



Case Study: Sub-Zero Ice Cream distribution on standard Refrigerated (Milk) Trucks

Date: February 27th, 2004

Company: Major Dairy-Ice Cream Manufacturer & Distributor

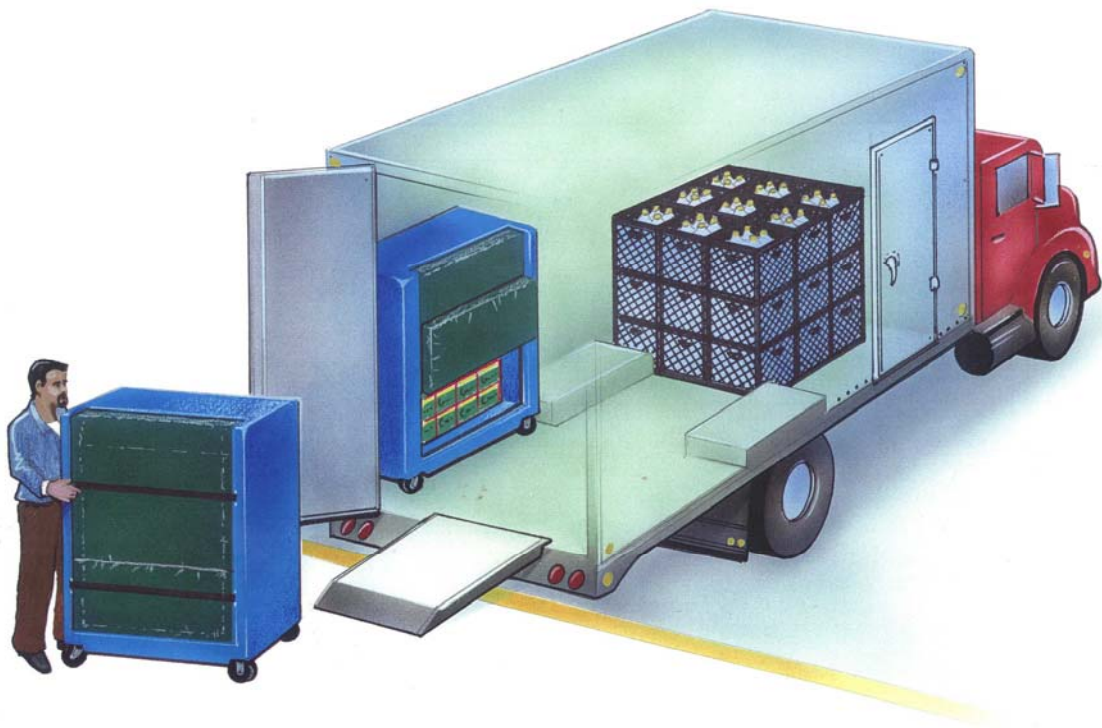
Initial Contact - November 2000:

After several years of reviewing programs highlighting the use of using insulated carts with **Dry Ice as the refrigerant** to transport ice cream on standard refrigerated milk trucks, a key dairy executive requested a meeting for a review of the current programs available. The related benefits of transporting and delivering ice cream products, using dry ice as the refrigerant, along with various dairy products, including milk to their customers was discussed and reviewed.

The focus and specialty of our product, Dry Ice, and our company, Dry Ice Corp., is the development of programs to provide cost effective refrigeration solutions to various food distribution sectors. This is done by assisting our customers in maintaining the “Cold Chain” while increasing market share, sales and profits by utilizing “Non-Mechanical” Insulated Pallet Covers, and Insulated Container & Cart Systems to transport and store ice cream and other temperature sensitive products. This is accomplished while reducing overall distribution costs and in many cases improving the quality of the products being transported and delivered.

Goal:

To provide a more cost effective solution for the delivery of ice cream products to the various customers, including; Convenience Stores, Supermarkets, Restaurants and Schools.



Insulated Dairy Cart loaded with ice cream and Refrigerated with DRY ICE to maintain -20° ice cream on 40° milk truck during transport and deliveries with numerous door openings!

Cost effective distribution!

Current Distribution Method:

Delivery of ice cream at -15° on a standard, **expensive**, \$100,000.00 ice cream truck.

Delivery of dairy and milk products on a standard, **less expensive**, \$60,000.00 milk truck.

Requirements:

Ice cream products must be maintained at or below -15° during transport from manufacturing plants to depots to customer.

Proposed Program to Reduce Distribution Costs:

Combine ice cream and milk/dairy products on one less expensive milk truck.

Concerns:

How to maintain ice cream at -15° in a $+40^{\circ}$ environment?

How to transport “Cross Dock” ice cream from manufacturing plants to depots?

The design of an insulated cart system that would meet the door width and height restrictions while still providing sufficient cube and outstanding ergonomics

Solution:

An Insulated Container System was engineered to provide sub-zero ice cream protection from higher transport temperatures, including protection during dock staging of products.

Dry Ice provides additional refrigeration to maintain -15° for 36 plus hours.

Refrigeration Requirement – 1 pound of dry ice per hour to maintain -15° in a $+40^{\circ}$ environment.

Benefits:

Reduced Distribution Costs – Combine two routes, one milk/dairy truck route and one ice cream route into one Milk/Dairy/Ice Cream route.

- Lower fuel costs to operate milk truck refrigeration units versus sub-zero ice cream refrigeration units
- Less refrigeration maintenance for milk refrigeration units versus ice cream refrigeration units

Reduced Driver Costs – Reduction in number of drivers required, along with considerable reduction in driver training costs.

Quality CDL Drivers very difficult to retain.

- Driver Conditions for delivery of ice cream products, somewhat difficult, having to climb in and out of a -15° truck, with various ambient temperatures.
- Driver Safety, also issues related to climbing in and out of ice cream trucks with ice build up.

Reduced Capital Investment

- Less expensive milk trucks replace very expensive ice cream trucks

The Process – November 2000 through December 2002:

350 modified insulated carts purchased for initial and long-term tests, combining milk truck and ice cream routes in South Carolina, Alabama, and Tennessee to confirm projected savings.

Final Solution:

New Insulated Cart engineered and designed to provide stated requirements introduced in March 2003.

Purchase Order signed for 1000 units.

Overall Program provides a Dairy Cart System using [Dry Ice as the refrigerant](#) to transport ice cream and milk/dairy products on one standard refrigerated truck. The system provides excellent temperature control which maintains ice cream at the required temperature while reducing overall distribution costs and maintaining quality of your company's ice cream products.