ASSESSING THE FUTURE OF THE COLD CHAIN INDUSTRY
Uncovering Key Trends in Temperature Controlled Packaging

TEMPERATURE ASSURANCE PACKAGING SOLUTIONS
...because every degree matters™

SONOCO THERMOSAFE®
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1 Executive Summary

The current logistics spend for temperature-sensitive healthcare products is approximately $8.4 billion worldwide and growing, or about 13% of the overall pharmaceutical logistics market. Approximately $5.6 billion is spent on transportation while another $2.8 billion is allocated to specialized packaging and monitoring devices.\(^1\) But what will the needs, trends and concerns in market look like in the next 2 to 3 years?

In order to gain a deeper understanding of this rapidly evolving packaging and logistics market for the transport of temperature-sensitive products, Sonoco ThermoSafe sponsored and managed a 26-question survey during the spring/summer of 2014. The survey was co-developed with an eight member advisory panel of leading industry experts from Merck, Sanofi, AbbVie, UPS Temperature True Packaging, Pharmaceutical Commerce, Healthcare Packaging, IQPC, and Exelsius Cold Chain Management Consultancy.

The survey consisted of five sections including respondent demographics, products and services, logistics, environmental, and trends. 165 individuals responded to the survey with a vast majority from the United States. There was a near 60-40 split between respondents involved directly in the manufacture of drug products and those involved in the supply side of drug distribution. 52.5% of respondents had company revenues over $1 billion. Of the respondents over $1 billion, all but 10% were manufacturers. Those included wholesale distributors, a retail distributor and freight forwarding/expeditor companies.

The preponderance of data suggests two clearly defined trends. One: the industry’s desire for economically viable reusable passive packaging and two: an increased reliance on the breadth of goods and service offerings from logistics providers as drug manufacturers continue to drift toward their core competencies.

In the arena of passive packaging, respondents overwhelmingly agreed the three most important factors in need of improvement are package efficiency, total cost of ownership for delivery of drugs to their destinations, and price. Of the 30% of applicable respondents who confirmed usage of active systems, price and availability of active containers in locations when and where needed received the most criticism.

This survey was analyzed and prepared by Kevin O’Donnell, Senior Partner, Exelsius Cold Chain Management Consultancy (www.exelsiusglobal.com)

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\(^1\) Lipowicz, M and Basta, N., Supply Chain Logistics 2014 Biopharma cold-chain forecast, Pharmaceutical Commerce, April 29, 2014
2 Survey Process and Methodology

The survey commenced on February 26, 2014 and ended on July 13, 2014. It was conducted using Survey Gizmo, an online survey creation, tracking, and analysis tool. The survey consisted of 26 questions with a comments section included for each question. None of the questions were mandatory and therefore, partial surveys were submitted and accepted. Promotion of the survey was done with the support of various internal resources and external partners:

- Sonoco ThermoSafe website and newsletters
- Sonoco ThermoSafe direct customer contact through email and in-person visits
- Promotion at industry conferences
- Pharmaceutical Commerce website and email newsletters
- Healthcare Packaging website and email newsletters
- IQPC website and email newsletters
- Clinical Leader and Pharmaceutical Online website and newsletters

There were various question types including:

- **Multiple choice – select one**
  For this type of question, the respondents were asked to select one answer from a list of possible options. The number of responses received for each option was divided by the total number of respondents that answered the question to achieve a percentage. All responses add up to 100%.

- **Multiple choice – select multiple**
  For this type of question, the respondents had the option to select multiple answers from a list of possible options. The number of responses received for each option was divided by the total number of respondents that answered the question to achieve a percentage. Hence, all responses do not add up to 100%.

- **Ranking**
  For this type of question, the respondents were asked to rank the top three out of a list of possible options. The total score for each option is a weighted calculation. Items ranked first are valued higher than the following ranks.
3 Survey Results

a. Respondent Demographics

i. Location

- **North America, 74.8%**
- **Europe, 20.8%**
- **ROW, 4.4%**

ii. Business Type

There was a near 60-40 split between those involved directly in the manufacture of drug products and those involved in the supply side of drug distribution. 52.1% of the respondents are involved in the manufacture of pharmaceuticals, biopharmaceuticals, vaccines, and diagnostic medicine. The 2nd largest group (29.5%) is listed as “other” includes suppliers to the industry, media, equipment manufacturers, government, non-government organizations, and research/university/academia personnel, among others.
iii. Business Revenue
52.5% of respondents had company revenues over $1 billion. Of the respondents over $1 billion, all but 10% were manufacturers. Those included: four wholesale distributors, one retail distributor and five freight forwarding/expeditor companies. The two largest categories were highest and lowest revenue companies, comprising 71% collectively. 19.7% collective from mid-size companies and less than 10% GO/NGO and Academia.

iv. Job Function
Those closest to, and involved in making packaging decisions i.e. packaging engineering, logistics, operations, quality, and procurement made up nearly three-quarters of all of respondents (74.8%). Support services, i.e. production planning, transportation, sales and marketing comprised 14.5% of all responses.
b. Products and Services

i. Top THREE areas in passive temperature controlled packaging in most need of improvement

The data represents a weighted score-ranking response. Respondents overwhelmingly agree the three areas in most need of improvement related to their company are improved package efficiency, total cost of ownership and price. Many respondents also commented that lower package weight can be included in the efficiency category.

![Bar chart showing top areas in passive temperature controlled packaging need of improvement](chart1)

*Score is a weighted calculation

ii. Top THREE areas in active shipping containers in most need of improvement

The data represents a weighted score-ranking response. Price and availability of active containers in locations when and where needed are of an overwhelming concern from respondents as areas most needed for improvement.

![Bar chart showing top areas in active shipping containers need of improvement](chart2)

*Score is a weighted calculation
iii. Most limiting factor for updating or replacing qualified shipping solutions within organizations

Cost, long implementation periods, and changes in personnel responsibilities favored heavily (58.6%) as the reasons limiting updating or replacing current shipping solutions. This is not broken down by active or passive. Approximately 20% are fearful of implications of not executing it properly or thoroughly to meet regulatory compliance (10.2%), applying current best practices (4.7%), or simply find the process overwhelming (4.7%).

iv. Standard (Ready-Engineered Solutions) vs. Custom Solutions

Over the next 2-3 years, 49% of respondents indicated that they would rather purchase ready-engineered solutions rather than developing custom packaging solutions. Cost and immediate availability are the driving factors among respondents.
v. Current vs. Future Need for Services

We realized that many respondents used the terms “recycling” and “reclamation” interchangeably in the survey. Hence for this analysis, their percentages will be combined. Respondents will increase their usage of recycling and reclamation services by 34% over the next 2 to 3 years. Kitting and fulfillment all showed expected decline among companies over the next 2-3 years.

**Current State**

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td>25.2%</td>
</tr>
<tr>
<td>Reclamation</td>
<td>18.1%</td>
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<tr>
<td>Just in Time</td>
<td>27.6%</td>
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<tr>
<td>Kitting</td>
<td>18.9%</td>
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<tr>
<td>Fulfillment</td>
<td>25.2%</td>
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<tr>
<td>None of the above</td>
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<tr>
<td>Other</td>
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<tr>
<td>Unsure</td>
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**Future State**

<table>
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<tr>
<th>Service</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Recycling</td>
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<tr>
<td>Reclamation</td>
<td>31.3%</td>
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<tr>
<td>Just in Time</td>
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<tr>
<td>Kitting</td>
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<td>Fulfillment</td>
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<tr>
<td>None of the above</td>
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<tr>
<td>Other</td>
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<tr>
<td>Unsure</td>
<td>18.8%</td>
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</table>
c. Logistics

i. Influence of 3PL companies in packaging decisions in the future

More than 1/3 of respondents plan to maintain control of their passive packaging selections, but a growing number are outsourcing this responsibility.

![Pie chart showing distribution of packaging decisions](chart1.png)

ii. Level of usage of 3PL companies in the next 2-3 years

27.7% of respondents admit that their company will increase reliance on 3PLs over the near term. The greatest percentage (95%) was among boutique companies (revenues under $50 million). Small companies (> $50 million but <$500 million) were at 91%, medium size manufacturing companies (> $500 million but <$2 billion) were 25% and large companies (> $2 billion) were at 89%. 1/3 of all respondents anticipated no change at all and only 6.2% expect a decrease in such services overall.

![Pie chart showing level of usage](chart2.png)
iii. Key reasons for the increase in 3PL usage over the next 2-3 years

Nearly 50% of respondents are looking to 3PLs as a means of reducing their expenses in shipping and tertiary packaging. Many organizations plan to seek the expertise of 3PL companies in international regions. Also, there is an increasing trend of outsourcing to 3PLs which allows organizations to focus on their respective core competencies.
d. Environmental

i. Current reuse of passive temperature controlled packaging
Slightly more than 50% of respondents that currently use insulated shippers re-use their packaging. 38.8% retain “a one and done” approach to their passive packaging.

ii. Future usage of re-usable passive temperature controlled packaging
Almost 70% of respondents anticipate an industry-wide increase in the re-use of passive packaging solutions. A 8% minority see no need. 10% of respondents believe there will be no change in the near term. An overwhelming majority (69.3%) cites packaging cost with respect to Total Cost of Ownership as the main reason to implement reusable containers but the pressures of environmental responsibility slightly exceed cost. Of those that answered NO, 90% of respondents believe that the cost to return packaging for re-use is prohibitive.
e. **Trends**

i. **Key trends that will impact the future of temperature controlled shipping and transportation in the next 2-3 years**

Almost all respondents agree that regulations will have the greatest impact on the future of the temperature-controlled packaging industry followed distantly by growth in biological products and rising logistics cost. Growth in emerging markets was the only moderate trend.

<table>
<thead>
<tr>
<th>Trend</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Regulations</td>
<td>244</td>
</tr>
<tr>
<td>Growth in biological drug therapies and vaccines</td>
<td>124</td>
</tr>
<tr>
<td>Logistics Costs</td>
<td>117</td>
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<tr>
<td>Growth in emerging markets</td>
<td>79</td>
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<tr>
<td>Expansion of temperature range</td>
<td>47</td>
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<tr>
<td>Shift in modes of transport</td>
<td>38</td>
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<tr>
<td>Transitioning from 2-8°C to CRT drug products</td>
<td>36</td>
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<tr>
<td>Management of monitoring data</td>
<td>31</td>
</tr>
<tr>
<td>Industry-wide standardization of ambient profiles</td>
<td>24</td>
</tr>
<tr>
<td>Growth in biosimilars</td>
<td>23</td>
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<tr>
<td>Intra-company product standardization</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

*Score is a weighted calculation*
ii. Emerging markets in which business expansion is occurring within most organizations

Aside from the considerable number of respondents who were unsure, those who were sure continue to fixate on the BRIC countries.

iii. Key training needs of the industry

Concern remains high surrounding compliance, especially cGDP and the regulation that guide them as more than 50% of the respondents indicated. A substantial percentage (nearly 40%) think they or their organization would benefit from having a better understanding on how meaningful and representative ambient temperature profiles are developed and can use guidance on the physics, operation and comparative differences between active and passive shipping options. 11% of respondents see no need for additional training.
4 About Sonoco ThermoSafe

Sonoco ThermoSafe, a unit of Sonoco (NYSE:SON), is a leading global provider of temperature assurance packaging for the safe and efficient transport of pharmaceuticals, biologics, vaccines and other temperature sensitive products. Sonoco ThermoSafe shipping solutions mitigate risk for our customers and ensure product efficacy throughout the extremes of a supply chain. With operations in North America, Europe and Asia, Sonoco ThermoSafe has a vast product offering featuring industry-leading technology that encompasses refrigerated, frozen or controlled room temperature applications. In addition, Sonoco ThermoSafe’s ISC Labs® design and testing services deliver individualized and innovative packaging solutions along with qualification and validation services to meet all regulatory requirements.

About Sonoco

Founded in 1899, Sonoco is a global provider of a variety of consumer packaging, industrial products, protective packaging and packaging supply chain services. With annualized net sales of approximately $4.9 billion, the Company has more than 19,900 employees working in 335 operations in 33 countries, serving many of the world’s best-known brands in some 85 nations. Sonoco is a proud member of the 2013/2014 Dow Jones Sustainability World Index. For more information on the Company, visit our website at www.sonoco.com.

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