

PREVENTING UNDESIRABLE TRAITS IN TORTILLAS

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DEFINING TORTILLA QUALITY

- Identify dimensions of quality
- Link problems to root causes
- How to fix and prevent quality problems



UNDESIRABLE TRAITS

- Mold/product spoilage
- Foreign material contamination
- Labeling violations
- Staling problems
- External appearance problems
- Texture/eating quality problems
- Tortillas sticking in package



PREVENTING MOLD/PRODUCT SPOILAGE

- Control bacterial load in ambient air
- Control bacterial load in compressed air
- Control contamination with hands
- Sanitation of equipment surfaces
- Control of pH
- Usage of mold inhibitors

ABUSES ON THE PRODUCTION FLOOR



- Disturbing air filters
- Failure to clean and sanitize critical areas
- Failure to wash hands
- Failure to close doors
- Failure to clean compressed air traps
- Poor handling of rework

More critical to
control post-
baking

FOREIGN MATERIAL CONTROL AREAS



- Flour sifters and liquid strainers
- Handling of ingredient bags
- Utensils- thermometers, scrapers, etc.
- Teflon belts
- Rework handling
- Metal detector

POSSIBLE LABELING VIOLATIONS



- Under or overweight
- Allergens
- Short count
- Ingredient substitution or addition
- Sodium and fat amounts
- Rework handling

ABUSES ON THE PRODUCTION FLOOR



- Inadequate weight control procedure
- Unclear rework policy
- Usage of same scoop for many ingredients
- Poor housekeeping and sanitation
- No limits to adjustments allowed to operator

STALING AND SHELF LIFE PROBLEMS



- Low absorption in dough
- Missing ingredients- emulsifiers, enzymes, gums
- Over-baking
- Over-cooling
- Lack of seal in packaging
- Exposure to refrigerator temperatures



EXTERNAL APPEARANCE PROBLEMS

- Diameter
- Color
- Degree of translucency
- Symmetry
- Evenness of bake



CONTROLLING EXTERNAL APPEARANCE

- Formulation- flour, other sources of proteins and sugars, dough relaxers, baking powder
- Mixing time and dough temperature
- Condition/operation of press or dies
- Under or over-scaling of dough
- Temperature and humidity in oven

TEXTURE/EATING QUALITY



- Moisture
- Water activity
- Changes in texture
- Flavor and aroma

SOLVING TEXTURE PROBLEMS



- Balanced formula
- Optimize water absorption in dough
- Optimize baking and cooling conditions
- Tight seal of packaging
- Define expected shelf life

AROMA AND TASTE PROBLEMS



- Combination of acids and mold inhibitors
- Salt level
- Control of packaging environment: no off-odors absorbed
- Packaging and supply chain conditions

PREVENTION OF TORTILLA STICKING



- Use of gums and emulsifiers
- Choice of fats
- Control of process (mixing through distribution)

MIXING PROCESS



- Dough development (tendency to undermix)
- Water absorption (should adjust with changes in flour quality)
- Incorporation of micro-ingredients

CORN COOKING PROCESS



- Cooking and cooling profiles
- Steeping time
- Rinsing and grinding
- Incorporation of additives



MAKEUP PROCESSES

- Uniformity of scaling weights
- Uniformity of roundness (press tortillas)
- Care of sheeting rollers, scrapers, and dies (die cut)
- Control of proofing (press)
- Press temperature, dwell time, and pressure

BAKING AND COOLING



- Time and temperature
- Heat energy applied
- Control of relative humidity
- Packaging temperature vs. ambient temperature



SHELF LIFE

- How much do you really need?
- Adjustments for refrigerated storage
- Adjustments for frozen storage