Innovation Center

This is the Supply Change.
How about freeze, heat, vibrate, drop, crush, mangle, melt, tear apart, burn, beat, and slam?…Well, we would.

Welcome to Your Innovation Center.

The key to handling product damage is finding the root causes — zeroing in on the when, where and why damage happens. Does it happen due to routine movements through your network and supply chain? Is it caused by environmental factors? Or is it automated systems and material-handling equipment? Yours or even your customers’?

Reducing product damage can be done efficiently and cost effectively as part of our comprehensive offering to reduce unsaleables. CHEP has the knowledge and tools to help you get it done. We have deep operational experience with both manufacturer and retailer supply chains, an ISTA-certified Innovation Center for testing, and we literally “wrote the book” on best-in-class strategies to reduce unsaleables together with the Grocery Manufacturer Association (GMA) and the Food Marketing Institute (FMI).

This is where you can find CHEP engineers ready to work with you to design, test, and validate your material handling platforms and packaging to help you improve the performance of your product in storage and transit.

Whatever your needs, we are here to help.
It might seem simple (or even fun) to drop a pallet or crush it to see what happens. In reality, our product engineers spend countless hours putting platforms through a multitude of equipment tests and analyzing the results.

The equipment shown here is found in our Innovation Center Lab where we validate the testing.

The Innovation Center is an ISTA certified lab

How Do We Do It?
Rigorous testing, of course.

CHEP can simulate the effect of impact on platforms carrying your valued products with the Drop Impact Tester. This test performs accurate and repeatable drop tests from heights up to 4 meters (13ft) to evaluate product damage.

CHEP can simulate in-market environmental effects and product performance on your unit loads through the use of twin 37-square-meter (400-square-feet) Environmental Conditioning Chambers. The programmable chambers can operate from -30°C to 70°C (-22°F to 160°F) with a relative humidity range of 10% to 90%.

CHEP can test the structural integrity of full unit loads of your product through the use of the CHEP Compression Test System. The tester exerts can exert up to 226kN (50,000 lb) of compressive force on material handling products in both racking and stacking configurations.
Inclined Impact Test

CHEP can simulate the effect of impact on unit loads of your product: up to 1,810 kg (4,000 lb). The Inclined Impact Tester can simulate impact against a flat surface, as well as against unique geometries such as forklift tines at speeds of up to 8km/h (5 mph).

Vibration Test

CHEP can test unit load stability, product damage potential, and equipment durability with the CHEP Vibration Test System. The tester simulates unit load vibration from all transportation modes including truck, rail, air, and sea shipments. Actual customized shipment conditions can be replicated through the use of our field data recorder.
Unit Load Optimization

There are many elements that can affect the performance of your unit load: packaging, design, transportation, etc.

Based on your needs, we will customize your experience at the Innovation Center to help you validate or realize areas of improvement.

Our engineers will scrutinize everything from how product is arranged on the pallet (or container) to how the unit loads are positioned in a rail car for a cross-country train shipment.

Services Include:
- Unit load configuration
- Primary and secondary packaging
- Tertiary packaging (stretch wrap, corner posts, etc.)
- Product weight and durability
- Transportation loading patterns/trailer or container optimization

Situation:
+ A major US food manufacturer was receiving packaging film on custom sized (42x42 in.) pallets from a vendor.
+ The food manufacturer asked the vendor to consider shipping on CHEP.

Innovation Center Testing:
+ Modeled and tested current and exploratory unit load configurations.
+ 92% of the film rolls fit securely onto an industry standard 48x40 in. pallet.
+ After analysis, their 16 inch rolls could be organized in a specific pattern that would enable an additional roll of film per layer.

Result:
+ 20% increase in product shipped per unit load.
+ The extra weight of the unit load is easily handled on CHEP pallets (2800 lb payload).
+ Improved operating efficiency utilizing standard industry pallet dimension.
+ Manufacturer benefited from having additional CHEP pallets in the supply chain for use downstream.

Case Study:
Unit Load Optimization
Product Damage

A trip through the CHEP Innovation Center is a trip through the supply chain. CHEP will work with you to simulate the supply chain conditions that your package/product will endure during transit or while in storage.

Our testing will identify packaging or material handling opportunities that can be modified to improve performance, ensure safe delivery and help reduce product damage.

Imagine being able to visit Your Innovation Center and test your product’s unit loads in multiple supply chain scenarios (racking, stacking, and storage) and in different climates (hot, cold, dry, and humid). We can even test a unit load’s performance during a simulated 500 km trip on a rail car or in the back of a truck with our vibration table.

ISTA Certified testing services:
+ Product damage analysis
+ Vibration testing
+ Long-term stack testing
+ Compression testing
+ Stretch wrap analysis
+ Impact testing
+ Materials testing (corrugated, paperboard, plastic films, etc.)
+ Environmental testing
+ Drop testing

Case Study:
Product Damage

Situation:
+ A major water bottle manufacturer invested a significant amount of resources into the development of their new plastic water bottle which had been designed to require less PET (plastic).
+ Unit Loads of this product were collapsing in hot/humid warehouses.
+ Initial assumptions were that the new bottle design was the cause.

Innovation Center Testing:
+ CHEP tested and compared the performance of the old and new bottle designs in its condition-controlled Environmental Chambers.

Result:
+ Statistically, the bottles performed to the same levels.
+ Key finding: Heat and humidity adversely affected the corrugated trays holding case quantities of the bottles, which affected the overall performance of the unit load.
+ Testing identified the root cause of the situation and helped the manufacturer address perceived issues with the bottles and avoid potential redesign costs.
Packaging Performance Testing

Validating the performance of packaging materials and their compatibility with material handling equipment in real-world conditions is essential for supply chain optimization.

CHEP engineers will perform laboratory and on-location testing with material handling equipment and systems to help you maximize the cost-benefit of using CHEP pooled pallets and containers.

- Automated Storage and Retrieval System (ASRS)
- Forklifts and pallet-jack testing
- Conveyor system analysis
- On-site consulting and analysis
- Equipment manufacturer collaboration

Case Study: Packaging Performance Testing

Situation:
- A frozen food manufacturer was purchasing a premium co-polymer stretch wrap.
- The supplier of stretch wrap assured the manufacturer it was worth the additional cost.
- The manufacturer had samples of stretch wrap sent to the CHEP Innovation Center for comparison testing.

Innovation Center Testing:
- Identical loads were wrapped with different stretch wrap from various suppliers.
- Each wrapped unit load was analyzed to determine its ‘force-to-load’ (stretch wrap tension).

Result:
- The premium co-polymer stretch wrap provided the greatest performance per $ and an overall ‘force-to-load’ level greater than any of the baseline products compared.
The CHEP test track is the world’s only testing facility for pallets and shipping platforms that simulates and measures the handling impacts throughout the entire supply chain life cycle.

Its lab features testing machinery that simulates distribution and supply chain conditions to measure pallet damage and performance.

By simulating the life cycle of a pallet in the supply chain, the Test Track eliminates the need to perform pilot tests with our customers in the supply chain, reducing test time from two years to only two months.

The Test Track can simulate 10 years of supply chain trips in 4-6 weeks.

This facility enables CHEP to provide you with a sound platform that will endure repetitive handling throughout the supply chain.
Confidence & Integrity

The CHEP Test Track delivers this, and more.

We put our pallets to the test, over and over, to ensure they will be able to carry your product safely, while enduring the rigors of the supply chain.

As a customer, you can have confidence in knowing the CHEP platform that you are moving your valued product on has been tested for years!

**Pendulum Impact Stations:**
- Velocity 1 – 8 miles per hour
- Weight of 450 – 850 pounds
- Each station is set up to simulate a unique forklift touch in the supply chain

**Compression Testing:**
- Simulates constant forces on a pallet; similar to what a pallet might go through during the loading/unloading from a trailer
- Cracks wood, loosens fasteners, degrades structural integrity of the pallet; to identify areas of improvement

**ASRS Simulation:**
- Recreates an Automated Storage & Retrieval System
- Simulates the racking/unracking process unit loads encounter in a storage environment
- Places stress on top deck components and connector boards; to identify areas of improvement
Contact Your CHEP Representative to:

+ Optimize your unit load
+ Reduce product damage / unsaleables
+ Benchmark existing material handling equipment
+ Optimize your shipping practices