are not easily quantified. Among consumers, damaged packaging signals damaged goods. That perception affects the reputation of both the manufacturer and the retailer.

The 2013 Global Risk Management Survey, by Aon Risk Solutions, found that while fears of reputational damage have been overtaken by concerns about the economy, regulatory change, and increased competition, it remains a key issue among multinational corporations. Executives cited the potential for reputational damage as their fourth greatest worry.



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Causes of Product Damage

The potential for damaged products and reputations can be largely avoided, however. For example, a 2008 study found that poor product delivery and handling practices accounted for 10 percent of unsalable goods. Other contributing factors include poor package design, ill-matched transportation modes, improper pallet loading, and general mishandling.

These issues can each be mitigated, and damage, usually, can be prevented. To begin, companies must examine their entire supply chain and identify how and where the most frequent losses occur.

It's not enough to know that damage ensued in transit. Shippers need to know which carrier had custody of the goods and where in the transportation network the damage occurred. Knowing whether an incident occurred on the shipper's own loading dock or at a transfer point in, say, Chicago, helps shippers and their carriers develop plans to prevent future damage. A comprehensive monitoring program can provide that detailed information and, thus, help companies maintain their profits and their reputations.

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Packaging

Impacts, whether from drops, road vibration, or other causes, can create serious damage – particularly to sensitive equipment.

Robust packaging designed for a specific product is the best defense against product damage. Ample padding and structural reinforcement help compensate for the inevitable jostling and occasional rough treatment during shipping.

Corrugated cardboard is a favorite packaging material among all industries. It boasts high edge compression strength, but begins to lose integrity after about six months. Cardboard is also “very susceptible to handling damage when it's moved from supplier to customer to warehouse to line-side inventory,” according to the Manufacturing Extension Partnership.

Inserting dunnage to fill the voids between products and



packaging is a cost-effective method to reduce damage during transit. The type of dunnage should correspond to the product, providing the necessary shock absorption and levels of sterility the product demands.

Pallet Loading

Improper pallet loading can trigger product damage regardless of the packaging methods used. It seems obvious, but the heaviest items should be placed lowest in a pallet to create a low center of gravity and thus minimize tipping and load shifts. Also consider product overhang. Lowes, which sells everything from lumber and power tools to household items and holiday ornaments, allows packages to overhang the pallet by only one inch on a standard pallet.

Yet, despite following best practices, damage may still occur. Often, the cause is a combination of aging or broken pallets and suboptimal load configurations. Lowes minimizes the risks by limiting pallet weights to 2,500 pounds and regulating the grade and type of pallets used in their warehouses.

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Transportation

“Many purchasing managers admit today that their companies have a tendency to treat transportation as an afterthought,” Purchasing magazine reports. This can cause unnecessary delays that increase the potential for damages. The problem is most common with less-than-truckload (LTL) shipments. Because the shipments are small, they are less likely to occur on regular schedules or to have regular routes. Therefore, palletization or packaging is more likely to be rushed, and items may have to wait longer at transfer points.

Because LTL shipments often involve multiple types and sizes of goods, they also are particularly at risk from load shifting. The risk isn't limited to LTL shipments, however. Even container loads may experience shifting in transit.

Handling

Employee training is essential in helping shippers and carriers reduce the damage that creates unsalable products. But, even under ideal circumstances, human error can result in damage. Companies, in their zeal to improve efficiency, may place undue emphasis on packaging-handling speed. In their rush to expedite shipping, employees may grow careless. It is important, therefore, to balance the need for rapid processing with an equal measure of concern for careful package handling.

Solutions to Reduce Product Damage

There is no magic bullet that eliminates product damage. Instead, to reduce the damage that leads to unsalable products, deploy a multifaceted approach that includes traditional employee training, shipping best practices, and recent technological developments.

Data Tracking and Collection

To track the success of any policy adjustments, companies must collect and analyze relevant supply chain data. Several products provide extensive feedback on the supply chain environment, including temperature and impact events. Without this data, companies operate blindly and cannot react to the changing dynamics of the supply chain.

VeriSign, a network infrastructure services provider, points out that “... the potential for revolutionary value comes from the ability to link item-level data to events and observations outside the enterprise.” In other words, tracking and analyzing data for specific products can lead

to insights that enhance overall supply chain efficiency. To achieve the necessary specificity, companies can deploy data tracking devices that monitor and record the conditions products experience from the point of manufacture to delivery to the customer. A range of environmental indicators and recorders is available for every type of shipment and every range of budget.

Indicators

Simple indicators can provide go/no-go assurance for impacts and temperature excursions. Impact indicators trigger at predetermined impact levels and provide a record of potentially damaging falls or drops. Likewise, temperature indicators trigger when temperatures become too warm or too cool.

Indicators also provide a highly visible deterrent to package mishandling by carriers and employees. Because they supply incontrovertible evidence of an adverse event, indicators can prompt product inspections, thus uncovering hidden damage and preventing those items from reaching the shelves.

Recorders

More sophisticated monitors and recorders can provide detailed information about impact events as well as document changes in temperature, humidity, and atmospheric pressure throughout transit. Recorders provide a record of single or multiple events, their extent, and their duration.

By recording the direction, amplitude, and duration of an impact, recorders allow a thorough assessment of supply chain conditions, helping managers adapt policies and prepare contingencies.

Temperature recorders are similarly thorough. They are capable of recording internal and external temperatures either continually or when set parameters are breached.

Like indicators, impact and temperature recorders present a conspicuous reminder to handlers that products are under supervision and, therefore, they discourage mishandling.

Analyzing recorder data enables supply chain managers to develop a comprehensive picture of the supply chain environment. Consequently, they can identify specific problem areas and begin to remedy them, saving costs, goods, and reputations.

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Conclusion

Damage in transit can never be completely eradicated, but it can be minimized with a comprehensive program to identify and address the environmental risks packages experience during shipping. With increased visibility into the actual supply chain environment, shippers have the opportunity to reduce the volume of unsalable goods, thus minimizing expenses and maximizing profits.

Achieving those results involves more than monitoring and more than training. It takes an integrated effort that identifies and documents issues, devises solutions, and trains product handlers throughout the supply chain. Then, when the challenges are resolved, the supply chain requires regular monitoring to ensure the problems don't reappear as staff and conditions change. As an affordable and proven tool, impact indicators and recorders should factor significantly into any company's supply chain logistics.



Sources

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