

SOLUTION BRIEF

CCT'S SUSTAINABILITY INITIATIVE

As the global leader in reusable and single-use sustainable thermal packaging shippers for the life sciences industry, we are committed to the safe transport of life-saving medications and environmental leadership.



CCT's Sustainability Initiative

- Positively impact the health of our communities and our planet through the safe and sustainable transport of medications
- Generate social and environmental change to benefit the planet, our partners and global health.
- Reduce 60M pounds (lbs.) of landfill waste by 2025 with an interim milestone of 25M pounds (lbs.) by 2023.
- Decarbonize our products and services based on the circular economy

A circular economy is one that exchanges the typical cycle of make, use, dispose in favor of as much re-use and recycling as possible. Extending the life of products and materials prevents the over-generation of waste and recovers the full value of products.

CCT, through its extensive single-use sustainable and reusable offerings, can reduce the negative impact on the environment and help its customers achieve a reduction in CO2 emissions, landfill avoidance, etc. At CCT, we take this commitment seriously. As part of our 3-year Strategic Plan, we are embarking on the following sustainability journey:



As part of our 3-year Strategic Plan, we are embarking on a major sustainability journey.



1 Broad Portfolio of Solutions

1. While CCT has been a provider of Single Use Passive Thermal shippers for years, the company significantly invested in creating and commercializing a reusable portfolio of Passive Parcel and Pallet Shippers. The CCT Ecoflex (Parcel shipper) was released in 2019 and the EndeavAir (Pallet shipper) in 2021.

i. Reusable products offer significant opportunities to improve the environment: A third-party verified ISO-compliant LCA study was undertaken by CCT. EcoFlex reuse parcel shipper with a low damage rate, provided significant environmental benefits compared to EPS single-use, for the two indicators of interest.

1. 60% reduction in Fossil Fuel Use
2. 48% reduction in GHG emissions

iii. These also offer customers the opportunity of using higher performing solutions at lower per-use costs.

2. In 2020, CCT took over the global distribution of the DuPont Tyvek cargo covers for thermal protection of life science medications. Beyond offering one of the best thermal protection in their category, these covers are also 100% recyclable, given a second life in products such as park benches and playground equipment.

3. While most of the shippers in the thermal packaging space are made from EPS (Expanded Polystyrene), PUR (Polyurethane) and VIPs (Vacuum Insulation Panels), CCT is committed to identifying materials that are “greener.” As a result, CCT undertook various NPI (New Product Introductions) programs and launched a Sustainable Fiber shipper in 2021.

4. Along this journey, CCT evaluated and completed the acquisition of Packaging Technology Group (PTG) which successfully developed and commercialized a certified 100% Curbside recyclable and repulpable parcel shipper.

- i. This shipper uses a proprietary manufacturing process that ensures consistency of performance vis-à-vis other alternatives, such as EPS.
- ii. A study showed CCT’s sustainable shippers provide an 80% decrease in overall environmental impact compared to a standard cold-chain industry shipper.
- iii. The Western Michigan University (WMU) Recycling, Paper, and Coating Pilot Plant provided an OCC-E (old, corrugated containers) certification to CCT, signifying its entire sustainable shipper can safely and efficiently enter the recycling stream and be repulped.
- iv. CCT is now expanding the use of this shipper for many other sizes, durations, and temperature profiles to give its customers numerous options to meet their shipping requirements in a 100% curbside recyclable option.



2 Sourcing and Manufacturing Processes

1. CCT continuously engages its suppliers to ensure the sourcing of “greener” materials. The origin and manufacturability of these products are key criteria that it uses to select and work with its suppliers.
 - i. Examples.
 1. Environment impact certificates shared with CCT annually from Corrugate manufacturer, who uses recycled corrugate.
 2. Plant-based PCM (Phase Change Material) for select product lines (reference to Roper Thermals and their hexadecane)
 3. Films? (aka Amcor)
2. Simultaneously, CCT is making investments and taking initiatives to improve its manufacturing processes that help reduce the use of power, water, and other resources.
 - i. Need examples.

3 Tools to Measure and Track Progress

1. CCT uses 2 distinct tools to better understand the sustainability of present and future products. First, a scoring system developed internally aids in preliminary material choice to align with CCT’s sustainability goals. Second, a life cycle analysis (LCA) screening tool allows the comparison of multiple products in terms of their respective environmental impacts.
 - i. Scoring System
 1. This tool is vital at the initial stages of product development to guide material choice and works best for comparisons between single-use products.

Units Saved through Purchase

Trees



SAVINGS
32,514

KWH of Power



SAVINGS
7,650,400

Cubic Yards of Land Fill



SAVINGS
6,312

Gallons Of Water



SAVINGS
13,388,200

Tons of CO2



SAVINGS
1,913

Table 1: Sustainable scoring system, with both “origin” and “end-of-life” scoring categories. A material would receive a score from both categories, and the two scores would be added to determine the overall score. The best score is 8, whereas the worst score is 0.

Origin	Origin Score	End-of-Life	End-of-Life Score
Petroleum-based, virgin material	0	Landfill only option Significant impact if littered into nature*	0
Recycled content incorporated, or Non-petroleum based, virgin material	1	Landfill still most likely option Recycling or composting is not accessible to most of the public**	1
Majority renewable resources, or High level of recycled content (>50%)	2	Recyclable, but not convenient/curbside Compostable, but only industrially Can genuinely be repurposed by end user	2
100% Renewable resources, or 100% Recycled content	3	Curbside recyclable, or Readily compostable	3
100% Renewable resources, and manufacturing method has low impact	4	Curbside recyclable, or Readily compostable, and High proven compliance rates	4

* A score of 0 in the End-of-Life category is further defined as the following: Landfill is absolutely the only option, and if it was littered, it would decompose into harmful substances that could harm people or wildlife (ex. microplastics, toxic chemicals, etc.)

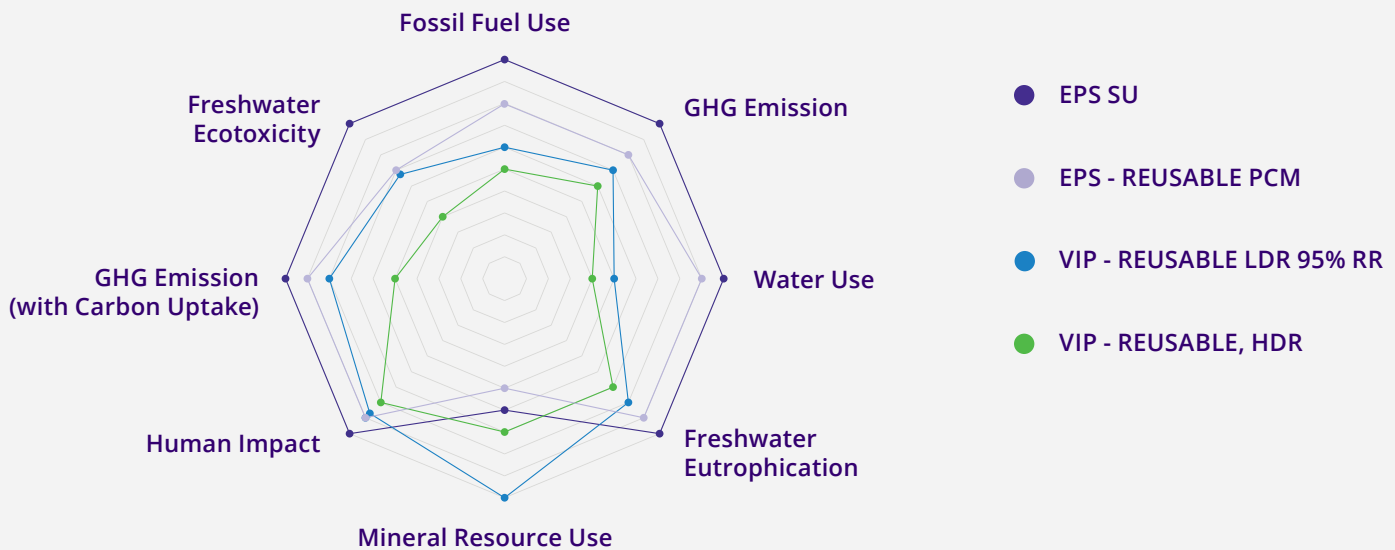
Table 2: Sustainable scoring system used to compare various insulation materials. The best possible score is 8, whereas the worst possible score is 0.

Insulation	Origin Score	End-of-Life Score	Total Score
EPS	0	1	1
Cotton-Based	2	1	3
Starch Foam	2	3	5
Paper-Based	3	4	7

ii. Life Cycle Analysis (LCA) Software

1. For a more quantitative evaluation of our products, CCT uses EcoImpact-COMPASS from Trayak LLC (<http://trayak.com/>), a design assessment software developed to simplify the environmental impact comparison between various packaging types and materials. The COMPASS software draws its data from the globally recognized ecoinvent life cycle inventory (LCI) database (<https://ecoinvent.org/the-ecoinvent-database/>) which provides quantitative industry averages of material manufacturing processes and end of life environmental impacts. The net impact of a shipper design can be measured in numerous ways using this data with indicators such as greenhouse gas (GHG) emissions, fossil fuel use and water use. The tool can also be used to compare different shipper designs side-by-side to determine the most sustainable option for a given application.

Environmental Indicators



GHG Emissions (kg CO2 eq.) by Life Cycle Phases

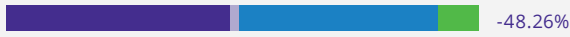
EPS SU



EPS - REUSABLE, PCM



VIP - REUSABLE LDR 95% RR



VIP - REUSABLE, HDR



50 100 150 200 250

- MATERIAL
- MANUFACTURING
- TRANSPORTATION
- END OF LIFE

2. Eco-Calculator

- CCT has invested in growing its digital capabilities with the purpose of sharing more information with its customers to help them make intelligent decisions and monitor the performance of their sustainability initiatives. To this effect, CCT is offering an “Eco-Calculator” to demonstrate the landfill waste avoidance that a customer could achieve while using one of CCT’s single use sustainable or reusable shipping solutions.

3. INSIGHTS to help objectively OPTIMIZE choices

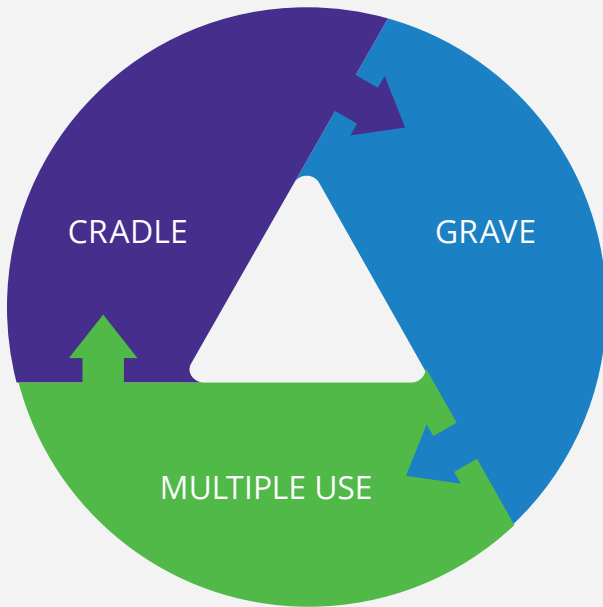
- Beyond the calculator, CCT will be leveraging a lot of data gathered from shipping its solutions globally to work with its customers to select or modify solutions that can help achieve the right balance between performance, cost, and sustainability.

4 Engaging CCTs Teams & stakeholders

- To ensure meaningful progress on these initiatives and embedding it in the DNA of the company, CCT has implemented the following initiatives:
 - Developed content to train and educate CCT team members on Sustainability 101 in 2021. Foundations of Sustainability training planned for summer 2022 and will be conducted through CCT University.

What is Sustainability?

Sustainability literally means to “maintain at a certain rate or level”. In practice, it means to take into account the entire life cycle of a product, from raw material sourcing, to manufacturing, to disposal.



- **Natural vs. Synthetic Materials**
 - *Renewable Resources?*
 - *Recycled Content?*
- **Energy Consumption in Manufacture**
 - *Consumers Like Natural Appearance*
 - *Public Concern for Plastic Packaging*
 - *Consistent Quality More Difficult with Natural or Recycled Materials*
- **Recycling**
- **Composting**
- **Landfill**
- **Incineration**
 - *Availability/Practicality of Recycling and Composting Affect End User Compliance*
 - *Increasing Public Concern about Ocean Contamination and Microplastics*
 - *Landfill is Evolving, e.g. Methane Recovery, Landfill Mining*
 - *Development of Chemical Recycling Continues*
- **Number of Turns**
- **Environmental Impact of Return and Refurbishment**
 - *Convenience/Practicality of Return Affects End User Compliance*
 - *CCT Should Consider Third-Party vs. In-House Repurposing*

- Established a sustainability committee which meets bi-weekly, that includes members of the executive team, to oversee company-wide initiatives.
- Hired and engaged a highly respected ESG consulting organization to help CCT establish goals and create a roadmap for progress on this initiative.
- Participate in the EcoVadis evidence-based assessment on an annual basis.
- We are a member of the Sustainable Packaging Coalition, the leading voice on sustainable packaging. They bring businesses, educational institutions, and government agencies together to advance the business case for more sustainable packaging.



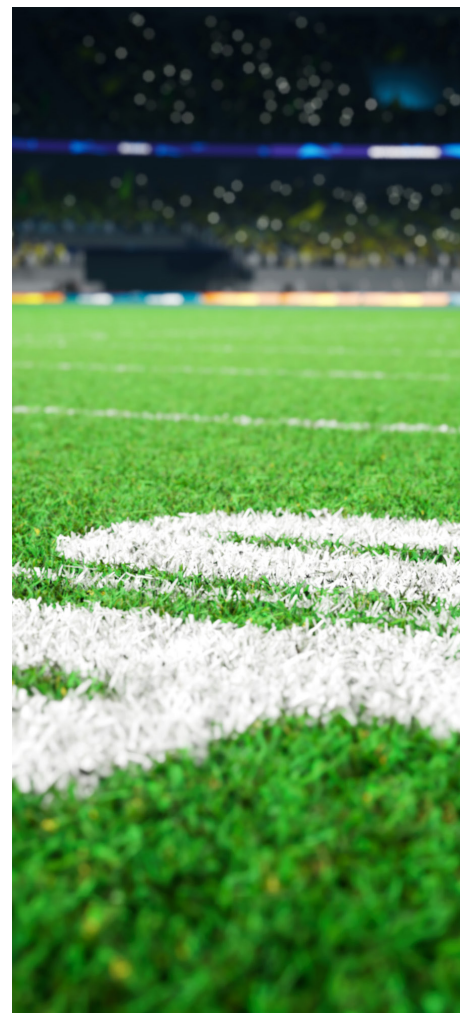


CCT Employees on Earth Day 2022

- vi. Engage CCT teams on important sustainability dates like Earth Day, World Environment Day, and others to make time and show their support.
- 2. We are also working with many of our customers to create case studies and measure the impact they have seen by using CCT's solutions, to help them achieve their Sustainability goals.

5 CCT's Goals and Commitment to Carbon Neutrality, Water Savings, and Waste Reduction

- 1. Waste Reduction: CCT set a goal to reduce 60M pounds (lbs.) of landfill waste by 2025 with an interim milestone of 25M pounds (lbs.) by 2023.
 - i. 60M lbs. (27M kgs.) of landfill avoidance can be equated to:
 - 1. Parking 98 A380s (World's largest passenger airplane) OR
 - 2. Weight of 4,615 African Male Elephants OR
 - 3. 66 Football fields lined up next to each other.
- 2. Water Savings: An independent, client-led study showed that CCT's TRUEtemp Naturals® curbside recyclable shippers reduce water use by 91%. CCT is also working on other initiatives to reduce the use of water in its manufacturing processes.
- 3. Carbon Neutrality: Most pharmaceutical companies have aggressive carbon neutrality goals; CCT's reusable and single-use sustainable shippers assist companies by reducing overall environmental impact by 80%. Additionally, CCT's own ESG goals include carbon neutrality through its own operations.



About Cold Chain Technologies

Cold Chain Technologies (CCT) is an ISO 9001:2015 certified global leader in the development and delivery of cost-effective insulated thermal packaging solutions that protect the integrity of temperature-sensitive products. With over 50 years of experience in the cold chain, we understand its logistics and applications, its demands and its extremes.

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