Five10Twelve Limited

Submission Deadline 7

Comment in Response to REP6-012 and ND 2.4

Pharmaceuticals Move To Sea Freight Which is 80% Less Expensive Than Air Transport and Has a Lower Carbon Footprint That is 1/25th The Size Of Air Travel's

AstraZeneca one of the world's largest pharmaceutical companies and based in the UK[1] (https://www.astrazeneca.com/) is aiming to **get 80% of each lane moved by sea**[2].

The pharmaceutical manufacturer has worked with **sea freight** for the past four to five years[3] and it is now their **mode of choice for large/bulk shipments**. Also, it is starting to consider rail freight[4].

"While ocean freight historically has been the Cinderella of pharmaceuticals distribution, **IATA notes that 3.5 million metric tons of pharmaceuticals are**

---

[1] **AstraZeneca plc**
is a British-Swedish multinational pharmaceutical and biopharmaceutical company. In 2013, it moved its headquarters to Cambridge, UK, and concentrated its R&D in three sites: Cambridge; Gaithersburg, Maryland, USA (location of MedImmune) for work on biopharmaceuticals; and Mölndal (near Gothenburg) in Sweden, for research on traditional chemical drugs. AstraZeneca has a portfolio of products for major disease areas including cancer, cardiovascular, gastrointestinal, infection, neuroscience, respiratory and inflammation.
The company was founded in 1999 through the merger of the Swedish Astra AB and the English Zeneca Group (itself formed by the demerger of the pharmaceutical operations of Imperial Chemical Industries in 1993). Since the merger it has been among the world's largest pharmaceutical companies and has made numerous corporate acquisitions, including Cambridge Antibody Technology (in 2006), MedImmune (in 2007), Spirogen (in 2013) and Definiens (by MedImmune in 2014).

[2] Pharma Logistics IQ 4 November 2018
Why AstraZeneca is on course to achieve 70% sea freight volume ratio by 2018

[3] The Loadstar December 15, 2015 **AstraZeneca – Drug Shipments Shift From Air To Ocean**
https://theloadstar.com/coolstar/astrazeneca-eyes-major-shift-from-air-freight-to-ocean-a-more-controlled-environment-for-drugs/

[4] Pharma Logistics IQ 4 November 2018
Why AstraZeneca is on course to achieve 70% sea freight volume ratio by 2018

shipped by ocean each year, compared with 0.5 million metric tons by air, and this number is only increasing.

Over the past five years, ocean transport has taken on much greater visibility in the pharmaceuticals industry. Cost competitiveness is a major factor driving acceptance, as it is up to **80% less expensive than air transport**. Most pharmaceuticals are time-sensitive, but for products that don't have to be moved quickly, ocean freight is a less costly option.

This trend has been driven as well by governmental agencies around the world that procure medicines on behalf of their national healthcare systems and which have been pressuring the industry to come up with lower prices for their products. At the same time, governments have imposed more regulatory and compliance elements to the pharmaceutical supply chain, thus driving up costs, and putting the squeeze on producers.

Although it can take much longer than air travel, **sea freight is often more reliable because there are far fewer product handoffs**. According to some studies, air freight accounts for 80% of all reported temperature excursions, compared with 1% for sea journeys, thus leading to higher quality.

With ocean freight, customs clearances and other time-consuming paperwork procedures can often be arranged during transit. To the extent that ocean freight entails a greater load tie-up, this can be mitigated through use of "floating warehouse" principles, whereby goods in transit are recognized as inventory.

In addition, **ocean transport has a lower carbon footprint that is 1/25th the size of air travel's**. Approximately 1000 grams per m.t./km of CO2 are released during air transport, compared with less than 40 grams by ocean transport. For

businesses with sustainability goals in mind, ocean freight offers significant opportunities in reducing their carbon footprint[5]".

[5]Pharma Logistics IQ 23 August 2018 Guide to Temperature Controlled Logistics https://www.pharmalogisticsiq.com/packaging-shipping-systems/articles/guide-to-temperature-controlled-logistics

THECOOLSTAR
MAKING SENSE OF THE PERISHABLE SUPPLY CHAIN

AstraZeneca eyes major shift from air freight to ocean: a 'mor environment for drugs

©Dutchscenery |

Julian Wann, global category manager, freight and logistics for the drug manufacturer, told the Air Cargo News Life Sciences & Pharmaceuticals Conference in London there was “still a huge number of excursions” where products go outside the required parameters during transportation.

In the first 10 months of this year, AZ moved 21m kg of product, equivalent to its full-year total for ...

Please Register

Please either login or register below to continue

Email*

Name*

First

Last

Password*

Confirm Password*

What is your job title?*

Company*

How would you best describe your business?*

Shipper

- ○ Senior Management
- ○ Middle Management
- ○ Operational

What interests you?*

- ☐ Air
- ☐ Sea
- ☐ Land
- ☐ Supply Chain

Subscribe to Newsletter*

- ☑ Subscribe

Submit

RELATED STORIES

oT CMA CGM targets air freight's supply chain dominance with reefer efforts

oT) technology is nabled market,

CMA CGM to launch pharma division

CMA CGM is making a serious move into the pharmaceuticals business, launching

Data sharing a recipe for helping reducing food waste in the cool chain

Players in the supply chain could help stamp out food loss through better data

nents • Share

May 16, 2019 • 0 Comments • Share

COMMENTS 0

TOPICS

AstraZeneca | IATA | modal shift | Pharma | sea freight | Air Canada Cargo | Delta Cargo | IoT | Pa

COMPANY NEWS

- DHL Parcel invests in fleet to increase capacity, reduce carbon emissions and improve safety
- Synergy adds third train between port of Barcelona and Miranda de Ebro
- Europa gives green light to Birmingham site re-fit
- PIL enhances transpacific services
- OOCL introduces new Asia–South America East Coast and Caribbean direct services
- CMA CGM launches Adriatic Sea-Algeria direct service ADRINAF
- VOC Port and Tuticorin Customs achieve fast IGST tax refunds to exporters with Kale Logistics Solutions' CODEX
- DSV opens new facility in the logistics centre of Turkey

Back to top Privacy Policy

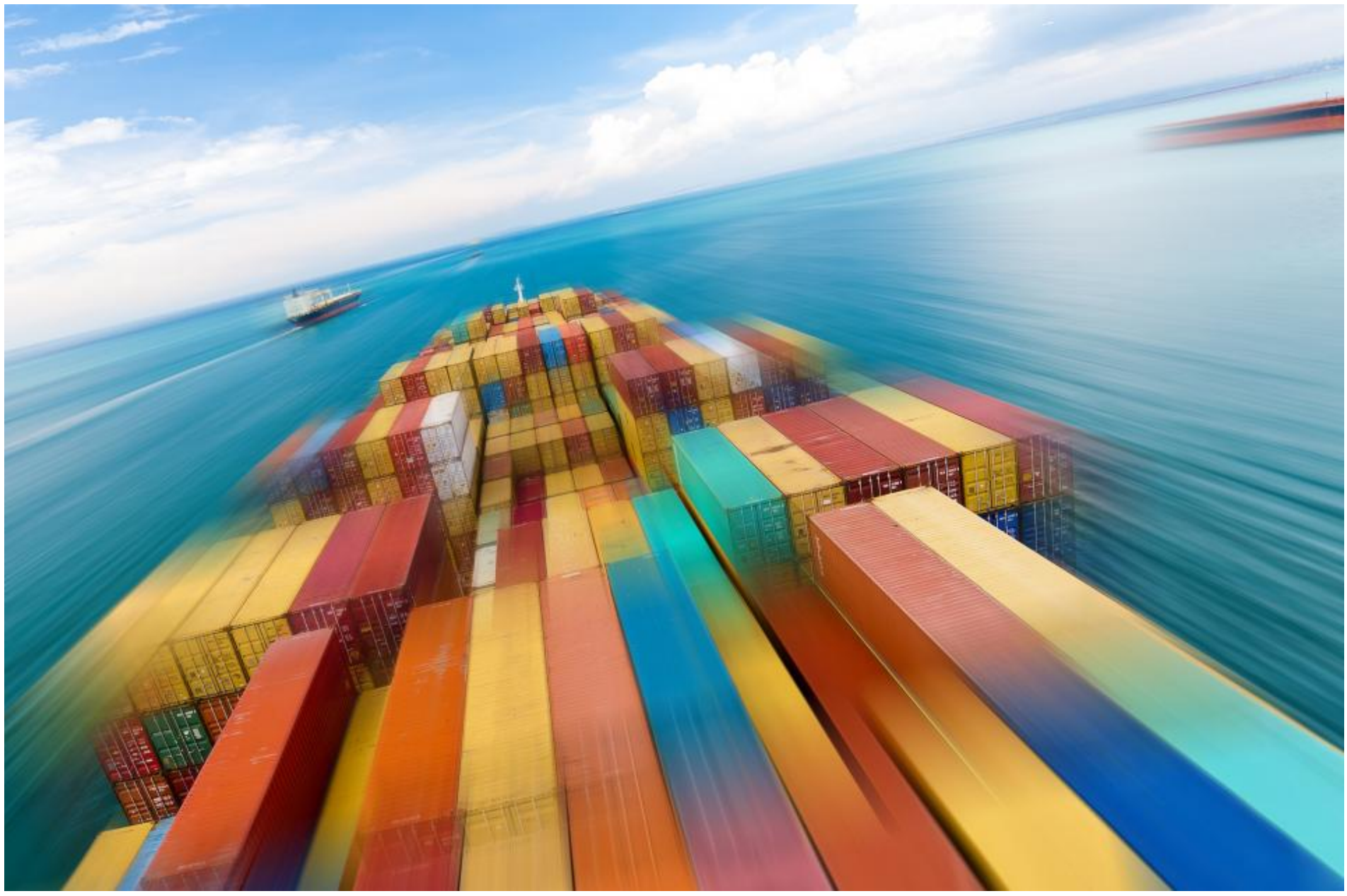
Filter Categories +

Why AstraZeneca is on course to achieve 70% sea freight volume ratio by 2018

Pharma Logistics IQ

04/11/2018

At a recent conference, AstraZeneca and GSK provided insight into their sea freight transportation activities for temperature controlled medicines.



Currently, the majority of AstraZeneca's medicines are moved by air.

But surprisingly at this year's Temperature Controlled Logistics conference in their session Global Category Leader of Freight & Logistics - Julien Wann and Global Category Manager - Andrew Spencer noted that AstraZeneca is aiming to get 80% of each lane moved by sea.

For this shift Julien Wann noted that there will need to be a thought process evolution within the company, with optimisation being the key focus.

The pharmaceutical manufacturer has worked with sea freight for the past four to five years and it is now their mode of choice for large/bulk shipments. Also, it is starting to consider rail freight.

AstraZeneca has seen success due to the position it has taken on quality. Sea freight has rewarded them with cost improvements, lower emissions and more accuracy to prevent temperature deviations.

In his session on the sea freight focus day, Jeroen Janssen at GSK Vaccines agreed that sea freight transportation is becoming “more and more of an importance”.

Cost

When examining freight payments from a total cost perspective, sea freight can often emerge as cheaper. With airfreight, medicines will require additional protective packaging, but when transporting by sea often you can just use a reefer. Shippers should verify the quality of these temperature controlled containers as this can vary in different regions.

Want more? **More Temperature-Sensitive Medicines Moving by Ocean Freight Despite Market Shake-up**

Quality

Ocean freight has a lower amount of touch points than air which shrinks the risk of cargo handling mistakes.

Jeroen Janssen noted that GSK has been pleased with the cold chain performance quality within ocean freight. Despite temperature spikes when loading or unloading, no product loss has been encountered as of yet. GSK is still considering a real time monitoring solution.

Shippers should invest into a collaborative approach by building relationships with shipping lines and freight forwarders to reduce risks to the medicines being transported.

Want more? **Air-to-Ocean: Delivering Value through Sea Freight**

Challenges

Julian noted that the growing focus on biologics will bring tall logistics challenges.

He added that asthma and respiratory products are becoming key in Asia. In 2017, Tagrisso was prescribed in the US within hours of its approval.

Jeroen Janssen noted that ocean freight transportation requires shippers to manage lead times and processes There can be a struggle to react to very short lead times. For example, when bringing seasonal products to the market, i.e. a flu vaccine, sea freight is unlikely to fit into the needed timeframe.

Inaccessible locations can also present large issues for transporting temperature controlled products via sea freight.

More pharmaceutical shippers are looking to ocean freight as an alternative to the more expensive air freight. Indeed, ocean freight data provider, Datamyne, indicates in terms of TEUs, US imported refrigerated pharmaceutical goods within harmonized code 30, increased 18.1% from 2015 to 2016. This is even though the market went through a series of consolidations in that period.

Shippers will continue to evaluate alternative modes of transportation to ensure high-valued, temperature-sensitive pharmaceuticals are delivered to the final destination without being compromised. Air, Ocean, road and rail all have their benefits as well as drawbacks. Shippers will not only need to do their homework to determine the best mix of transportation, but also work with their supply chain partners to communicate needs and set expectations.

Want more? **IATA hopeful for the future of pharma air freight**

Comments

You must Login or Subscribe to comment.

Upcoming Events

Cold Chain Global Forum

October 15 - 18, 2019
Sheraton Boston, MA

Register Now | View Agenda | Learn More

Temperature Controlled Logistics 2020

27 - 30 January, 2020
Düsseldorf, Germany

Register Now | View Agenda | Learn More

MORE EVENTS

Subscribe to our Free Newsletter

Insights from the world's foremost thought leaders delivered to your inbox.

SUBSCRIBE

Latest Webinars

Temperature Controlled Logistics Online. Register Free!

2019-01-15
05:01 PM - 05:01 PM EST

An online series featuring live interactive webinars, on-demand webinars, whitepapers, infograp...

Pharmaceutical quality control: Connecting with your supply chain! [WEBINAR]

2018-10-02
10:00 AM - 11:00 AM EST

Join this virtual overview of improving quality control in the pharma supply chain from Esko.

Authentication empowerment.: What it takes to fight counterfeit drugs

2018-06-27
10:00 AM - 11:00 AM EST

Join Authentix and David Howard, former Director of Johnson & Johnson Global Brand Protection, to di...

MORE WEBINARS

Latest Online Events

Temperature Controlled Logistics Online 2nd - 4th April 2019

A three day online series featuring live interactive webinars and commentary resources focused on su...

Cold Chain Global Forum Online - 26th June 2018

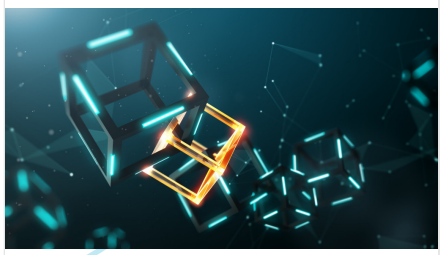
Exclusive case studies from global pharmaceutical organisations, obtain awareness of the latest mark...

Temperature Controlled Logistics Live 2018 - 13th March 2018

An online series featuring live interactive webinars, on-demand webinars, whitepapers, infographics,...

MORE ONLINE EVENTS

RECOMMENDED



Blockchain: Everything you need to know about how this tech will change the cold...

2019-02-14

By Pharma Logistics Editor

UK offers simplified customs system to apply for 'no deal' Brexit

2019-02-07

By Pharma Logistics Editor

Temperature Controlled Logistics Online 2nd - 4th April 2019

2019-02-04

By Pharma Logistics IQ

TCL19: Key Takeaways on the future of the cold chain

2019-02-01

By Pharma Logistics Editor

FIND CONTENT BY TYPE

App
Articles
Glossary
Infographics
News
Reports
Videos
Webinars

PHARMA LOGISTICS COMMUNITY

Advertise With Us
About Us
Contact Us
Become a Member Today
Cookie Policy
User Agreement
Pharma IQ App

ADVERTISE WITH US

Reach Pharma Logistics professionals through cost-effective marketing opportunities to deliver your message, position yourself as a thought leader, and introduce new products, techniques and strategies to the market.

LEARN MORE

JOIN THE PHARMA LOGISTICS COMMUNITY

Join Pharma Logistics today and interact with a vibrant network of professionals, keeping up to date with the industry by accessing our wealth of articles, videos, live conferences and more.

SIGN UP TODAY!

Filter Categories +

Guide to Temperature Controlled Logistics

Temperature controlled logistics is imperative for many pharmaceutical products, as spoiled drugs can have serious consequences on the health and well being.

Tags: Temperature Controlled Logistics Airfreight Seafreight

Adam Muspratt

08/23/2018

55

What is temperature controlled logistics?

Temperature controlled logistics specializes in the storage, preservation and transportation of cargo that is sensitive to atmospheric conditions and needs to maintain a certain temperature. This is imperative for many pharmaceutical products, as spoiled drugs can have serious consequences on the health and wellbeing.

RELATED: ***A Serialized Guide to Serialization***

Elevated temperatures or sub-zero temperature can affect the chemical stability of the medicine and may even alter its physical properties. This can come in the form of sedimentation and separation of emulsion systems.

Due to the implications of improperly stored drugs, regulator demands have become more stringent and pharmaceutical companies need to be able to prove that they're products are transported via a temperature controlled supply chain.

RELATED: ***The Top 25 Global Logistics Providers***

The margin of error is different from product to product, but the industry has seen a greater regulatory emphasis on drugs that can maintain integrity between 2 ° C and 8°C. This temperature range is referred to as "cold-chain" – a temperature range where the medicine is maintained above sub-zero temperatures. These conditions must be assured by all parties, including the manufacturer, shipper, and wholesaler.

While the shipping services are responsible for maintaining the temperature of the cargo, it is the manufacturer's responsibility to ensure the optimal conditions for the product are understood by all involved parties. Some considerations to think about before choosing a temperature controlled solution.

- The acceptable temperature and humidity range
- The margin of error for the temperature
- Acceptable levels of risk
- Potential areas of risk and touch points
- Specific no-go actions that may compromise the integrity of the product

Additional conditions for selecting a cold storage system should be based, but not limited to, the following criteria:

- The temperature range and volume of the medicine
- Temperature controls

- Back up temperature controls
- The layout of the storage unit and airflow
- External temperature logging and data tracking
- Cargo placement (avoid areas where temperature variation is likely such as near bay doors)
- Have temperatures been tested?
- The volume of medicinal product

For tackling temperature excursions, check out this ten step guide!

Others argue that the biggest consideration when choosing transport for pharmaceutical logistics is the risk to the end-user if there is a delay or problem with the shipment. Either way, thorough risk assessments are necessary when selecting a suitable mode of transport and considerations must be made about the costs of replacing the product if something were to go wrong.

What are the critical touchpoints?

Logistics is complex, dynamic and ever-changing. As such, there is a wide array of touchpoints and hand-off processes between the various actors involved with the distribution of the product. As such, it is imperative that areas of risk are understood to ensure the proper handling of medicines.

***RELATED:** Unlocking precise temperature control*

Different medicines and different transportation methods will come with their own unique touch points, but here is a rundown of the most common touchpoints that pose a risk to your medicine.

Preparing the product for transport to the shipper location – The primary transportation method may have temperature controlled storage facilities, but does the warehouse the product is stored in prior to transportation have similar facilities

Transportation to the shipper location – Refrigerated vehicles or passive cooling systems will have to be considered to ensure the drugs will not be compromised en-route. Similarly, once the product reaches the shipper's storage facilities, will it have the required apparatus to ensure the safety of your medicines.

Minimizing the amount of time the drugs spend at ambient temperatures is critical, especially in warmer climates. Walk-in cold storage rooms or dry ice can be used to help maintain the temperature of active and passive containers.

Physical loading – Ramp handling, covered storage, and potential delays need to be accounted for. Additionally, if an electrical connection to power is required, do all of the touch points have a compatible connection and ability to output appropriate wattage?

During transit - Finally, once the product is in the cargo hold of the aircraft or vessel – is it being sufficiently protected? The temperature controls may have been taken care of, but the positioning of the cold storage unit is just as important. Avoid storing the medicine near cargo doors and other cargo in general. Adequate circulation around the product is often required to reach a stabilized temperature. A notice to the captain should be issued to ensure that all variables are taken care of.

Furthermore, it is important to ensure cooling apparatus remains active for the duration of the transit. Mistakes can come in the form of energy saving modes being turned on without notice, and cooling apparatus being switched off during rest periods.

Standards and regulations

Companies operating within the pharmaceutical cold chain must be aware of the latest rules and standards in the market. Due to the complexity of transporting drugs internationally, keeping up to date can be a daunting task. Some countries may even have safety regulation that involves physically opening and inspecting cargo, which can result in temperature deviations. It is good practice to make data and temperature loggers accessible from outside of the storage container to keep opening containers to a minimum.

In the EU, the Directive 2001/83/EC is the foremost legal document with regards to governing the production, distribution and use of medicinal products. Find the full document here.

In addition, regulations are routinely published in the following groups:

- European Union
- World Health Organization
- Parenteral Drug Association
- International Air Transport Association
- Pharmacopeia

Types of temperature controlled logistics

Refrigerated vehicles - This category includes conventional vehicles that have thermostatically controlled cargo compartments, enabling the temperature range to be maintained. Refrigerated vehicles often come in the form of small vans and trucks, which are often equipped with electronic control systems to manage temperature. While some vehicles in the category rely on the engine to supply power to the refrigeration unit, larger vehicles have independently powered units and electrical backups.

RELATED: Test Results: Cycled Settings on Temperature Control Units

Passive shipping container - Passive shipping systems are storage containers that utilize a combination of insulating materials and electronics to maintain a temperature range. While they do not require human or external input to function, they can only maintain a temperature range for a set period of time before they expire, making them an effective option for short journeys. Impact resistant - these containers are often necessary to mitigate any potential damage to the transported cargo, making them necessary for road transportation. Passive shipping systems are often used alongside the other major types of temperature controlled logistics for an additional layer of protection.

Active shipping system – These are similar to passive shipping containers but are much larger in scope. Active shipping systems are used aboard airfreight and sea freight shipping – and are effectively large thermostatically controlled cargo containers. On air freight, they are typically powered via internal batteries or an external electrical source and maintain power via large cooling fans and heating mechanisms. Meanwhile, sea freight active shipping systems are generally powered by the ships onboard power supply.

Check out this World Health Organization manual for more detailed guidance on temperature-controlled transport

Air freight temperature controlled logistics

Air freight is the most popular form of temperature controlled transport, as this method can help alleviate time considerations, geographical obstacles and a lack of infrastructure (roads, railways, ports, etc.). Air transportation is even the most popular mode of transport for in-country logistics.

- **Capacity oversupply**
  Overcapacity has created a more competitive service for manufacturers and as a result, services have become more temperature-controlled pharmaceutical focused, which is positive for the quality of the products.

- **Weak Points**
  It is widely acknowledged that the weakest points in the air freight supply chain are the transfer points between the different players. Staff training, increased planning for the aircraft type and increased due diligence are areas that require more attention.

- **Cost efficiency**
  A key element of cost-saving and efficiency in the air freight industry is modernisation and the use of technology for process improvement and optimisation. Like other industries, pharma logistics companies face

the challenge of incorporating digitisation, despite the cargo industry not being technology driven.

- **The future of air freight**
  With the demise of huge blockbuster drugs hitting the market every couple of years, the generics industry now covers a large proportion of the generic medicines that are being delivered to patients. transportation methods will be approached in a far more cost-conscious manner in the years to come.

What are the types of air freight

Commercial Airlines –Commercial airlines tend to primarily transport passengers, but most offer cargo services to take advantage of the airport to airport destinations. However, commercial airlines tend to have smaller storage capacity in comparison to dedicated cargo airliners. In addition, cold storage apparatus will likely be retrofitted within the airliner and hired from a third-party company, as opposed to being an innate feature of the airliner. Co-ordination will be balanced between a freight forwarding agent and the airliner.

Integrators – Integrators refer to dedicated mail delivery services such as DHL and UPS. These companies will coordinate directly with airlines to ensure the optimal delivery of the drugs.

Specialized cargo airliners -Cargo only aircraft do not carry passengers and have substantially more room for cargo as a result.

Sea freight temperature controlled logistics

In the last few years, the price of air freight has been on an incline; as a result, pharmaceutical companies all over the world are looking for alternative cost-effective methods of transporting their life sciences products. Sea freight is the major alternative and is becoming increasingly more viable in comparison to air freight.

***RELATED:** A global approach to reducing medicine temperature excursions*

Around 20% of pharmaceutical payloads are moved via ocean freight however it's forecast this will increase to approximately 75% within the next decade. So, why sea freight containers?

- **Cost effective** – Sea freight temperature controlled logistics is substantially cheaper when compared to air freight shipping.

- **Less risky** - Sea freight offers a more controlled environment in comparison to air freight. There are fewer control points and disruptions, as sea freight cargo will not be touched until it reaches its destination.

- **Easier to monitor** - Sea freights are continuously improving, and most services offer real-time tracking and monitoring – further reducing the risk factor.

- **Fewer temperature excursions** - This provides an unbroken cold chain and less exposure to ambient temperatures.

- **Management** –You need to manage your lead times and processes. Take them both into consideration.

- **Seasonal products** – Transporting seasonal products to the market i.e. flu vaccine. Sea freight will always be slower than. airfreight.

- **Tenders** – Specifications require products to travel by air. A mindset change needs to happen.

- **Agility** – The pharmaceutical industry cannot react to very short lead times.

- **Inaccessible locations** – Delivering temperature controlled products to remote in-land locations via sea freight can be time-consuming

Airfreight or sea freight?

Adam Tetz Peli BioThermal's director of worldwide marketing said: "There will always be a need for air transportation when emergencies arise and there is the need to get products shipped more quickly."As regulators introduce tighter rules around transport and logistics, and more temperature-sensitive medicines enter the market, the gap between air and sea transportation will narrow. However, it will not make other forms of transportation redundant.

RELATED: ***Pharma's Airfreight Versus Seafreight Boxing Match***

Some pharma products will always be in high demand or have a high enough value to only travel by air. There will always be emergencies and natural disasters that need pharmaceuticals quickly. Shipments sent over the water could be unavailable for four to six weeks, so air transport will be a valuable logistics mode when speed is called for.

Comments

You must Login or Subscribe to comment.

Upcoming Events

Cold Chain Global Forum

October 15 - 18, 2019
Sheraton Boston, MA

Register Now | View Agenda | Learn More

Temperature Controlled Logistics 2020

27 - 30 January, 2020
Düsseldorf, Germany

Register Now | View Agenda | Learn More

MORE EVENTS

Subscribe to our Free Newsletter

Insights from the world's foremost thought leaders delivered to your inbox.

SUBSCRIBE

Latest Webinars

Temperature Controlled Logistics Online. Register Free!

2019-01-15
05:01 PM - 05:01 PM EST

An online series featuring live interactive webinars, on-demand webinars, whitepapers, infograp...

Pharmaceutical quality control: Connecting with your supply chain! [WEBINAR]

2018-10-02

10:00 AM - 11:00 AM EST

Join this virtual overview of improving quality control in the pharma supply chain from Esko.

Authentication empowerment.: What it takes to fight counterfeit drugs

2018-06-27
10:00 AM - 11:00 AM EST

Join Authentix and David Howard, former Director of Johnson & Johnson Global Brand Protection, to di...

MORE WEBINARS

Latest Online Events

Temperature Controlled Logistics Online 2nd - 4th April 2019

A three day online series featuring live interactive webinars and commentary resources focused on su...

Cold Chain Global Forum Online - 26th June 2018

Exclusive case studies from global pharmaceutical organisations, obtain awareness of the latest mark...

Temperature Controlled Logistics Live 2018 - 13th March 2018

An online series featuring live interactive webinars, on-demand webinars, whitepapers, infographics,...

MORE ONLINE EVENTS

RECOMMENDED

Top Five Variables When Calculating Total Cost of Ownership in Thermal Packaging

2018-10-25
By Pharma Logistics Editor

Cold Chain Forum hots up for Softbox's new MAX range

2018-09-07
By Pharma Logistics Editor

Seafreight Container Weight Regulations– Update

2016-07-13
By Mark Edwards

It is Never Too Late to Document Your Cold Chain Process Validation Approach

2016-05-24
By Gary Hutchinson

FIND CONTENT BY TYPE

App
Articles
Glossary
Infographics
News
Reports
Videos
Webinars

PHARMA LOGISTICS COMMUNITY

Advertise With Us
About Us
Contact Us