



# Natural Shine™

Premium Gloss Carnauba Citrus Coatings

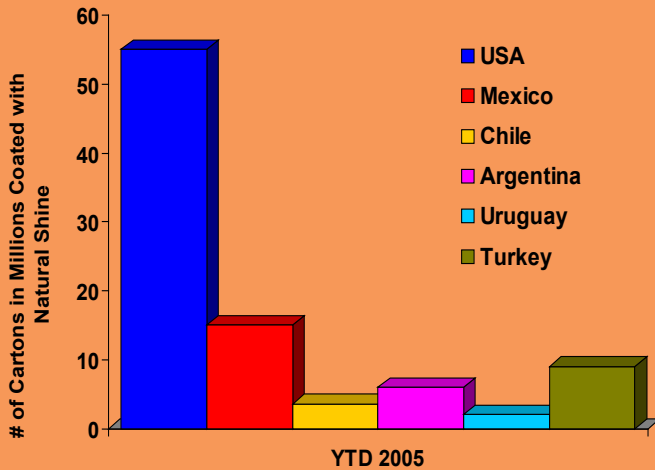
Control Dehydration  
Allow Fruit Respiration  
Maintain Fruit Flavor and Quality  
Extend Healthy Shelf Life  
Sustain Marketability



# Record Breaking Usage of Carnauba Citrus Coatings

Approximately 65 million cartons of citrus packed in 2005 were coated with **Natural Shine™** carnauba coatings. This volume is expected to increase to 90+ million cartons worldwide in 2006 and will continue to climb with each year.

2005 Natural Shine™ Usage



## United States

Usage of **Natural Shine™** in 2005 was 38 million cartons. This volume is expected to increase to 55 million cartons in 2006 for domestic and export markets.

## Mexico

Approximately 15 million cartons of Persian and key limes were packed in 2005. The main markets are U.S., Europe and Japan.

## Chile

Of the 3.6 million cartons of citrus packed in 2005, 1.8 million were exported lemons, 1.8 million clementines. Most of this volume is exported to Japan.

## Argentina

6 million cartons of lemons packed in 2005 were mostly exported to Europe and Japan.

## Uruguay

2 million cartons of clementines, mandarins, and oranges were packed in 2005 to be exported to Europe.

## Turkey / Egypt

Approximately 9 million cartons of mandarins and navels were exported to Europe.

*Outshine the Rest!*

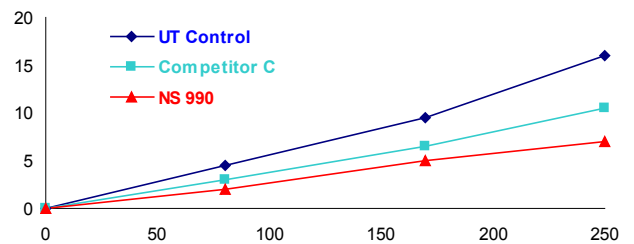
## Carnauba vs Shellac

Carnauba coatings have been overlooked in domestic markets as an inferior product to shellac because of its assumed lower shine. But results of extensive trials have shown and proven that **Natural Shine™** rivals the shine of any shellac based coatings in the market. In addition, after storage and shipping, **Natural Shine™** outshines shellac coated fruit every time.

## Dehydration/Shrinkage Control

Dehydration control is a key factor in maintaining fruit quality. Reducing stem end aging is also crucial in maximizing citrus shelf life. **Natural Shine™** carnauba coatings have been proven more effective in controlling dehydration than other coatings.

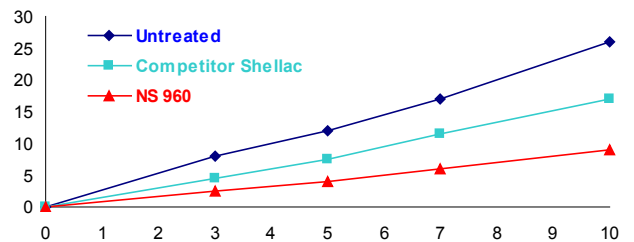
Rio Star Grapefruit - Moisture Loss



The graph above represents moisture loss trial data of Rio Star grapefruit from a commercial packinghouse in Texas. Grapefruit were stored at ambient temperatures for 10 days and weighed 3 times.

**Natural Shine™ 990** retained 31.3% more moisture in treated fruit than the competitor's carnauba coating.

Clementine Mandarins - Moisture Loss



The graph above represents moisture loss trial data of Clementine Mandarins at a commercial packinghouse in Central California. Fruit were kept at ambient temperatures for 10 days and weighed 4 times.

**Natural Shine™ 960** retained 38% percent more moisture than fruit treated with shellac and nearly 60% more than untreated fruit.

# Outshine the Rest!

## Natural Fruit Respiration/Gas Exchange

Unlike shellac coatings which seal fruit from the environment, **Natural Shine™** carnauba coatings allow fruit respiration to occur, avoiding anaerobic conditions which cause off flavors, fruit discoloration, pitting and other conditions that will render fruit unmarketable.



## Gloss & Whitening Trials

Trials were conducted to compare citrus fruit coated with **Natural Shine™** against other carnauba and shellac coatings. The fruit was coated in a packinghouse and placed in cold storage. Fruit was then removed from cold storage and placed in a steam chamber for 20 minutes; this process was repeated three times. (Steam chamber treatments represent the worst case scenario for condensation on fruit during the shipping and marketing process.)



Shellac Coated



Natural Shine™ Coated

## Fruit Flavor Quality Maintained

Results showed that after three sweat treatments, the **Natural Shine™** coated fruit remained marketable and glossy, while the shellac coated fruit was unmarketable due to flaking and cracking of the shellac coating.

## Shiny after Sweat Treatment

Results showed that after three sweat treatments, the **Natural Shine™** coated fruit retained its shine significantly better than other carnauba coatings.

## Natural Shine™ Products

Pace International has developed the most advanced carnauba coatings for citrus in the industry. **Natural Shine™** has been proven by packers to be the best way to ensure fruit will have a long and healthy shelf life in order to sustain its marketability.

**For a shine that does not dull, look for these Natural Shine™ solutions to keep citrus fresh, firm and delicious.**

### Natural Shine™ 960

The highest and most durable carnauba gloss in the market!

### Natural Shine™ 505 - OR

Organic coating for a natural looking shine.

### Natural Shine™ 990

A high gloss grapefruit coating that also prevents pitting.

## Composition

**Natural Shine™** is made of food-grade components that conform with FDA regulations, 21 CFR, Part 172, for food-use coatings.

## Application Directions

Apply **Natural Shine™** products to clean, dry fruit with at least 50 percent horsehair at a rate of 8,000-12,000 lbs of fruit per gallon of wax.

Apply by spray or drip over brushes. Dry with heated air before handling. See product label for specific use directions, dilutions, and rates of application.

## For Best Results

Using a cleaner such as 180 Cleaner, EpiClean or PacFoam Plus can dramatically improve coating attributes including: shine, durability and leveling. Use of these Pace cleaners is highly recommended to effectively prepare fruit surfaces before application of a coating.

# Pace International Brings Innovative Coating Solutions to keep Citrus Fresh, Firm and Delicious with Unsurpassed Service Quality



Pace introduces **Natural Shine™** to you as a premium carnauba based citrus coating to keep fruit beautiful and marketable. With this new and innovative technology is the Pace promise of quality service unlike any other. Frequent visits from Pace sales, service, and technical support teams ensure a successful program. Pace's Technical Service Team is committed to working hard to maximize the efficiency of your packing operation and the solutions being used.

**The following tasks are conducted regularly for our contract customers:**

## **Fruit Condition**

- Rank condition of fruit
- Measure decay at dump site
- Rank fruit texture
- Measure pulp temperature

## **Line Operation**

- Evaluate water elimination
- Determine brush speed
- Measure dump rate
- Measure washer dwell period

## **Decay Control**

- Customized sanitation programs
- Fungicide monitoring
- Spore assays
- Identify and calculate spore loads
- Calculate resistant spore levels

## **Treatments**

- Measure pH and chlorine concentration
- Perform fungicide concentration and residue analysis

## **Coating Application**

- Meter coating output for proper rate and fungicide concentration
- Determine cartons treated per gallon of coating applied (mileage)

## **Fruit Appearance**

- Rank shine for quality control
- Measure and rank coverage
- Estimate and rank drying



**The Leading Postharvest Specialist**

Innovative Technologies  
High Quality Products  
Efficient Application Systems  
Professional Services & Support  
Global Experience & Research

 **Pace International**

For more information contact your local Distributor, Pace Representative or Pace International, LLC  
1201 3rd Avenue, Suite 5450, Seattle, WA 98101  
Customer Service: 1.800.936.6750

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