

Cain Food Industries, Inc.



Presented:

October 21, 2015



We Make the Art of Baking A Little More Simple

CAIN FOOD INDUSTRIES, INC.

How To Make A Tortilla

Flour

Water

Fat

Leavening



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How To Make A Tortilla



*Not At 1500
Dozen Per Hour*

*Let Alone 4000
Dozen A Hour*

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Processing aids + Functional Ingredients For Tortilla Production



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Processing Aids

- What Are They?
- Do We Label Them?
- Where Can I Find More Information?



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What Is A Processing Aid

According to 21 CFR 101.100

- Incidental additives /Processing Aids are Foods exempt from Labeling by the FDA
- USDA has a preapproval process for processing aids which is not part of the CFR



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Do We Label Them?

According to 21 CFR 101.100

The processing aid 'declaration' fulfills a 2 part criteria:

1. In product at an insignificant level (if it remains in the food)

AND

2. Have no technical effect on the finished product.



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Where Can I Find More Information

- 21 CFR 101 Food Labeling
 - 21 CFR 101.100 a(3)
 - Incidental additives that are present in a food at insignificant levels and do not have any technical or functional effect on that food
 - 21 CFR 101.4 Food Designation of ingredients
 - 21 CFR 101.12 Reference amounts
 - **21 CFR 102**
 - **Common or Usual Name for Nonstandardized Foods**
- <http://www.gpo.gov/> AND <http://www.accessdata.fda.gov/scripts/>



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Functional Ingredient Vs. Processing Aid



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Functions Provided By Functional Ingredients

- Dough Elasticity
- Dough Reduction
- Dough Strength
- Dough Hydration



- Tortilla Elasticity
- Tortilla Strength
- Softness
- Shelf Life



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Functional Ingredients For Tortillas

Chemicals

Acids

Gums

Enzymes

Yeast

Vegetable/Fruit



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Chemical Ingredients



Chemical

Sodium Bisulfites

What:

Chemically produced – Bisulfite ion

Benefit:

Break disulfide bonds

Primarily works in the mixing bowl

Fast acting – No waiting time

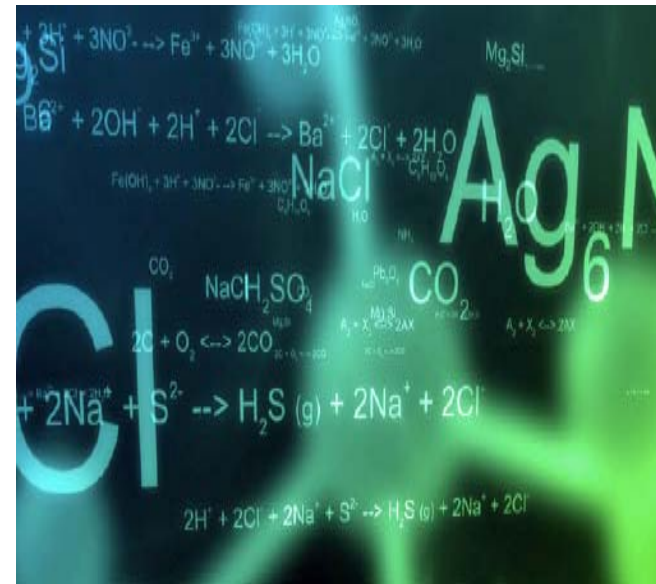
Notes:

Degrade the Vitamin Thiamine

Large Use Can Cause Off flavors

Labeling: sodium bisulfite

101.100: is also where the citation for labeling sodium metabisulfite is found (10 ppm or greater in the finished food)



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Chemical

L-Cysteine

What:

Protein based reducing agent – amino acid

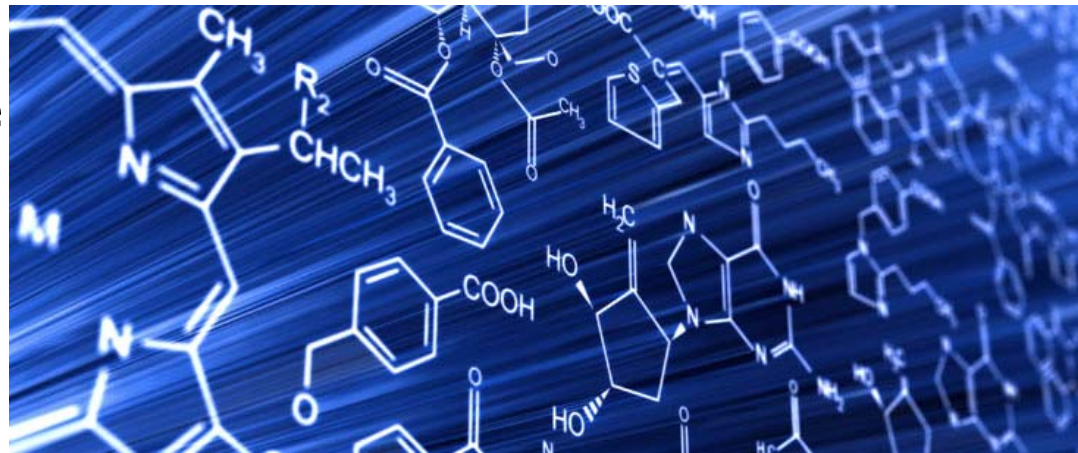
Sources may vary

Benefit:

Breaks peptide bonds

Fast acting

Labeling: L-Cysteine



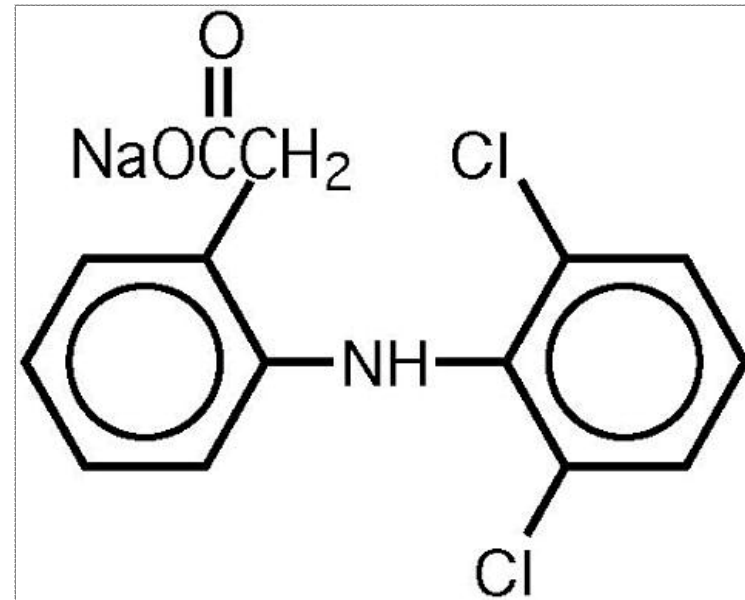
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Acids



Acids

- Sorbic Acid
 - Limited functionality
- Fumaric Acid
 - Limited functionality
- Ascorbic Acid
 - Reducing action when present without oxygen



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Gums



Gums

Most Common

- Guar
- Acacia (Gum Arabic)
- CMC
- Xanthan



Not as Commonly Used

- Carrageenan
- Locust Bean



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Gums

Guar Gum

What is it:

The endosperm of a guar seed

Found Mainly in India and Pakistan

Benefit:

Texture modification - mouth feel

Controls water in baked goods



Labeling: Guar Gum

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Gums

Acacia Gum or Gum Arabic

What is it:

Sap from Acacia trees found in Africa

Benefit:

Emulsifies and stabilizes flavors

Enhances mouth feel

Strong adhesive and binding properties

Excellent source of soluble dietary fiber



Labeling: Acacia Gum; Gum Arabic



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Gums

CMC Gum (Carboxymethylcellulose)

What is it:

Cellulose

Benefit:

Provides mouth feel

Controls moisture

freeze/thaw stability to
frozen dough



Labeling:

Carboxymethylcellulose



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Gums

Xanthan Gum

What is it:

Bacterial fermentation - microbiological

Benefit:

Stabilizes and emulsifies

Controls moisture

Tolerant to extremes of heat

Labeling: Xanthan Gum



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Gums

Carrageenan

What is it:

Seaweed extracts
Red Seaweed from a
Variety of Species

Benefit:

Controls syneresis –
binds water

Labeling: Carrageenan

Locust Bean Gum

What is it:

Seeds from Ceratonia
siliqua tree grown in the
Mediterranean

Benefit:

Synergistic with xanthan
and carrageenan

Improves the texture

In some Applications it can
replace Guar

Labeling: Locust Bean Gum



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Enzymes



Enzymes

What is an Enzyme?

A Protein – Long amino acid chains connected by peptide bonds.

Produced by fermentation with primary sources:

- Fungal
- Bacterial

Susceptible to varying conditions and environments.

- pH
- Temperatures

Processing Aid – Secondary Food Additives



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Enzymes

Proteases

What's Its Function:

Hydrolyzes peptide linkages in protein

Breaking down gluten network into simpler
- peptides and amino acids

compounds

Benefit:

Reduce gluten elasticity, increasing dough

extensibility

Not a true reducing agent

Not reversible action to protein linkages

Improved flavor and color in finished goods

enzyme



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Enzymes

Xylanase

What's Its Function:

Non-starch polysaccharides, pentosans

Degrades arabinoxylan – both water-extractable and non-extractable, freeing water

Benefit:

Frees water

Softer, extensible gluten network

Labeling: enzyme



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Enzymes

Extended Shelf Life Enzymes (ESL)

What Are They

- Amylases or Lipases

Benefit

- Increasing Flexibility, Tinsel Strength
- Softness

Additional Functions

- Lipases – Dual Functions
- Strengtheners in Dough



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Yeast



Yeast

Glutathione

- Peptide
- Contains cysteine
- Acts over a longer time period

Yeast – Non-Leavening

- Natural Source of glutathione

Labeling: yeast; inactive yeast



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Vegetables and Fruits



Vegetables and Fruits

Garlic Powder

21 CFR 101.22

Pineapple Stems – Bromelain

Papaya - Papain

Figs - Ficin

Ginger Root



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Thank
You



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