GLOBAL COLD CHAIN
MANAGEMENT SOLUTIONS
INSIGHTS REPORT 2014

PRODUCED IN ADVANCE OF

13th Annual Cold Chain
GDP & TEMPERATURE
MANAGEMENT LOGISTICS
Summit - CANADA

FOREWARD

Trying to find a temperature controlled shipping solution that is sustainable, cost-effective and efficient?

The upcoming **13th Cold Chain GDP & Temperature Management Logistics Summit - Canada** will provide our 300+ attendees access to 40 leading solution providers sharing information on innovative technologies and services.

Ahead of the Summit, **Cold Chain IQ** takes a closer look at key trends in global cold chain management, from reducing complexity and cost to greener cold chain solutions. The *Global Cold Chain Management Solutions - Insights Report* contains future perspectives on innovation in cold chain management, an overview of global challenges and advice for integrating cold chain management systems.

The eBook also contains insights from our Senior Executive Investment Survey, conducted with key senior executives from pharma and biotech companies who attended our Global Forum event. The report aims to start a discussion around some of the key global supply chain management challenges that will be addressed at the Summit. Each section includes more information on how the topics included in the report tie into the Summit's **agenda**.

We hope you can join us there, February 23-26 in Montreal.

We hope you enjoy reading! Best regards,

Andrea Charles

Editor | Cold Chain IQ

CONTENTS

COMPLEXITIES & CHALLENGES

The cold chain is a dynamic process and ensuring an effective cold chain supply from manufacturer to patient is no easy task. Temperature controlled logistics presents complex challenges such as regulatory compliance and entering emerging markets. Life sciences companies and their logistics providers must keep abreast of the latest solutions and technologies. In addition, in a post-recession world there are still great pressures to contain costs and manufacturers face touch decisions when choosing the right solutions.

"Each logistics circuit has its own constraints. These constraints are even more important when transporting heat sensitive pharmaceuticals. In fact, the laws and regulations associated with the transport of heat-sensitive products have become stricter over the last few years. Theses changes are leading to more precise specifications and thus, to highly secured cold chain solutions."

– Sofrigam Insulated & Cooling Packaging Insights for Cold Chain IQ

Patient Safety First

Protecting the efficacy of pharmaceutical products is about much more than commerce. Patients around the world depend on a reliable supply of life-saving medicines. Maintaining supply chain integrity and patient safety remains the number one priority for manufacturers and as such they rely on technology to ensure a compliant temperature-controlled supply chain.

The Maturing Market

As the market for cold chain solutions has matured, the end-users have become more knowledgeable about challenges of temperature controlled supply and in turn become more shrewd and savvy about their choices.

In a recent interview with Cold Chain IQ, Jean-Pierre Emond Ph.D., Director of Cold Chain Research at Georgia Tech Research Institute, highlighted the shift in industry discussions, from packaging solutions to taking a global approach to cold chain handling:

"Before, when we were talking about packaging, it was little packages. Now we're talking about a global approach to cold chain handling, which is great. Process, temperature monitoring, qualification, validation of solution, and control improvement are an integral part of the cold chain management program".

"This increase in knowledge is causing the users to become more savvy shoppers for packaging, handling and logistic services, because you realize that packaging is only a small part of the cold chain. When we talk about cold chain, people usually think about a Styrofoam box, but we are far from that now. People have moved on and are so much more knowledgeable," Emond continued.

Taking a Global Approach

Globalization is placing increasing trends on temperature controlled supply chains. Manufacturers now need to have solutions that work effectively in different regions of the world. This means they must address differences in

environmental conditions and customs regulations, which can have a huge impact on shipping times and packaging requirements.

“The big shift that we see is that now we have a global approach, everybody is trying to harmonize their solutions around the world, because they now we ship everywhere. Being conscious of the environmental impact should also be considered. Many countries are pushing for more reusable packaging components, some are even banned, some components need to be recycled, and you know where it’s going to go,” said Emond.

Going Green

Like many other industries, there are pressures from regulators to reduce the carbon footprint of the cold chain and increase environmental accountability. As the focus shifts towards greener packaging solutions, reducing carbon emissions and energy costs, the pharmaceutical industry must grapple with maintaining costs and standards while improving its environmental impact.

In Cold Chain IQ article *Cutting Waste in the Cold Chain,* Geraint Thomas, Technical Director at Laminar Medica wrote: “The suppliers and users of temperature controlled packaging systems are under increasing pressure to reduce the environmental impact of cold chain shipping. The widespread introduction of formal corporate social responsibility policies, together with new customer expectations and more strict regulations, mean that developing a suitable packaging system is more challenging than ever.”

Striking a balancing act between reducing the environmental impact of temperature-controlled supply chain whilst reducing cost is increasingly important.

Building a robust green pharmaceutical cold chain is not just about the packaging. Installation of renewable energy technologies at the warehouse and utilizing alternative fuels during distribution are also avenues being explored for reducing the supply chain's carbon footprint.

Controlled room Temperature Shipments

Historically, the big challenge has been maintaining temperature during distribution of products requiring refrigerated conditions 2-8 Celsius. The “cold chain” landscape has also changed in recent years. Due to an increase in biological products controlled room temperature products (CRT), now make up nearly 90% of all shipments. With some regulations now covering a much wider temperature range, we are seeing changes in packaging requirements and new solutions entering the market for products between 15-20 Celsius and 15-30 Celsius.

“With the recent increase in the number of products requiring CRT and frozen temperature conditions, the industry has been faced with adopting specific protocols to ensure these products are protected throughout distribution. The temperature requirements of the various products that are now being introduced to the market have posed unique challenges which have forced manufacturers to conduct the necessary risk assessment required to identify and understand all of the exposures that exist (not just temperature related) along a given shipping lane. Only after conducting a proper and thorough risk assessment of a shipping lane, can a manufacturer implement appropriate measures to ensure that the quality and integrity of their products are adequately protected throughout distribution,” said Eric Newman, Vice-President for Loss Prevention at ProTecht Risk Solutions.

"Increased use of phase change materials in passive solutions and further development of heating/cooling active solutions creates both challenges and opportunities for solution providers to meet these changing needs and controls / requirements from regulators,"

- Jim Bacon, Senior Director, Grifols Demand Planning & International Customer Operations - US Office, at Grifols, Inc.

So what is the solution?

There are a wide range of solutions available for manufacturers and logistics providers to use in their temperature-controlled supply chain.

CoolPack.com outlines some of the core products available.

THERMAL SOLUTIONS

Thermal systems are shipping systems which are typically pre-qualified, or tested by the manufacturer to maintain a specific temperature range for a determined amount of time.

Active thermal systems do not use any phase change materials (PCM) such as water/ice or dry ice. These systems use mechanical or electric systems powered by an energy source, combined by thermostatic control to maintain proper product temperatures.

Passive thermal systems commonly use phase change materials (PCM) such as water/ice or dry ice. These shipping systems are the most basic and cost effective.

Hybrid thermal systems use a combination of phase change materials (PCM) such as water/ ice or dry ice and thermostatic controls. These systems typically use the PCM's as a source

of energy, which is regulated by some type of thermostatic control to main

TEMPERATURE MONITORS

Temperature monitors come in three different types: digital or electronic, chemical and mechanical.

Digital temperature monitors provide a highly accurate, traceable means of monitoring product or air temperature while in transit. Several technologies and price points are available.

Chemical monitors offer an often simple and cost effective means of monitoring of a product payload during transit. Reduced accuracy when compared to digital monitors exists due to technology limitations.

Mechanical temperature monitors are a low cost means of obtaining temperature information of your product during transit. Accuracy is not as good as digital monitors, but these units can provide time history temperature information unlike chemical monitors.

INSULATED CONTAINERS

Insulated containers come in two main types: molded, or in panels (also called fabricated).

Molded Insulated containers are typically composed of two matching components (body and lid) which provides the greatest insulating integrity, especially when subjected to drop and vibration forces. These containers often require tooling and are not typically collapsible. Flexible insulated containers include pallet covers, pouches, box liners, and bags.

Insulated containers which use panels are typically composed of six matching components (sides, ends and top/bottom) which is typically subject to increased thermal losses, especially when subjected to drop and vibration forces. These containers do not require tooling and are collapsible.

GEL PACKS

Gel packs are grouped in two categories rigid / bricks and flexible bags.

Rigid gel packs usually come in the form of 'bricks' or bottles. These gel packs are ideal for use when rigidity or reusability are required while also providing a more reliable shape when frozen when compared to flexible film gel packs.

Flexible gel packs are the lowest cost type of gel packs. With the low cost typically comes the inability to re-use them and the higher potential for leakage. These requires that the Phase Change Material (PCM) typically be in the form of a gel, which is usually water based.

The pharmaceutical supply chain has gone through a dramatic transformation over the past few decades, with an ever-increasing number of players involved in developing, manufacturing, marketing, and distributing drugs.

At the Summit:

Join your peers to browse the **2015 Exhibit Hall** where you'll be able to find all the latest in technology, implementation, advisory and analytics solutions. This is the ideal place to meet existing and new partners.

Download the Brochure to Learn More

SENIOR EXECUTIVE INSIGHTS

The global life sciences industry has witnessed significant change in the last few years from patent expiry to declining product pipelines. Pharmaceutical and biotechnology companies now see the supply chain as a critical asset for growth and entry into new markets. An efficient well-managed supply chain can also reduce operational costs.

In Q3 2013 Cold Chain IQ conducted a survey with senior level executives and decision-makers from pharmaceutical and biotech manufacturers based in the United States of America, to find out their investment priorities for the next 2 years.

Budget

Despite economic challenges, pharmaceutical and biotech companies are investing in their temperature controlled supply chains. 68% of the respondents had an organizational supply budget of over USD $10 million and 37% of the respondents had budgets of over $100million. 76% of the respondents came from companies with total revenue over $900 million.

Supply Chain Maturity

The majority of the survey respondents had an established cold chain in place, with 47% of executives describing the organizational maturity of their cold chain as intermediate and 42% as advanced.

As supply chains have become more complex, the need for global temperature-controlled supply chain management solutions has intensified. Finding and implementing new solutions for improving supply chain visibility and packaging was of paramount concern for the supply chain executives. Nearly 100% of respondents (96%), said that they planned to invest in new technologies to tackle their supply chain challenges and improve the efficiency of their operations, and that they needed a solution for their temperature controlled supply chain within the next 24 months.

Outsourcing

As the distribution of pharmaceuticals grows in importance external supply chains are set to become an increasingly common way for pharmaceutical & biotech manufacturers to drive efficiency.45% of the executives said they were looking to invest in outsourcing in the next 24 months. The most popular areas for outsourcing were freight, distribution, shipping, warehousing, clinical supply logistics.

Regulatory Compliance

Another key driver behind investment in new supply chain solutions, is the increased scrutiny by authorities and more stringent regulations. As regulators raise the bar, pharmaceutical and biotech companies are requiring more sophisticated traceability and temperature monitoring solutions throughout the temperature-controlled supply chain and ensure supply chain integrity.

Geographic Reach

Although, the respondents were based in the USA, 58% of the supply chain executives were involved in the decision making process for the global temperature-controlled supply chain.

"Globalization is impacting most industries, and the pharmaceutical industry is no exception," said Martin Van Trieste, RPh, Senior Vice President of Quality for Amgen Pharmaceuticals in Thousand Oaks, Calif in the in the *Pharmaceutical Formulation & Quality article Supply Chain, Eye on Supply*.

"With the benefits of globalisation come significant challenges and responsibilities, and one of those challenges is ensuring the authenticity and quality of materials moving through the supply chain," said the article.

Operating across many regions means that manufacturers not only have to comply with global regulations, but also comply with local customs and varying environmental conditions. Ensuring a global temperature-controlled supply chain, requires a more strategic approach to supply chain management and the solutions implemented must also provide greater flexibility to cope with these differences.

Unsurprisingly, Europe and Asia were identified as the two main markets for those looking at broadening their supply chain beyond the USA.

At the Summit:
Join us for 2 PechaKucha sessions highlighting all you need to know about the latest technological innovations.
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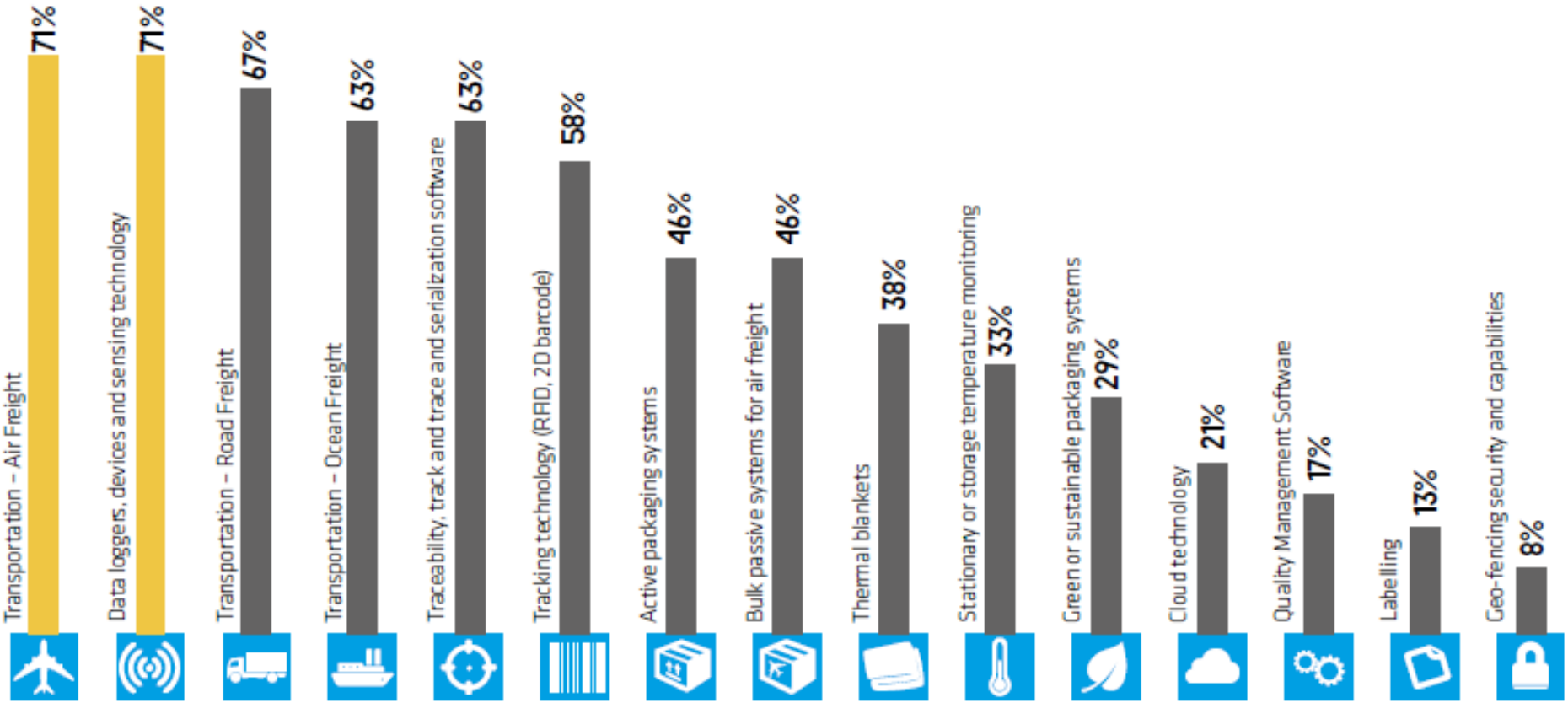
KEY INVESTMENT PRIORITIES

OVER THE NEXT 24 MONTHS



GLOBAL COLD CHAIN MANAGEMENT

Reducing Components, Complexity & Cost

How do you reduce the complexity and cost of your packaging, without sacrificing the performance? Is it possible to create a unified approach to packaging solutions? How can pharma progress with respect to ocean freight? **Jean-Pierre Emond Ph.D., Director of Cold Chain Research at Georgia Tech Research Institute**, has over 25 years teaching experience of cold chain, packaging systems.

In your opinion, what is driving the changes we are seeing in the cold chain industry?

We see that users are becoming more knowledgeable about what can challenge a cold chain process. Before, when we were talking about packaging, it was little packages. Now we're talking about a global approach to cold chain handling, which is great. Process, temperature monitoring, qualification, validation of solution, and control improvement are an integral part of the cold chain management program.

This increase in knowledge is causing the users to become more savvy shoppers for packaging, handling and logistic services, because you realize that packaging is only a small part of the cold chain. When we talk about cold chain, people usually think about a Styrofoam box, but we are far from that now. People have moved on and are so much more knowledgeable.

They also realize that training is a very important part. This is something that we didn't see before, but going to events like the Global Forum, they get more training, and after that they bring this knowledge to their companies, because we have to realize that 90% of the cold chain problems occurring are caused by human errors. So by putting more emphasis on training, which is great, they can avoid these kinds of problems. I would say that this is what is driving the change in the cold chain industry.

What developments have you seen in cold chain ocean freight, and what would you say are the biggest hurdles or capability gaps in the cold chain that lie ahead?

The ocean industry is becoming more aware of the specific requirements of the pharmaceutical and biological cold chain industry. This is very new for them. And one of the things that we see is that the current refrigerated sea containers required power in order to maintain their required temperature.

The refrigeration systems worked with electricity. During the loading and unloading at the port, these containers needed to be unplugged in order to be transferred out of the ship. This means that the refrigerated system doesn't work. So it's closing a gap in the cold chain. The timeframe during that event, where they don't have any power, you can have a significant break in the cold chain.

There are new technologies that address this issue coming into the market. But because we are at the infant stage of shipping cold chain pharmaceuticals via the ocean, many parties, such as the ocean carrier, or

even the pharmaceutical company, the port authority, the people that handle your goods, the customers, they all have to be aware now, because they didn't see that very often. And after that, the insurance company, because we're talking about much more high value product, and also the equipment supplier, they need to work together. This is a big change in the industry.

These parties will need to collaborate more to make sure that the shipping method works for the requirements of the pharmaceutical products.

They have to understand their own roles. All these people never really had to get together to make sure that they had a perfect cold chain, but everybody has their role to play. A good example is that the ocean carriers are not used to shipping these high value shipments and the insurance industry has to come in now, and the pharmaceutical companies need to prove that ocean is a very reliable method. In fact, it's an extremely reliable method of shipping.

Of course, we need some common sense. Just because we have big sea containers that can fit more than $40 million worth of pharmaceutical product, we don't have to fill the whole container. We have to have some common sense there. But it is a very good technology, and also for many companies, it will become just a regular part of their logistic chain, but we are still at the infant age of this industry, and all the parties have to get together in order to understand what their roles are.

This is what I would say that is the new development in cold chain ocean freight.

CLICK HERE TO READ THE INTERVIEW IN FULL

At the Summit:
Attend an expert panel discussion on shipping pharma products via ocean freight on Main Conference Day Two.
Download the Brochure to Learn More

Do's and Don'ts for Integrating Cold Chain Management Systems

Gary Hutchinson, President of Modality Solutions, is an expert in thermal packaging engineering and controlled environment logistics for biotechnology and high risk products.

I think you really have to start with characterizing the environment and don't make any assumptions about what temperatures you can maintain. A lot of times we get into conversations with people about some very extreme temperatures 50, 60, 70 – 50 to 60 degrees centigrade – and you don't go and design packaging for that worst case scenario. If you're seeing extremes like that, you have to design a logistics network to help moderate some of these extremes to get some controls around the ambient so you can really focus on a more robust or a simpler packaging design.

I think the other thing too is you really don't want to start your cold chain management design until you have a really good understanding of your design space from a product characterization point of view. 2 to 8 degrees, refrigerated, it's an ideal or a target, but most of the proteins out there have been demonstrated through registration and stability studies to be able to routinely handle exposures outside of that.

Explaining that to a regulator and reviewing it as a part of the marketing authorization is really the first step, because if you try to make those changes after the fact or explain temperature excursions as normal or within your normal operating range without reviewing the data with the regulators can really end up getting you in some trouble.

We always take a very systematic approach. We start with product characterization, doing stability studies, either registration stability studies or recommending some stability studies just to support the distribution environment, move on to good characterization or understanding of your transport lanes and packaging qualification and then, from there, when you have that foundation, you'll present a validation master plan for the controlled environment logistics process that clearly can be understood and followed by a regulators and they understand just exactly how all the component systems work together.

"You really don't want to start your cold chain management design until you have a really good understanding of your design space from a product characterization point of view."

CLICK HERE TO LISTEN TO THE INTERVIEW IN FULL

At the Summit:
Take part in an in-depth roundtable discussion on 'Defining Success in Your Cold Chain Management Program.'
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Qualification or Validation of Cold Chain Shipping Solution?

Each logistics circuit has constraints that are important to know when transporting heat sensitive pharmaceuticals. The laws and regulations about transporting heat-sensitive products have become stricter over the last few years. Theses changes are leading to more precise specifications and thus, to highly secured cold chain shipping solutions. *By Sofrigam Insulated & Cooling Packaging Insights*

STARTING POINT: Analyzing the Customer Logistics Circuit

At the start of the design process, the customer logistics circuit is analyzed to define the set of specifications. This study is based on:

• Risk analysis relative to temperature profiles,

• The search for the best working volume/exterior volume ratio

• The implementation of shipping preparation procedures that are simple and strict.

From the specifications, the engineers of the design office draw the suitable heat-insulated container using 3D software. The packaging is manufactured from these 3D files. It is then tested to check its performance and reliability. From large volume containers to insulated pouches, every packaging unit has to be tested in a test lab to ensure that the required temperature remains constant inside the packaging throughout the specified period. Qualification or validation of the packaging, what are the differences? Which step is the most important? The Qualification guarantees the performance of the packaging.

In order to evaluate the performance characteristics of an insulated shipping system, the qualification procedure incorporates 4 requirements:

1. **Design Qualification (DQ)** involves compilation of the specification by the User.

2. **Qualification of the Installation (QI)** is intended to demonstrate the conformity of the solution, based on the physical criteria and the quality requirements defined in the specification.

3. **Operational Qualification (OQ)** consists of describing, conducting and documenting the tests in order to define, verify and finalize the insulation solution (procedure, ranges of application for each configuration, calibration certificates, etc.). As part of the OQ, the thermal properties of the refrigerated packaging unit are checked by simulating the temperature profiles in climatic or thermostatic chambers. The QI and OQ test reports are compiled and approved by the Supplier and the Client.

4. The purpose of the **Performance Qualification (PQ)** is to verify the results of the OQ test under actual operating conditions. This report is compiled and approved by the User. Qualification ensures compliance with the requirements of health authorities, with the submission of a test report or a qualification dossier (whichever is required). In addition, the results can be reproduced and used in evidence in the event of a dispute.

VALIDATION: A Test of the Packaging Under Real Shipping Conditions

Validation is the next stage after the qualification requirement of the performance characteristics of the packaging. It relates to all the parameters associated with the

transport process. The User tests the insulated shipping solution under actual conditions of use in order to confirm that it is fit for purpose. The user chooses the modes of transport and the representative and relevant destinations.

A complete test culminates in qualification of the packaging unit, followed by its validation.

Qualification and validation are two complementary stages when testing a cold chain packaging. It provides a guarantee of performance and safety for temperature-sensitive products. While qualification demonstrates the performance characteristics of the insulated packaging, validation signifies approval of the solution for use under actual transport conditio

At the Summit:
Wilf Meschwitz of BioVectra will share a special 2-part case study on qualification processes and validation
[Download the Brochure to Learn More]

5 Steps for reducing the Environmental Impact of your Cold Chain Shipping

With the global pharmaceutical industry facing a steady tide of pressure from consumers and regulators to reduce the environmental impact of its activities, the supply chain is under scrutiny like never before. Companies that succeed in making their operations more environmentally friendly may gain from operational cost savings as a result of less waste, reduced fuel, energy and transport costs, and a lack of compliance penalties. In addition, studies have shown that supply chain improvements of this nature invariably enhance an organization's brand and reputation considerably. Here are five key steps from ColdChainIQ.com that can help you lessen the environmental impact of you supply chain:

ADOPT A LIFECYCLE APPROACH

Lifecycle may have become a buzzword among supply chain experts in recent years, but it does hold the key to making operations greener. By understanding the lifecycle of a product from raw materials to disposal, companies can identify areas where there is real scope for improvements and redesign aspects of the process to minimize their environmental footprint.

With carbon accounting methods requiring companies to include all costs from raw material extraction to the final disposal of materials, there has never been a stronger case for carrying out product lifecycle analysis.

EMBRACE COLD CHAIN TECHNOLOGY

Research has shown that automating supply chain transactions can have a significant impact on a firm's carbon footprint, as well as the well publicized cost benefits. Automation can be used to drive efficiencies throughout the supply chain, although reduced paper usage is likely to be one of the most immediate and visible benefits. To this end, technology can be a powerful tool for companies planning a green overhaul of their supply chains.

TARGET GREEN EFFORTS

The 'lifecycle' school of thought may promote a holistic approach to greening a supply chain, but it is also important to think strategically and target efforts in places that are likely to yield the best outcomes. Significantly decreasing the environmental impact of a company's entire supply chain should be the long-term objective; identifying priority areas and delivering tangible results should appear on the day-to-day business agenda.

REMEMBER THE BOTTOM LINE

Organizations must be careful not to view their sustainability targets as existing in an entirely separate sphere to their overall business goals. Any supply chain project is likely to be more successful if it closely reflects the strategic direction of the organization. For this reason, identifying the financial benefits of any green supply initiatives and clearly demonstrating them to the relevant decision makers of the company is essential.

SEEK EXPERT ASSISTANCE

Businesses without the internal expertise to carry out a full review of their supply chain operations and establish a plan for change should seek support from outside the organization. Working in partnership with a consultancy or independent adviser can give firms access to a wealth of skills and experience that will help them to trim waste and embed efficiency into the supply chain.

At the Summit:
Lisa Barbieri Moher of Sanofi will share a case study on why you don't have to sacrifice economics for sustainable packaging
Download the Brochure to Learn More

8 Essentials: Choosing a Cold Chain Monitoring Solution

Temperature monitoring is an essential part of an effective cold chain and it is also expanding to include drugs that must be maintained at ambient temperatures. Many technologies are now available to monitor the various parameters of temperature, humidity, energy, etc. There are many factors to consider when choosing the right monitoring solution. So how do you choose? **Nitin Dahad of Dyzle** helped us reveal 8 essential factors to look for.

What parameters does it measure? Is it just temperature, or will it tell you about the humidity or whether a door is open or closed?

Can the sensors used in the system be used in the entire logistics network – in the controlled room temperature warehouses, and in the fleet of trucks? Will this give you complete visibility in the entire cold chain, or are there gaps?

How does it send the information – is it via local wireless network, or a globally connected mobile network? If it uses mobile (GPRS or UMTS networks), then there would be global coverage.

Will it send you a real-time alert if the temperature rises above or falls below pre-defined temperature values that define the integrity of the product?

Can the system also use data from legacy products – such as existing barcode scanners, RFID tags, ERP systems, so that you can get a complete picture of my cold chain?

Can the system overlay location data so that you can see the exact status of the entire fleet and warehouses in one geographic map?

How is the data stored and will you have access to it at any time? If the data is continuously monitored and sent to the cloud for storage, then you will have access to it in case you need to provide full reporting history to your customers.

Do you need to provide any extra training to my operators? Ideally the system should provide automatic monitoring and data recording and reporting, removing the task of measuring from your operations staff, leaving them to get on with their main job function.

At the Summit:
Workshop A, dedicated to temperature-sensitive packaging essentials, will include an entire section on monitoring solutions.
Download the Brochure to Learn More

FUTURE PERSPECTIVES ON THE PHARMA SUPPLY CHAIN

Tony Wright, Chief Executive Officer of Exelsius Cold Chain Management

"What I've seen over the last few years is that the pharma supply chain is not afraid of innovation, perhaps for a number of reasons. Clearly, there's been some regulatory pressure that has made them look for innovation in supply chains, and there's also been economic pressure that has made them look for innovation. I'm not so sure it's about barriers. But we need, really, I think, much greater harmonization in terms of some of the standards that are in place. I think sometimes we see a logistics sector that is trying hard to focus on the pharmaceutical sector, and sees lack of harmonization in terms of standards, lack of harmonization in terms of even the basic things of temperature scales. I think the logistics sector needs a level playing field for it to really work effectively. For me, it's not about barriers. I've not seen barriers not being dismantled. I've seen just the need for creating a better field for people to play in, and to make sure that we harmonize all the things that we're trying to do in the supply chain. We need to bring all those participants together."

At the Summit:
Tony will lead Master Class B on the Essentials of GDP. Master Classes are limited to only 25 registrants.
Download the Brochure to Learn More

Gary Hutchinson, expert in thermal packaging engineering and President at Modality Solutions

"I think where you're going to see the greatest change in technology is going to be in the automated control system. Really a combination of a lot of different I think exciting technologies, from something as simple as really strong visual controls like freeze indicators or threshold heat indicators to really start identifying down to the package level what some of those extremes and making a yes or no decision on them, all the way up to a more sophisticated technology with cell phone and satellite GPS technology that will ably give real-time information where your shipments are, are there any deviations in the route, are you having any concerns or issues with temperature control on a route and, actually, proactively be able to respond to that. So, of all the places that I see really innovation really taking a lead in the next couple years, it's not going to be so much on the packaging design or even on the logistics network design, that's getting the feedback loop in place from the monitoring, the controls, the shell, that your validated system has been in control and you'll be able to react very quickly to issues you have within your supply chain."

Nandini Bhattacharya, Senior Research Analyst , Frost & Sullivan

"Battery-assisted passive (BAP) technology is going to be a bigger market and although active technology will also be used, battery-assisted passive will dominate. And there is a lot of good potential in Europe and Asia Pacific. In fact emerging economies will increase adoption in the medium. So emerging economies like the BRIC countries and parts of Latin America, Central and Eastern Europe, even in the Middle East, parts of Africa, there will be more adoption of RFID in the cold chain. Government mandates will also keep on driving the market., and food and drug safety will continue to be a primary concerns. Also consumers are getting more aware of the food and drug safety and technological innovations will drive the market."

Jim Bacon, Senior Director, Grifols Demand Planning & International Customer Operations - US Office, at Grifols, Inc.

"As the industry (manufacturer/ provider/ regulator) matures, the need for temperature controlled distribution is bright. Manufacturers will seek out those providers that can create end to end to solutions ensuring integrity of product and meeting the changing regulations. Cold Chain IQ and industry groups create the collaborative platforms for all participants to map out guidelines that can or could become global standards in the future. As well, the need for real time data not only for temperature, but also shock, humidity, light, etc and security concerns are leading to integrated approaches to measuring and maintaining integrity of shipments."

At the Summit:
Jim will lead Workshop F on 'The Core Team Approach' to Collaboration in the Cold Chain
Download the Brochure to Learn More

Sources

http://www.coldchainiq.com/transportation-logistics/articles/building-a-robust-green-pharmaceutical-cold-chain/
http://www.coldchainiq.com/transportation-logistics/articles/the-green-supply-chain-pharma-5-steps-forward/
http://www.coldchainiq.com/vaccines-world/articles/annual-cold-chain-expenditure-expected-to-increase/
http://www.coldchainiq.com/quality-management/articles/global-rfid-in-the-cold-chain-part-2/
http://www.coolpack.com/

ABOUT COLD CHAIN IQ

Free Pharma Industry Best Practice Information at Cold Chain IQ

An international resource center for the temperature control life science professional, Cold Chain IQ delivers insightful, unbiased information about today's 'hot topics'.

Members benefit by reading expert analysis, trend-setting articles, listening to podcast interviews, watching video features and top-rated presentations from IQPC's global temp control supply chain event series. Cold Chain IQ focuses on all areas of temperature controlled logistics, distribution and quality in pharmaceuticals and biotechnology.

ColdChainIQ
Temperature Control Logistics
& Quality Network

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ABOUT THE SUMMIT

Canada's #1 Event Covering All Temperatures & Life Sciences Products

We are excited to bring back the 13th Cold Chain GDP & Temperature Management Logistics Summit - Canada, February 23-26, 2015 to Montreal!

Temperature control and sensitive handling are fundamental requirements of most life sciences products today. The Canadian Summit will examine the modern cold chain – including all temperature range products and their regulatory requirements – as well as an expanded focus on Supply Chain Integrity. As supply chain complexities continue to increase, the Canadian market is facing costly challenges resulting from evolving regulations, changing requirements and challenging regional weather conditions.

Register today! www.ColdChainPharm.com/