



TROUBLESHOOTING TORTILLA PRODUCTION PROBLEMS

Dr. Kirk O'Donnell
Bakers Growth, LLC
kirk@bakersgrowth.com



Thoughts on Quality

- 99% is not good enough
- Product consistency= Confidence in brand
- True consistency vs. perceived consistency
- Discuss “half-dozen” of product problems for flour tortillas
- If there is interest, we can also talk about corn tortillas

Quality Problem- Translucency- part 1

- Possible lack of leavening at oven
 - *Not enough baking powder
 - *Wrong kind of baking powder
 - *High dough temperatures
 - *Improper pressing conditions
 - *Too much floor time

Quality Problem- Translucency- part 2

- Possible lack of gas retention
 - *Lack of protein in flour
 - *Improper gluten development during mixing

Quality Problem- Sticking in Package- 1

- Possible formulation problem
- Possible lack of protein in flour
- Possible moisture migration

Quality Problem- Sticking in Package- 2

- Possible improper baking
- Possible improper cooling
- Possible improper storage conditions

Quality Problem- Inconsistent Diameter- 1

- Possible formulation problems

- *Lack of dough relaxer?

- *Too much protein strength?

- *Lack of water?

Quality Problem- Inconsistent Diameter- 2

- Possible mixing problems

- *Undermixed?

- *Low dough temperature?

- Possible equipment problems

- *Inconsistent dividing and/or rounding?

- *Press out of shim?

Quality Problem- Lack of Rollability

- Possible formulation problem
 - *Lack of water?
 - *Lack of emulsifier and/or gum blend?
 - *Lack of protein strength?
- Possible errors in the makeup process
 - *Underweight dough pieces?
 - *Uneven press or sheeter conditions?
- Possible high moisture loss in the process
 - *Over-baking?
 - *Too much cooling time?
 - *Packaging not properly sealed?

Quality Problem- Poor aroma and/or flavor

- Possible problems in formulation
 - *Salt level wrong?
 - *Too much preservative?
- Possible problems in cleaning or maintenance
 - *Improper rinsing?
 - *Solvent residues?
- Possible problems in storage
 - *Exposure to paint, gasoline, or other volatile aromas?

Quality Problem- Mold growth

- Possible problems with pH
 - *Not enough acids in formulation?
 - *Wrong type of acids in formulation?
- Possible problems with preservatives
 - *Too much?
 - *Wrong type?
- Possible problems with production practices
 - *Problems with GMPs?
 - *Bacterial/mold population in area?

Types of Problems- Corn Tortillas

- Color of product
- Texture
- Moisture
- Flavor and Aroma
- Shelf life

Corn Tortilla Line

- Quality of nixtamal/masa: Corn specs., Cooking profile, Steeping, particle size/grinder, moisture, pH
- Masa Feeder and Sheeter adjustment (weight)
- Oven temperatures
- Cooling conditions
- Counterstacker and Packaging

Tortilla Chip Line

- Quality of nixtamal/masa: Corn specs., cooking profile, steeping, particle size/grinder, moisture, pH
- Masa feeder and sheeter adjustment
- Oven temperatures and burner controls
- Equilibration/moisture before frying
- Frying time, temperature, and FFA
- Coating (amount and coverage)
- Packaging

Factors that affect color of product

- Type of corn
- Quality of rinsing
- pH
- Baking/Frying time and temperature
- Condition of frying fat
- Packaging

Factors that affect texture

- Quality of corn and quality of cook/steep
- Finished product moisture
- Finished product fat content (chips)
- Others?

Factors that affect moisture

- Quality of cooking and steeping
- Quality of baking
- Quality of frying
- Conditions during cooling
- Quality of packaging

Factors that affect flavor & aroma

- Quality of corn
- Quality of cooking, steeping, and rinsing
- pH
- Amounts and types of preservatives
- Quality of frying fat
- Quality of flavoring coverage (chips)

Factors that affect shelf life

- Moisture
- pH
- Mold inhibitors
- Packaging