



# YOUR GUIDE TO ORGANIC

EVERYTHING YOU NEED TO KNOW ABOUT THE  
POWER OF ORGANIC INGREDIENTS IN BAKERY.

PLUS:

YOUR CHECKLIST FOR SUCCESSFUL  
PRODUCT DEVELOPMENT.



# ORGANIC IS ON EVERYONE'S MIND

## WHAT DRIVES US TO PURCHASE ORGANIC

50%



of consumers who buy organic do so because it is healthy,

followed by a desire to avoid unwanted additives (such as artificial ingredients, 38%).

24% of organic shoppers buy organic because it is better for the environment (Mintel).

10.9%



of organic food sales are from bread and grains, making it the third best-selling organic category.

Organic snacks – with salty snacks and nutrition bars leading the parade – experienced the most consistent year-to-year growth with a plus of 5.7% in 2021 to reach \$3.4 billion (OTA, 2022).

49%



of U.S. consumers reported buying the same amount of organic food and beverages

when asked “which grocery categories are natural channel shoppers buying less of due to inflation?” 25% said they are “buying more,” 19% said “buying less”, and 7% said “don’t typically buy”. (New Hope Network). “For some shoppers, there’s no way in kale they’ll stop buying organic.” (Business Insider)



ENJOY CLEAN LABEL,  
THE ORGANIC WAY!



# THE POWER OF ORGANIC

## BALANCED TASTE AND HEALTH

Product developers in the bakery industry face the challenge of leveraging organic's positive momentum for their portfolios and bringing tasty, affordable products that their customers love to market.

During the pandemic, Americans found comfort in their favorite baked goods, while still focusing on their health. Comfort foods and health combined create an appealing opportunity for organic baked goods manufacturers, that rises like plump sourdough bread in a hot oven.

As recent market analyses show, consumers see organic as a priority for themselves and their families and are willing to spend more on it. Moreover, the decision to choose organic aligns with climate protection: Organic ingredients lead to sustainable organic agriculture products, leading back to a healthier planet.

In this white paper, learn how organic ingredients will help you develop healthy recipes, and the positive impact they will have on your final product – bread, cookies, pastries, bars, creams and fillings. And how to swap out conventional ingredients your consumers don't want to find on an ingredient label.



## THE SOE ACT 2023

In early 2023 the U.S. government did enact the Strengthening Organic Enforcement (SOE) Proposed Rule. All ingredient traders and merchants will now need to be certified organic. This will improve the critical links in the supply chain.

**More on [marroquin-organics.com](https://marroquin-organics.com)**

# YOUR GUIDE TO ORGANIC BAKING INGREDIENTS

## WHAT KIND OF ORGANIC OPTIONS ARE THERE?

When it comes to reformulating an existing recipe with organic ingredients, product developers need to know about the specifics of organic ingredients. Let's take a closer look at the ingredient list for organic baked goods!

On the following pages you will find the most frequently used baking ingredients from the Marroquin product portfolio. The listed products contain a description of their effects, functions and benefits in baked goods, desserts and cookies, cereal bars as well as fillings and creams.

"The Organic Extra" highlights specifics of the organic versus conventional ingredient and what you need to consider when replacing conventional with organic alternatives.



Applied in baked goods such as bread, baguettes, toast ...



Applied in pastries such as cakes, puff pastries ...



Applied in cookies



Applied in fillings and creams



Applied in snack bars

# FUNCTIONAL STARCHES



## FUNCTIONS & BENEFITS

### ... IN CREAMS AND FILLINGS

- serve as a thickening agent
- have a reduced tendency to retrograde and thus better stability (less syneresis) in flowable fillings, in particular stabilized waxy corn starches, which have higher process stability and storage stability



## THE ORGANIC EXTRA

- Physically treated starches may be used in organic products and therefore can replace chemically modified starches
- Note: it may be necessary to apply a higher amount to achieve a comparable viscosity
- Differences are to be expected in terms of functionality, color and taste in comparison to conventional starches

# NATIVE STARCHES



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS

- significantly reduce the tendency of staling of bread (waxy maize starch)
- improve juiciness and reduce weight loss during baking (potato starch binds more water compared to wheat starch)

### ... IN PASTRIES AND COOKIES

- increase the stability of extruded cookies during baking
- achieve consistent product properties (wheat starch compensates for the natural starch fluctuations in flour)

### ... IN CREAMS AND FILLINGS

- serve as a thickening agent
- have a reduced tendency to retrograde and thus better stability (less syneresis) in flowable fillings
- corn starches lead to gel formation in custard creams



## THE ORGANIC EXTRA

- Organic native starches can easily replace conventional starches as there are no technical differences, neither in color, taste nor functionality



# GLYCERIN (GLYCEROL)



## FUNCTIONS & BENEFITS

### ... IN PASTRIES, CEREAL BARS & COOKIES

- acts as a humectant in pastries and cookies
- extends the organoleptical shelf life of the product
- has a slightly sweet taste, completely clear liquid, no odor



## THE ORGANIC EXTRA

- Conventional glycerin is mostly made of palm oil, whereas our organic glycerin is palm-oil-free and made of soy and non-soy plant oils like flax or sesame
- Organic glycerin exhibits the same characteristics as conventional glycerin and can easily replace it

# LECITHINS



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS, IN PASTRIES AND COOKIES

- interact with fat as an emulsifier in baked goods and pastries
- lead to a strengthening of the gluten network
- ensure finer crumb structure, excellent dough stability, longer shelf life, larger baked volumes
- help retain moisture and prevent staling
- are also commonly used as a release agent in order to prevent sticking during manufacturing

ESPECIALLY  
NECESSARY FOR  
VEGAN PRODUCTS,  
WHERE EGGS ARE  
TO BE REPLACED



## THE ORGANIC EXTRA

- Lecithins are the only organic alternative to artificial emulsifiers such as DATEM (mono and diacetyl tartaric acid esters of mono- and diglycerides of fatty acids)
- Lecithins from organic soy and sunflower have a light brown color but otherwise show same characteristics as conventional lecithin

# MALTODEXTRINS



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS

- ensure a softer crumb and better crumb elasticity in bread
- prevent staling due to interaction of the degraded starch chains with the starch in the dough

### ... IN PASTRIES AND COOKIES, FILLINGS AND CREAMS

- act as filler/bulking agent in fat- and sugar-reduced products
- maintain the sensory quality
- control the sweetness without the need to significantly adjust formulations



## THE ORGANIC EXTRA

- Organic liquid saccharification products go through a shorter production process, which is why they have a stronger own flavor and color

# PREGELATINIZED STARCHES



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS

- control water retention of bread dough
- adjust rheological properties of the dough
- compensate for the natural fluctuations of wheat flour
- positively affect gas formation during dough rising
- lead to more constant product quality
- improve baking properties of frozen bakery goods during thawing/baking by binding water already in the dough

### ... IN PASTRIES AND COOKIES

- adjust consistency of doughs
- control firmness/texture of the final product (e.g. cake and extruded snacks)

### ... IN CREAMS AND FILLINGS

- swell upon the addition of cold water
- provide a smooth texture



## THE ORGANIC EXTRA

- Organic pregelatinized starches are physically modified and therefore may be used in organic products (can replace chemically modified starches)
- There are differences to conventional starches in color and taste to be considered in the final product

# POTATO FIBERS



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS, SNACK BARS

- increase fiber content
- lead to a juicier final product due to high water binding capacity
- reduce tendency to stale baking
- improve storage stability at low application rates

### ... IN PASTRIES AND COOKIES

- provide fiber enrichment
- ensure longer sensorial shelf life



## THE ORGANIC EXTRA

- Organic Potato Fiber has a slightly higher microbial count in contrast to conventional potato fiber
- Due to typically low dosage rates and/or heat treatment during the process, this does not necessarily affect the overall microbial load of the final product nor taste and odor



SOURCE OF FIBER

# POTATO PRODUCTS (INSTANT POTATO POWDER, POTATO FLAKES)



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS

- show good mixing properties with flours
- lead to higher water binding and thus juiciness
- show excellent swelling capacity
- act as a natural ingredient for tasty potato bread



## THE ORGANIC EXTRA

- Organic potato flakes do not contain additives for product stability compared to conventional products
- Organic flakes produced in Europe are more intense in their color (yellow) due to a different potato variety

# SACCHARIFICATION PRODUCTS (DEXTROSE & GLUCOSE SYRUP SOLIDS)



## FUNCTIONS & BENEFITS

### ... IN BAKED GOODS

- are necessary for sufficient fermentable carbohydrates available for yeast fermentation in the dough
- improve the browning of the bread during the baking process
- ensure softer doughs due to increased binding of water and interaction with the gluten and starch network
- make dough less elastic and more malleable
- contribute to a faster and better distribution of the dissolved sugar in the dough

### ... IN PASTRIES, COOKIES, FILLINGS & CREAMS

- used as sweeteners. The degree of sweetness as well as sweetness perception depend strongly on the carbohydrate spectrum

### ... IN SNACK BARS

- act as binding and sweetening agents



## THE ORGANIC EXTRA

- Organic liquid saccharification products go through a shorter production process, which is why they have a stronger own flavor and color

## THIN-BOILING STARCHES



### FUNCTIONS & BENEFITS

#### ... IN PASTRIES, FILLINGS AND CREAMS

- ideal ingredient for fat replacement in sweet spreads
- give a greasy texture in dietary products



### THE ORGANIC EXTRA

- Organic thin-boiling starches offer the ability to replace palm oil in sweet spreads and fillings

  
**CAN REPLACE  
PALM OIL IN  
SWEET SPREADS  
AND FILLINGS**

## VITAL WHEAT GLUTEN (WHEAT PROTEINS)



### FUNCTIONS & BENEFITS

#### ... IN BAKED GOODS AND PASTRIES

- improves the baking properties of doughs based on flours with low protein content
- increases the protein content, water absorption, dough stability as well as stability during dough rising
- binds more gas and increases volume



### THE ORGANIC EXTRA

- There are no technological differences to conventional gluten, neither in color, taste nor functionality – it can easily replace conventional gluten
- Raw material for organic vital wheat gluten is usually of a higher quality which leads to better product characteristics

## YEAST (FLAKES AND EXTRACTS)



### FUNCTIONS & BENEFITS

#### ... IN BAKED GOODS, PASTRIES AND COOKIES

- converts sugar in the dough into carbon dioxide and ethanol (both metabolic products)
- leads to a loosening of the dough during rising
- good baking volume after the baking process



### THE ORGANIC EXTRA

- Organic yeast is made either from molasses or grain (wheat flour). Due to fewer options during the production process and less rinsing there are significant differences between organic and conventional yeasts

#### Color:

- Organic molasses yeast is grey in color, grain-based yeast brownish (which impacts very white bread like baguettes)
- Conventional yeast is white/light grey

#### Taste:

- Organic molasses yeast and conventional yeast taste exactly the same
- Organic grain-based yeast tastes more bready, which has a good effect on the bread

#### Gazing Power:

- Organic molasses yeasts have the same power as conventional yeasts
- Organic grain-based yeasts need a change in formula, up to 2.5 % w/w

  
**ORGANIC  
GRAIN-BASED  
YEAST TASTES  
MORE "BREADY"**

# CHECKLIST

## FOR YOUR NEXT PRODUCT DEVELOPMENT

Organic starches and related ingredients described in this paper can perform a variety of functionalities and create many desirable product properties.

Before you start with the (new) formulation or manufacturing process, take a moment to clarify the intended purpose and desired properties which you aim for and which the new formula is supposed to support. Next, derive the objectives that the ingredient label must meet.

To do so, read through the list of product requirements in the checklist on the next page. With this briefing in hand a starch technologist from our team can perfectly advise you on how to develop the product in the best and most efficient way!

- STABILITY
- VISCOSITY
- WATER BINDING
- OIL BINDING
- ANTI-CAKING
- SUGAR REDUCTION
- BULKING
- CARRIER FOR FLAVORS
- INCREASING RECIPE EFFICIENCY
- BINDING
- FAT REDUCTION
- NUTRITIONAL SOURCE OF CARBS, FIBERS & PROTEINS
- FILM FORMING & COATING



If you want to learn more about the use and effects of starches, go to [agrana-group.agrana.com/superpowerofstarches](https://agrana-group.agrana.com/superpowerofstarches)

# CHECKLIST

APPLICATION	
SUGAR CONTENT IN %	
SOLID CONTENT IN %	
PROCESS SEQUENCE	
MACHINERY USED	
PROCESS INTENSITY:	
PH VALUE	<input type="text" value="low"/> <input type="text" value="medium"/> <input type="text" value="high"/>
SHEAR STRESS	<input type="text" value="low"/> <input type="text" value="medium"/> <input type="text" value="high"/>
TEMPERATURE	<input type="text" value="low"/> <input type="text" value="medium"/> <input type="text" value="high"/>
FORMULATION & OTHER INGREDIENTS	
INGREDIENTS ALREADY USED IN EARLIER TRIALS	
OPTIONS OF ADDING THE INTENDED COMPONENT WITHIN THE PROCESS	<input type="text" value="dissolve / disperse"/> <input type="text" value="dry blend"/> <input type="text" value="in watery phase"/> <input type="text" value="in oily phase"/> <input type="text" value="early in the process"/> <input type="text" value="late in the process"/>
LIMITATIONS & SPECIAL REQUIREMENTS	<input type="text" value="organic"/> <input type="text" value="non-GMO"/> <input type="text" value="lactose-free"/> <input type="text" value="sugar-free"/> <input type="text" value="vegan"/> <input type="text" value="keto"/>

# WE ARE BORN ORGANIC

Nature is a unique creation that we must treat with the utmost care. At Marroquin Organic, we have been doing this in a groundbreaking way for over 30 years.

We are deeply rooted in the American organic movement, guided by the idea that small steps can create big changes: a wider range of organic ingredients would lead to more organic products in grocery stores. The more people who would buy organic foods, the greater the need for sustainable, organic agriculture. The more organic farmland, the healthier our planet. The better life for generations to come.

To fulfill our promise for a better planet on the long run, we at Marroquin can rely on our dedicated suppliers and farmers, who share our love for nature.

As part of the global AGRANA family, we have joined forces to create innovative products for our customers and make healthy food accessible to all. Together, we drive the organic industry forward to preserve nature in all its splendor for future generations.

MARROQUIN  
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#### SOURCES:

Mintel, "Natural and Organic Food Shopper US," 2022; Mintel, "The Future of Bread, Bakery and Cakes", 2022; Organic Trade Association, "Organic Industry Survey 2022"; New Hope Network [www.newhope.com/market-data-and-analysis/monitor-inflation-exposes-natural-conventional-shoppers-common-priorities](http://www.newhope.com/market-data-and-analysis/monitor-inflation-exposes-natural-conventional-shoppers-common-priorities); Business Insider, [www.businessinsider.com/foodies-sustainable-shopping-habits-inflation-2022-4](http://www.businessinsider.com/foodies-sustainable-shopping-habits-inflation-2022-4)

PHOTOS: AGRANA; Shutterstock.

IMPRINT, OWNER, EDITOR, AND PUBLISHER:  
Marroquin Organic International, member of  
AGRANA Group. August 2023

