Flour Tortilla Glossary

QUALITY CONCERNS

Breaking
Tortilla with tears or cracked edges, due to poor flexibility/extensibility.

Cracking
Dry tortilla with broken/crack surfaces.

Lacing / Broken Edges
When the edges of the tortillas almost appear to have a lace pattern, as opposed to the rounded edges we expect to see.

Extensibility
Ability of tortilla to fold/roll and stretch without cracks or tears.

Foldability
Ability of tortilla to fold with no cracks or tears.

Tortilla Rollability Score
Sensory score used to measure the rollability of tortilla using 1 cm dowel. Measured on scale of 1-5: 1 when tortilla breaks at several points on rolling; 5 when no cracks and tears appear during rolling of tortilla.

Pillowing
Swelling of the tortilla due to steam and gas production from baking and leavening actions. The top layer separates from the bottom layer during baking, making it look like a 'pillow' instead of a flat tortilla when it comes out of the oven. Pillowing leads to peeling and sticking.

Sticking
Two or more tortillas in a stack that will not separate without causing tearing, after being packaged for any length of time.

Peeling
When a layer of the tortilla begins to pull away from the other, causing a tear in the tortilla.

Zippering
Zippering sound produced when two tortilla when are separated, an indication that sticking will start soon.

Opacity
Whiteness of tortilla, due to inability to allow light to pass through the tortilla.

Lacing / Broken edges

Tortilla Rollability Score

Sticking

Foldability

Pillowing

Peeling

ANALYTICAL TESTS AND EQUIPMENT

Alveograph
Measures gluten strength.

Farinograph
An instrument used for measuring dough and gluten properties of a flour sample.

FN (Falling Number)
Time (sec) required for a viscometer stirrer to fall a given distance through hot flour undergoing liquefaction, which indicates amylase activity/sprout damage. The greater the amylase activity, the faster stirrer will fall. If the falling number is too low, enzymes cannot be removed from the flour or wheat, a serious problem that makes the flour unusable.

Glutamatic
Measures wet gluten content, which is responsible for elasticity and extensibility characteristics of dough.

Mixograph
Measures dough gluten strength and dough mixing characteristics.

MixoLab
Predicts flour quality, measures characteristics of dough during mixing, as well as quality of starch and protein.

MTI (Mixing Tolerance Index)
Degree of softening during mixing, expressed in Brabender units (B.U.). Strong flour has MTI <30 B.U.; weak flour has MTI >50 B.U.

NV (Neutralizing Value)
The amount of baking soda that will be neutralized (fully gassed) by the leavening acid NV = (QTY of base/ QTY of acid) x 100.

ROR (Rate of Reaction)
Rate at which reactants are converted into products. Temperature determines ROR for leavening acids; a leavening acid with slower ROR gives a coarser cell structure to baked good.

RVA (Rapid Visco Analyzer)
Used to assess pasting properties of flour or starch. The majority of cereal-based products are based on cooking starch in excess water, making it important to study the rheology of paste during heating-cooling cycles of starch.

Sedimentation Volume
Provides information on baking quality of wheat flour, measured by a physicochemical test based on the suspension of flour in a dilute alcohol and acid solution which causes flour particles to sediment. Slow settling (higher sedimentation values) indicates high protein quantity and/or stronger gluten protein. Rapid settling indicates low protein content and/or poor gluten strength.

TPA (Texture Profile Analyzer)
Measures textural characteristics of food. Measurement is based on compressing a product to a set distance and analyzing the force it takes for the product to deform.

Water Absorption Capacity (%)
Amount of water required to get desired consistency of dough; e.g., 50% means 50 kg of water required to hydrate 100 kg of flour.

Flour Tortilla Troubleshooting Guide

Have you checked the following?

- ✓ **Source of:**
  - Water
  - Ingredients
  - Flour
- ✓ **Water Temperature & Quality**
- ✓ **Time & Temperature During:**
  - Mixing
  - Proofing
  - In the Oven
  - Cooling
  - Packaging
- ✓ **Correct Order of Addition**
- ✓ **Hot Press Conditions:**
  - Pressure
  - Temp
  - Dwell Time
- ✓ **Belt Speed**
- ✓ **Batch Pack Changes**
  - Formulation Change
  - Ingredient Source
  - Vendor Change

The Problem	Undermixing	Less Water Addition	Less Reducing Agent	Overmixing	More Water Addition	More Reducing Agent	Floor Time	Hot-Press – Pressure	Proofing Time	Hot Press – Temperature	High Oven Temperature	Low Oven Temperature	Baking Time	Dough Ball Weight	Rounding of Dough	Distance Between the Platens	Dwell Time	Shortening Quality (Shelf Life)	Cooling Temperature	Poor Packaging – No Partition	Drastic Hot Press Conditions	Overpacking	pH of Tortilla	Moisture Content	Plant GMP/Sanitation
Tough Dough / Hard Dough Process: Difficult to press; rough, broken edges	✓	✓	✓																						
Sticky Dough Process: Sticks to hot plate; broken edges, lacing				✓	✓	✓	✓	✓																	
Off-Shaped Tortilla Poor appearance		✓							✓					✓	✓	✓									
Under / Over Baked Tortilla Under: No toast point, high moisture, microbial growth Over: Burnt, pillowing, low yield, low moisture, staling												✓	✓				✓								
Tortilla Crack / Break Cracking and breaking	✓																					✓	✓		
Tortilla Sticking / Zippering Cracking and breaking				✓															✓		✓		✓		
Mouldy Tortilla Mould contamination, safety issues												✓						✓	✓	✓					✓
Pillowing Sticking, peeling off											✓														
Burnt Tortilla Unacceptable											✓		✓			✓									
Staling Rollability, hardening											✓								✓						
Off-Flavoured Tortilla Unacceptable																		✓							
Translucent Tortilla Based on formula, yes or no			✓																						

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