

Case Study

Plumbing Case Study

Toilet distributor turns to FIP to reduce damages, improve environmental impact



Pregis uses its proprietary EcoGauge to calculate the total environmental impact of product damages

A major U.S. distributor of plumbing supplies expanded its direct to consumer (DTC) portfolio to include toilets. Sales were up, but these heavy, fragile products had a 14% damage rate, adding hundreds of thousands of dollars in unnecessary costs. If the company was going to continue to fulfill DTC it needed to find an alternative packaging solution that reduced damages and lowered environmental impact.

The Problem:

The distributor receives large quantities of toilets on pallets from manufacturers. It is then tasked with creating individual packages to ship direct to consumers. The distributor had been using a case-in-case approach where the toilet was loaded into a primary case, which was then inserted into a master shipper. Both cases were being fabricated on site from blanks.

To cushion the base, the distributor had been using 1.5-inch engineered foam that had been fabricated into corners. It was also using polystyrene peanuts in the space between the cases as void fill.

The approach failed repeatedly due to multiple issues. The fabricated engineered foam corners (4- x 4-inches) were too small to adequately support the load. And the gap between the two cases was inconsistent, some packs had large voids that were not cushioned with any packaging and other packs were too tight, crushing peanuts and negating their ability to cushion.

Using this pack method toilets were too often arriving damaged, delaying construction projects. The company was suffering a significant financial impact by replacing and fulfilling expensive products and customers were losing confidence in its ability to delivery ready-to-install goods.

The Solution:

Pregis knew from experience that using foam-in-place (FIP) produced by its IntelliPack® SmartBagger™ was the ideal solution to brace and cushion the load. However, the distributor rejected this solution because the foam was not recyclable.

Packaging material is just one factor in the total environmental impact of product fulfillment. To help demonstrate this to the distributor, Pregis used its proprietary EcoGauge calculator.

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**Intellipack®
Foam-in-Place**



Pregis EcoGauge



Calculate the environmental impact of product damages

Electricity • Forestry • Natural Gas • Gasoline • Solid Waste • CO₂ • Methane • Habitat Loss



Reduced CO²
emissions by
95,000 lbs.



Reduced fuel
consumption by
4,849 gallons



Eliminated
149,500 lbs.
of solid waste
from landfills

The EcoGauge inputs include annual packages shipped, average shipment weight and damage rate are used to calculate the net impact to the environment (gasoline, electricity, natural gas, CO² emissions, solid waste and lost habitat.) Because the damaged toilets need to be discarded and fulfilled again, emissions from manufacturing, shipping and landfilling must all be taken into account.

Testing proved that the superior protection of FIP could reduce product damages from 14% to 4%. And while the FIP packaging was not recyclable, selecting a solution that could drastically reduce damages had a significantly better impact on the environment than simply selecting a recyclable material.

After reviewing the metrics generated by the EcoGauge, the distributor agreed to proceed with the FIP solution:

Bottom cushioning: The IntelliPack SmartBagger produces a series of foam bags dropped into molds. Within seconds the foam conforms to the shape of the mold, creating the pieces that will be used to cradle the four bottom corners of the primary case. The foam corners are stored in an overhead hopper which feeds into the packing area.

Side cushioning: Once the primary case, along with the four FIP corners are in position inside the master shipper, wet-bags of FIP are dropped into each of the four voids in between the two cases. The bags then expand to fill the empty space to fully block and brace the load. The end result is a fully blocked/braced and cushioned load.

The Outcome:

Financial impact:

Packaging material costs were reduced by approximately \$500K.

Damages were reduced from 14% to 4%. On one-piece toilets alone the annual savings was between \$200 to \$300K.

Environmental impact:

Reduced CO² emissions by 95,000 lbs. (equivalent of charging a mobile phone 5 million times).

Reduced fuel consumption by 4,849 gallons (equivalent of 35 roundtrips from New York to Los Angeles)

Eliminated 149,500 lbs. of solid waste from landfills (equivalent of the waste generated by 95 people annually)

Act now!

Contact us for a free packaging analysis.