

# The Gluten-free Diet

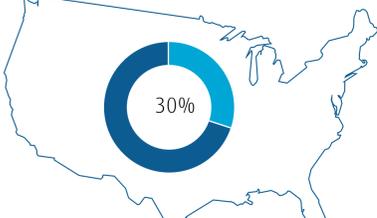
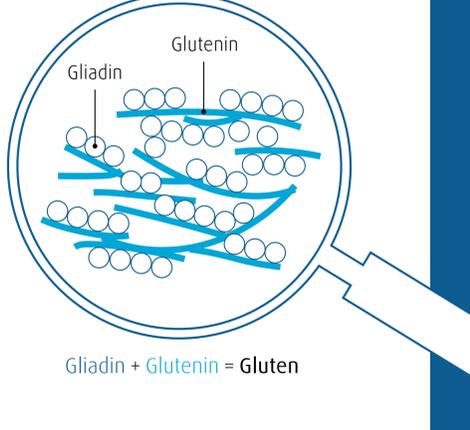
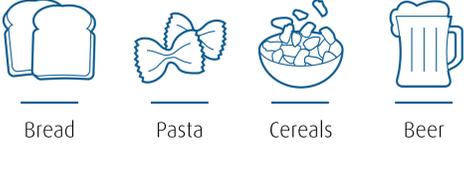
A sticking point for the industry?

From “no-carbs” to “paleo” to “Atkins”, fad diets come and go. The “gluten-free” diet however, looks like it’s sticking around! This trend has taken the US by storm and has had a huge impact on the food and beverage industry. Linde makes sure to stay ahead of the trend – by applying its proven solutions to cater for these new markets.

## What is gluten?

Gluten is a protein consisting of a mixture of glutelin and gliadin and is found in cereal grains, especially wheat.

It can be found in a wide array of foods and beverages:



Nearly **30%** of adults in the US say they are cutting down on or avoiding gluten completely. **But why?**<sup>1</sup>

For diagnosed medical reasons:

**1%** of all Americans are diagnosed with Celiac disease<sup>2</sup>

**6%** of all Americans are non-celiac-gluten-sensitive (intolerant)<sup>3</sup>

For perceived health benefits:

In a recent survey by Mintel, **65%** of respondents who eat gluten-free foods said that they do so because of a perceived health benefit - but are not celiac or intolerant.<sup>4</sup>

## Impact on the F&B industry

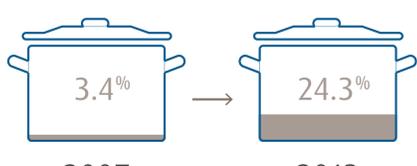


North America has a **59%** share in the global gluten-free product market.<sup>5</sup>



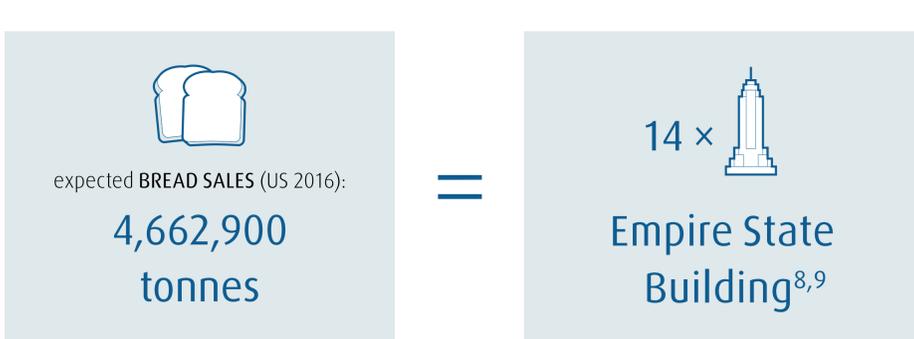
**+20.9** percentage points<sup>7</sup>

The rise of gluten-free food product launches

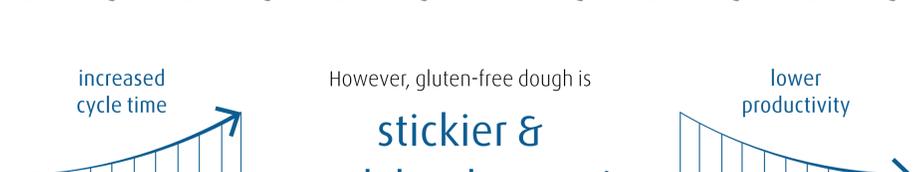


## Substituting wheat

Gluten is an important component of wheat, barley and rye which is mainly used to make bread. The gluten acts as a binder for the dough. Bread remains one of the world’s staple foods and is in high demand in the US.

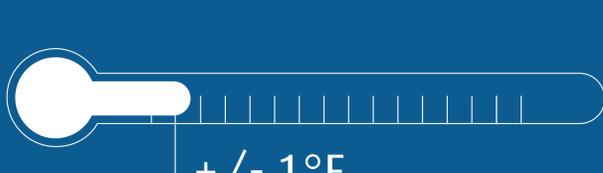


These gluten-free flours are becoming popular:



## Gluten free-zing

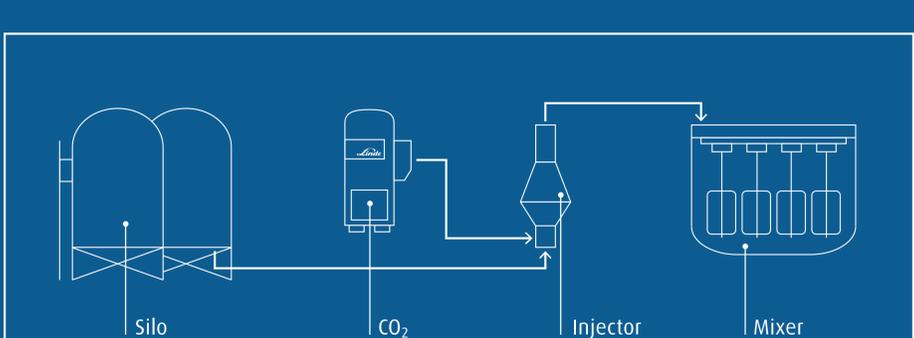
The answer to these problems: Controlling the temperature of the dry ingredient before or during mixing using cryogenic technology.



Solution

### The Linde Dry Ingredient Chilling System

not only keeps the temperature within  $\pm 1^\circ\text{F}$  ( $\pm 0.55^\circ\text{C}$ ) but it does so as the dry ingredient is on the way to the mixer - without adding any additional moisture.



This makes the dough easier to handle. It also decreases cycle times, increases repeatability and produces a more consistent finished product.

1. <https://www.npd.com/perspectives/food-for-thought/gluten-free-2012.html>  
 2. <http://www.celiaccentral.org/ceciac-disease/facts-and-figures/>  
 3. [http://www.celiaccentral.org/siteData/docs/NFCAceliac/AS2249L6b67628b/NFCA\\_CeliacDisease\\_vs\\_NonCeliacGlutenSensitivity.pdf](http://www.celiaccentral.org/siteData/docs/NFCAceliac/AS2249L6b67628b/NFCA_CeliacDisease_vs_NonCeliacGlutenSensitivity.pdf)  
 4. <http://www.foodnavigator-usa.com/Markets/Health-weight-conscious-consumers-are-driving-the-gluten-free-market-not-celiacs-says-Mintel>  
 5. <http://www.foodmanufacturing.com/news/2013/07/consumer-trends-gluten-free-market-experiencing-double-digit-growth>  
 6. <http://www.foodnavigator-usa.com/Markets/Sales-of-gluten-free-products-will-continue-to-grow-double-digits>  
 7. <http://www.nrg.gc.ca/eng/industry/markets-and-trade/food-regulations/food-policy-and-regulatory-issues/reports-and-resources/gluten-free-claims-in-the-marketplace/?id=139767374797>  
 8. [http://www.esbny.com/sites/default/files/esb\\_fact\\_sheet\\_4\\_9\\_14\\_4.pdf](http://www.esbny.com/sites/default/files/esb_fact_sheet_4_9_14_4.pdf)  
 9. <http://www.s-agr.gc.ca/resources/prod/Internet/Internet/MI5B-DG5IM/AT5-SEA/PDF/6257-eng.pdf>