

Yeast Ingredient Solutions for Reduced-Sodium Snacks



Clean Label Conference, March 26-28, 2018





Salt (sodium chloride, NaCl) is a mineral extract from the sea or from the soil (gem salt). About 90% of human sodium intake is consumed in salt form (NaCl).

Sodium is essential for life : It helps regulate the water content in our bodies and maintains the nervous system through communication between our cells.

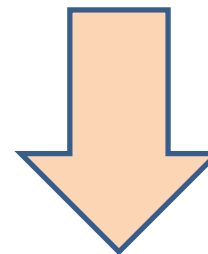
Excessive sodium consumption can cause hypertension which can increase the risk of developing heart disease or having a stroke. Excessive sodium consumption can also trigger kidney disease.

According to the World Health Organization, 2.5 million deaths could be prevented each year if the global sodium consumption would be reduced to the recommended value of max. 2 g per day (which corresponds to 5 g of salt per day).



Health and food safety authorities agree that :
most American's daily intake (more than 3400 mg's) far exceeds the recommended level.

Adults estimated daily intake of sodium in diet



3400 mg

**American Heart Association
recommend's 1500 mg/ day**

BREAKING NEWS

In a widely-anticipated move, the FDA released draft targets on Wednesday for voluntary sodium reduction in the food industry. The goal is to limit American sodium consumption to 2,300 mg each day, well below today's average sodium intake of 3,400 mg per day.

[Read More](#)

Source: *Food Dive June 2016*



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Food Group	Sodium content (mg/100 g)
Table salt, baking soda, baking powder	38000
Bouillon cubes, powdered broths, soups, gravies	20000
Soy sauce	7000
Snack foods (e.g. pretzels, cheese puffs, popcorn)	1500
Bacon	1500
Sauces and spreads	1200
Cheese, hard	800
Processed vegetables	600
Butter/margarine	500
Cheese, soft	400
Processed fish	400
Cereals and cereal products (e.g. bread, breakfast cereals, biscuits, cakes, pastries)	250
Fish, raw or frozen	100
Eggs	80
Milk and cream	50
Vegetables, fresh or frozen	10
Fruits, fresh or frozen	5

Source: WHO Guideline: Sodium intake for adults and children 2012



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Sensory

Salt not only tastes salty, its also enhances other flavours in a product. Salt is thought to have an effect on components such as protein, and so may also affect the texture ('bite') of products.



Shelf life

In some products salt acts as a food safety control on the product. Reducing salt will necessitate a reduction in the shelf life of a product.



Processing aid

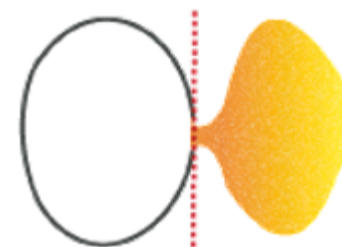
Salt is used as a fermentation aid in many baked goods where it strengthens the gluten structure during the bread-baking process.



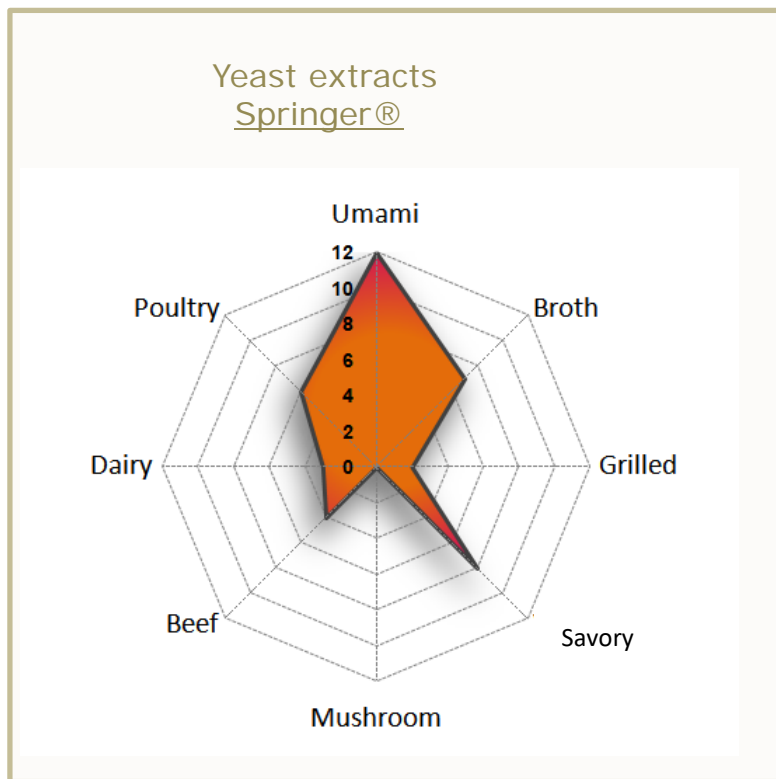
What are Yeast Extracts and how do they help in sodium reduction?

- Umami taste can be a useful tool in Sodium Reduction
- Umami potentiates salty flavor and gives fullness to the overall flavor of the food product.
- Some baker's yeast strains are **naturally high in RNA** which results in yeast extracts that are high in natural nucleotides which gives high umami.
- Biospringer offers a portfolio of high nucleotide yeast extracts.
- **Yeast extract** is a **natural ingredient** made from bakers yeast.
- Yeast extract results **from the natural enzymatic breakdown of yeast** cells when they are heated (this is known as autolysis).
- The **flavor component** of the yeast cell is separated from the cell wall.

Remaining cell wall



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Springer Yeast Extracts work well in sodium reduction as they:

- Build umami and help to linger flavor
- Round out and give depth to flavor
- Mask bitterness of KCL
- Increase salty perception
- Adds a variety of taste profiles
- Labelled as “Baker’s Yeast Extracts”

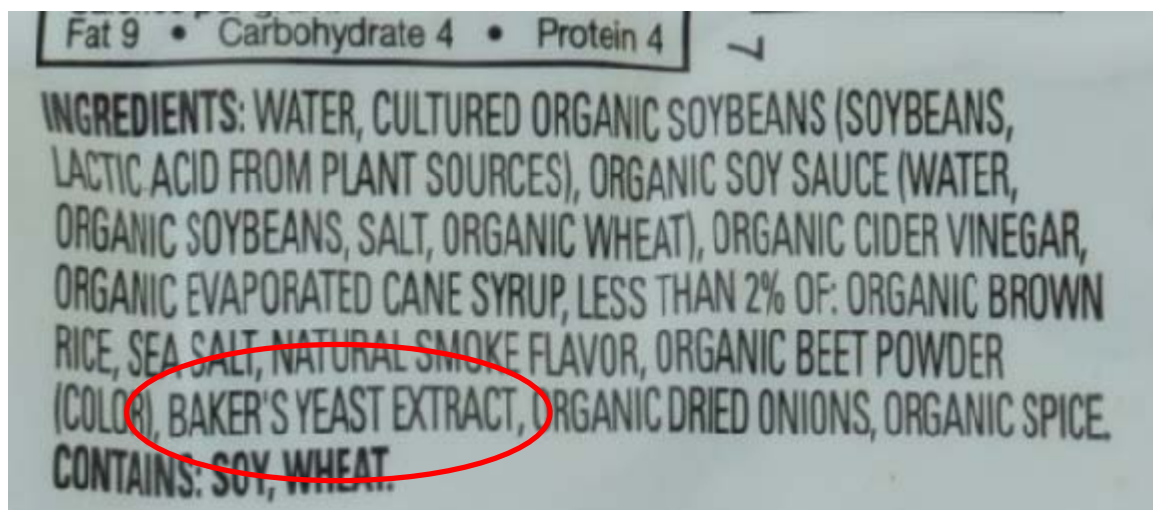


Snack Application	% Salt Reduction	Recommended Yeast Extract Dosage (as consumed)
BBQ Flavored Potato Chips	30%	0.65%
Turkey Meat Snacks	40%	0.7%
Beef Meat Snacks	40%	0.75%
Crackers	30%	0.15%
Snack Cakes	80%	0.09%
Seasoned Popcorn	30%	0.65%
Snack Dips and Sauces	40%	0.25%
Seasoned Nuts	30%	0.7%



Why are Baker's Yeast Extracts Clean Label?

- Baker's yeast has been used for thousands of years for making bread and wine.
- "Baker's Yeast Extract" is accepted and regarded as wholesome by consumers (GRAS Approved 21 CFR 184.1983) "Yeast Extract" also continues to be an accepted term with consumer acceptance.



Focus Group Interviews (3 locations in US) . Late 2015

- Consumers were favorable about the term- Baker's Yeast Extract
- Consumers thought of Baker's Yeast Extract as "similar" to Vanilla Extract

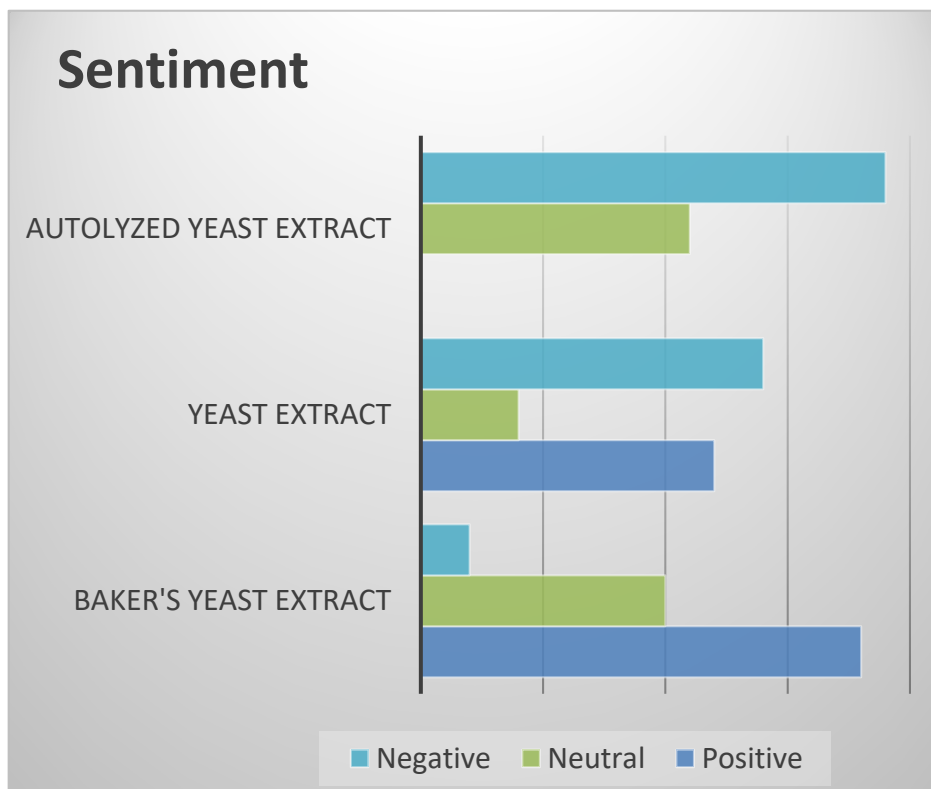
Nationwide Survey of U.S. Consumers conducted in mid 2016, over 1000 consumers surveyed

- Only one in four U.S. consumers have heard of yeast extract, so there is good opportunity for education.
- Those with an opinion are far more positive than negative about it.
- When given a product label with various ingredients shoppers are almost as likely to avoid beef stock or onion powder as yeast extract.



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Consumer's Feel Good about Baker's Yeast Extract



"The baker one sounds the most natural. The less man made, scientific, something that I can actually spell. It just sounds like layman's terms, versus all the scientific, or specific, exact words on the others." Gigi R., 38, San Francisco

"I don't find it objectionable. I'm kind of curious about what it is, but I'm not offended by it... It's possible the word autolyzed means more processed." Carla G., 45, Chicago

The one with the bigger word sounds unnatural! Well, but I'm sure bakers and brewers are both processed as well. But they're words that I'm used to, so it doesn't sound as weird. I don't know what autolyzed means." Bethanny A., 22, Chicago



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Nutrition Facts	
servings per container	
Serving size	(28g)
Amount per serving	
Calories	140
% Daily Value*	
Total Fat 9g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 280mg	12%
Total Carbohydrate 15g	5%
Dietary Fiber 0g	0%
Total Sugars 1g	
Includes 1g Added Sugars	2%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 3mg	0%
Iron 0mg	0%
Potassium 19mg	0%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Control

Full Salt Barbecue Chips

Nutrition Facts	
servings per container	
Serving size	(28g)
Amount per serving	
Calories	140
% Daily Value*	
Total Fat 9g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 200mg	9%
Total Carbohydrate 15g	5%
Dietary Fiber 0g	0%
Total Sugars 1g	
Includes 1g Added Sugars	2%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 3mg	0%
Iron 0mg	0%
Potassium 39mg	0%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Test 1

Reduced Salt Barbecue Chips

Nutrition Facts	
servings per container	
Serving size	(28g)
Amount per serving	
Calories	140
% Daily Value*	
Total Fat 9g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 210mg	9%
Total Carbohydrate 15g	5%
Dietary Fiber 0g	0%
Total Sugars 1g	
Includes 1g Added Sugars	2%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 3mg	0%
Iron 0mg	0%
Potassium 20mg	0%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Test 2

Reduced Salt Barbecue Chips+ Springer Yeast Extract



Thank you!