ENCAPSULATES

SensoryEffects encapsulates technology delivers the benefits of extended shelf life, optimized texture, consistent flavor, production efficiency and much more.

Products
- Sodium Bicarbonate
- Leavening Systems
- Acids for Sourdough
- Acids for pH Control
- Preservatives for Mold Control
- Salt for Improved Texture
- Acids for Starter Culture Replacement

Innovations
- Natural
- Allergen-Free
- Non-GMO
- Non-PHO
- Trans Fat-Free
- Water Soluable Coatings
- Lipid Coatings

Certifications
- SQF Level II Certified
- RSPO Member
- Halal
- Kosher
ENCAPSULATION TECHNOLOGY

Our line of encapsulated products deliver tangible improvements in finished product quality and shelf life by effectively controlling undesirable chemical interactions in food. Manufacturers using our technology realize economic benefits in the form of optimized formulations, improved processing and increased product yield.

Experience
SensoryEffects has four decades of experience in the design, manufacture and application of controlled-release ingredients. We offer a wide range of easy-to-use ingredients for a variety of product lines, including:

- Bakery
- Meat
- Confectionery
- Nutritional Products

Consistency
Consistency is a distinguishing characteristic of SensoryEffects’ products. High quality and batch-to-batch uniformity are the reasons that SensoryEffects ingredients exhibit reliable functionality in finished products.

Quality & Service
In addition to the superior quality our products offer, we provide attentive customer service, highly trained account representation and an experienced technical service team supporting your business from concept through commercialization.
MEATSHURE® SALT

ENCAPSULATED SALT

Salt (sodium chloride) is commonly used as a functional ingredient in processed meats, as a flavoring in seasonings, and as a means of preservation.

MeatShure encapsulated salt helps control bind, syneresis, protein extraction and delays the onset of oxidative rancidity during shelf life.

The use of MeatShure encapsulates helps to optimize high speed forming operations by preventing salt-soluble proteins from accumulating on equipment. This reduces patty adhesion and malformation, reduces cleaning delays all while increasing process yield.

CONTROLS

- Release & solubilization of active ingredients
- Undesirable reactions
- Product texture

PROTECTS

- Integrity of muscle proteins
- Color & texture of meat
- Consistency during processing

DELIVERS

- Superior finished products
- Improved production flexibility
- Greater efficiency, better yield
- Consistent flavor
- Improved product texture
- Freeze-thaw stability
<table>
<thead>
<tr>
<th>Function In Application</th>
<th>MeatShure Ingredients</th>
<th>Substrate</th>
<th>Features &amp; Benefits</th>
<th>Applications</th>
</tr>
</thead>
</table>
| Direct Acidification    | 114, 312, 333, 341, 343, 509, 510, 496, 501 | Citric Acid, Lactic Acid, Glucono-Delta-Lactone (GDL), Sodium Diacetate, Vinegar Flavored Powder | - Prevents protein denaturation  
- Improves texture & eating quality of processed meat  
- Reduces thermal processing time & energy requirements  
- Eliminates need for starter cultures  
- Reliable pH control in every batch  
- Provides acidic flavor profile, characteristic of fermented meat | Pepperoni, Summer Sausage, Pork Rolls, Salami, Chorizo, Meatballs |
| Salt                    | 619, 626              | Sodium Chloride | - Maintains moist, crumbly texture & prevents chewiness  
- Prevents stickiness & adhesion to equipment caused by protein extraction  
- Improves oxidative stability of fat | Meatloaf, Pizza Crumbles, Hamburger, Meatballs, Spice Rubs |
| Meat Restructuring      | 416                   | Calcium Lactate | - Prevents premature gelation of alginate  
- Increases process flexibility  
- Manipulates final product texture  
- Consistent portion sizes  
- Add value to lower cost cuts of meat | Formed Meats |
MeatShure encapsulated acidulants are used to control pH, develop acidic flavor profiles and increase process efficiency in ready-to-eat meats. MeatShure acids can be used as an alternative to traditional fermentation methods, allowing the acid to be directly mixed into the meat emulsion without negatively impacting the meat proteins or breaking the emulsion itself. The encapsulated acidulants are subsequently released from the coating by the combined effects of heat and moisture lowering pH and delivering desired flavor profiles.

**ACIDULANTS**
- pH development
- Undesirable reactions
- Purge

**PROTECTS**
- Integrity of muscle proteins
- Color & texture of meat
- Consistency during processing
- Meat emulsion formation

**DELIVERS**
- Superior finished products
- Reliable pH drop for microbial control
- Improved production flexibility
- Greater efficiency, better yield
- Consistent flavor & texture throughout shelf life
# FUNCTIONALITY GUIDE

## Function In Application

<table>
<thead>
<tr>
<th>Function In Application</th>
<th>MeatShure Ingredients</th>
<th>Substrate</th>
<th>Features &amp; Benefits</th>
<th>Applications</th>
</tr>
</thead>
</table>
| Direct Acidification    | Citric Acid           | Lactic Acid | - Prevents protein denaturation  
- Improves texture & eating quality of processed meat  
- Reduces thermal processing time & energy requirements  
- Eliminates need for starter cultures  
- Reliable pH control in every batch  
- Provides acidic flavor profile, characteristic of fermented meat | Pepperoni  
Summer Sausage  
Snacks Sticks  
Pork Rolls  
Salami  
Chorizo  
Meatballs |
| Salt                    | Sodium Chloride       |           | - Maintains moist, crumbly texture & prevents chewiness  
- Prevents stickiness & adhesion to equipment caused by protein extraction  
- Improves oxidative stability of fat | Meatloaf  
Pizza Crumbles  
Meatballs  
Hamburger  
Spice Rubs |
| Meat Restructuring      | Calcium Lactate       |           | - Prevents premature gelation of alginate  
- Increases process flexibility  
- Manipulates final product texture  
- Consistent portion sizes  
- Add value to lower cost cuts of meat | Formed Meats |
CONFECSHURE® SOURS

SensoryEffects specializes in the development and delivery of encapsulated solutions to top confectionery manufacturers. We provide a unique blend of technical expertise and problem-solving support, enabling you to achieve your goals.

ConfecShure encapsulated ingredients let you control the release of acid or sugar using our proprietary microencapsulation technology. We protect ingredients from degradation and pre-reaction, strategically delivering them for optimum performance.

CONTROLS
• Undesired reactions
• Dusting during processing

PROTECTS
• Against sugar inversion
• From hygroscopicity and clumping

DELIVERS
• Prolonged shelf life
• High-impact sour flavor
• Extended flavor release
• Consistent finished product
## FUNCTIONALITY GUIDE

<table>
<thead>
<tr>
<th>Function In Application</th>
<th>ConfecShure Ingredients</th>
<th>Features &amp; Benefits</th>
<th>Applications</th>
</tr>
</thead>
</table>
| Sour Delivery           | Malic Acid, Citric Acid, Tartaric Acid, Adipic Acid, Fumaric Acid | - Enhancement of other flavoring ingredients and masking of undesirable flavor notes  
- Flavor balance and flavor extension  
- Protects against negative ingredient interactions, hygroscopicity and clumping  
- Delivers intense sour flavor  
- Prevents sugar inversion during storage | Sanded Sour Candies, Fruit Candies, Mints, Bubble and Chewing Gums |

### Fruity, persistent, rounded

**MALIC**

- Apple
- Plum
- Cherry
- Mango
- Grape
- Peach
- Raspberry
- Pineapple
- Citrus fruits

**TARTARIC**

Hard, dry

**CITRIC**

Bright, refreshing
SODIUM REDUCTION IN FOOD

DIRECT REDUCTION OF SODIUM WITH C-SALT™

Choline chloride has been known for decades as an effective, generally recognized as safe (GRAS) salt substitute. However, its characteristic hygroscopicity has ruled it out as a truly viable solution for reduced sodium food product development, until now.

Moisture uptake and clumping are problems of the past with SensoryEffects’ C-Salt, a choline chloride-based salt replacer with significantly improved flow characteristics. This new functionality of choline chloride makes it usable in blends of dry bakery ingredients and savory seasonings.

FEATURES & BENEFITS

• A novel choline chloride-based salt replacer
• Molecular synergy with sodium chloride, for taste enhancement
• Usable in a broad range of applications
• Improve salt flavor impact in reduced sodium formulations
• 1:1 “Drop-in” replacement for salt
• Reduction of sodium chloride up to 50%
• Thermostable

Key product attributes are not affected by sodium reduction with C-Salt.
Microencapsulation is an effective way to maximize the mold-free shelf life and quality of baked goods. SensoryEffects’ proprietary controlled release technology minimizes the unwanted side-effects of highly reactive food acids and preservatives during the baking process. With BakeShure® preservation technology you can prevent the degradation of protein, improve yeast activity, boost product consistency, optimize production and launch new products you previously thought impossible.

**CONTROLS**
- pH development
- Growth of spoilage organisms
- Development cost with ‘drop-in’ formulation

**PROTECTS**
- Vitality of yeast from acidic ingredients
- Degradation of gluten protein
- Finished product volume

**DELIVERS**
- Extended shelf life of products
- Maximized preservation synergy
- Improved product appearance

**Sorbic Acid**
- Broadens the antimicrobial spectrum
PRESERVATION FOR BAKERY PRODUCTS

THE ANSWER TO MOLD CONTROL

PAN BREAD

FLATBREAD

Addition of BakeShure ingredients significantly improves product shelf life.

Finished product volume is unaffected

pH control is easily and predictably achieved
BAKESHURE® SOURS

HIGH QUALITY SOURDOUGH & RYE BREAD

BakeShure Sours make it possible to produce authentic specialty sourdough bread by delivering superior sourdough flavor. SensoryEffects’ proprietary microencapsulation technology allows manufacturers to easily create new sourdough formulas using our ‘drop-in’ technology. Since BakeShure Sours do not release until the final stages of baking, formulators using this technology see improved color, greater loaf volume and better finished product appearance all while simplifying the production process.

CONTROLS
• Product appearance
• Release of sourdough flavor
• Development cost with ‘drop-in’ formulation

PROTECTS
• Yeast activity
• Integrity of gluten protein
• Dough consistency

DELIVERS
• Superior finished products
• Consistent product volume
• Classic sourdough flavor profiles at lower cost

SensoryEffects.com • 800.422.5444 • info@SensoryEffects.com
231 Rock Industrial Park Drive, Bridgeton, MO 63044
Using BakeShure Sours at 1.25% (Baker’s Percent) improves finished product loaf volume and overall product appearance.
SensoryEffects’ best in class microencapsulation technology is specifically engineered to deliver tortillas and flatbreads that exhibit improved finished product appearance and eating characteristics. This patented line of encapsulated acidulants is designed to delay release of the active components while optimizing performance during the production process.

**ENCAPSULATED ACIDULANTS**

**CONTROLS**
- Finished product appearance
- pH development

**PROTECTS**
- Product quality through extended shelf life
- Preservative functionality
- Leavening performance

**DELIVERS**
- Larger tortillas and greater stack height
- More tender tortillas with improved opacity
- Increased tortilla production
Tortillas were treated with a bromocresol purple dye where the blue area indicates a neutral pH and the yellow shows acid dispersion. Our patented BakeShure® FT has a fine and even distribution throughout the tortilla resulting in an even pH drop, extending finished product shelf life.

Tortillas made with BakeShure FT maintain pH in the dough protecting leavening performance and increasing opacity.

Produce larger tortillas using BakeShure FT.
BakeShure microencapsulated leavening provides full control of the reaction between sodium bicarbonate and the acidic components within dough and batter, improving baked product yield and appearance. Microencapsulation extends the viability of frozen dough and increases flexibility in the production of fresh and refrigerated bakery products.

**CONTROLS**
- Product appearance
- Release of chemical leavening
- Outgassing in finished product packaging

**PROTECTS**
- Against unwanted interactions
- Leavening performance throughout shelf life
- From freeze thaw abuse

**DELIVERS**
- Superior finished product volume
- Improved production flexibility
- New product opportunities
- Extended product shelf life
BAKESHURE® COMPLETE

REDUCED SODIUM BAKING POWDER

BakeShure Complete is a healthier choice to traditional baking powders and is suitable for use in all chemically leavened bakery applications including: fresh baked, frozen, refrigerated and freezer-to-oven products. The BakeShure Complete line of products are aluminum free, non-GMO, contain 0g trans fats, and are ideally suited for bakers whose customers demand a clean label.

EASY TO USE

• 1:1 Replacement for baking powder
• “Drop-in’ to new and existing formulations

HEALTHIER FOR BAKING

• Aluminum free
• Non-GMO
• Zero and reduced sodium
• 0g Trans Fat

BakeShure Complete replaces traditional baking powder without impacting finished product volume or texture.

BakeShure Complete Provides Same Leavening Performance As Baking Powder

Baking Powder

BakeShure Complete