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# LOW CARB BAKERY

OPTIMUM FLOUR REPLACEMENT



## LOW CARB FLOUR

A low carb flour solution ideal for modern bakeries is not out of reach with Manildra's GemPro® wheat proteins and FiberGem® resistant wheat starch. With the strength of GemPro proteins and the body of FiberGem, transform traditional bakery items to low carb favorites.

## PRODUCT INFO

FiberGem is preferred in high fiber and low carb applications and can be incorporated into a wide range of bakery products. FiberGem can help you add dietary fiber to your baked products with minimal disruption to viscosity. GemPro proteins round out the system with elasticity and extensibility to create the ideal gluten matrices.



### FiberGem

With 90% dietary fiber. FiberGem resistant wheat starch is the preferred fiber type for bakery. This RS4-type resistant wheat starch is labeled as resistant wheat starch or modified wheat starch.



### GemPro Proteins

The GemPro range of wheat proteins covers the rheological spectrum. GemPro HPG provides strength and elasticity while GemPro Prime-E provides softness and extensibility. The labelling is simply wheat protein.



### Perfect Ratio

Recreate preferred rheology and texture, from bread flour to pastry flour, with the balance of fiber and protein. This combination and versatility takes low carb to all product types.

# WHAT ARE NET CARBS

Net carbs are the carbohydrates in food that you can digest and use for energy. On food labels this is determined by a simple calculation comparing total carbs and dietary fiber. When creating low carb foods you can reduce the total carbs, add fiber, or both.

$$\text{Total Carbohydrates} - \text{Total Dietary Fiber} = \text{Net Carbs}$$

## Standard Pizza Crust

**Net Carbs** 48g - 0g = 48g

Nutrition Facts	
servings per container	
<b>Serving size</b>	<b>(100g)</b>
<b>Amount per serving</b>	
<b>Calories</b>	<b>270</b>
	<b>% Daily Value*</b>
<b>Total Fat</b> 3.5g	<b>4%</b>
Saturated Fat 0g	<b>0%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 370mg	<b>16%</b>
<b>Total Carbohydrate</b> 48g	<b>17%</b>
Dietary Fiber 0g	<b>0%</b>
Total Sugars 1g	
Includes 1g Added Sugars	<b>2%</b>
<b>Protein</b> 9g	
Vitamin D 0mcg	<b>0%</b>
Calcium 2mg	<b>0%</b>
Iron 3mg	<b>15%</b>
Potassium 73mg	<b>2%</b>

\*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.

## Low Carb Pizza Crust

**Net Carbs** 36g-33g = 3g

Nutrition Facts	
servings per container	
<b>Serving size</b>	<b>(100g)</b>
<b>Amount per serving</b>	
<b>Calories</b>	<b>170</b>
	<b>% Daily Value*</b>
<b>Total Fat</b> 5g	<b>6%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 550mg	<b>24%</b>
<b>Total Carbohydrate</b> 36g	<b>13%</b>
Dietary Fiber 33g	<b>118%</b>
Total Sugars 2g	
Includes 1g Added Sugars	<b>2%</b>
<b>Protein</b> 27g	
Vitamin D 0mcg	<b>0%</b>
Calcium 29mg	<b>2%</b>
Iron 2mg	<b>10%</b>
Potassium 43mg	<b>0%</b>

\*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.

# OPTIMIZED FIBER SOURCE

FiberGem RS4-type resistant wheat starch is specifically designed to increase fiber in all food products. Featuring a low water-holding capacity, a smooth, non-gritty texture and a white, 'invisible' color contribution to the final product. FiberGem resistant starch is process-tolerant and an effective one-for-one replacer for existing starch, without intruding on mouthfeel and taste.

FiberGem, a cross-linked phosphorylated RS4 resistant starch, is on the FDA's list of non-digestible carbohydrates defined as dietary fiber. FDA determines such products as FiberGem to have beneficial physiological effects to human health including lowering blood glucose and cholesterol levels, reducing caloric intake, and improving digestion.



**FIBERGEM**  
RESISTANT WHEAT STARCH



# APPLICATIONS

Believe it or not, the low carb bakery options are limitless when working with our FiberGem and GemPro proteins. FiberGem provides the starchy body, while GemPro HPG and GemPro Prime-E provide the familiar viscoelastic structure.

This trifecta of ingredients creates the building blocks to mimic traditional bakery items, matching the use of wheat flours processability and eating experience. The options span across any wheat-based product. Pizza, tortillas, muffins, and biscuits can be transformed into low carb options. Carbohydrate based items like bread, buns, and cookies are no longer off limits to carb-conscious consumers. Are you dreaming of diet-friendly favorites? Then try our winning combination of FiberGem and GemPro proteins.

# PROTEIN RATIOS



The combination of FiberGem and GemPro proteins is highly functional in low carb applications as its usage rates can be customized for a wide range of bakery products.

When replacing wheat flour, the sum of FiberGem, GemPro HPG and GemPro Prime-E equals 100% bakers percentage for a complete flour replacement. Depending upon desired processing characteristics and finished product attributes, the ratio of fiber-to-protein and protein-to-protein can be rebalanced to meet desired handling, mouthfeel, and eating characteristics.

For volume and gas retention in pan breads, the usage of GemPro HPG would be higher than GemPro Prime-E. In comparison, a finished product that requires less structure and more softness would decrease the usage of GemPro proteins and increase the usage of FiberGem.

## Bread

Higher total protein  
Higher GemPro HPG for strength



## Buns

Higher total protein  
Increase GemPro Prime-E for pan flow



## Pizza

Vary protein ratios to vary crust properties



## Muffins

Higher fiber to create softer mouthfeel



## Cookies

Low protein to reduce absorption  
Vary protein for optimized texture



# TOLERANCE, TEXTURE, TASTE

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Bakers know that vital wheat gluten adds tolerance to a dough system. The unique challenges of a low carb system requires vital wheat gluten with a kick! The blend of GemPro HPG and GemPro Prime-E gives that kick, optimizing both tolerance and resilience. Optimized dough handling translates to optimum texture. Whether you are baking a chewy bagel or a delicate cookie, Manildra's low carb solution will match the texture you need.

As a bonus FiberGem resistant wheat has been shown to have a softer texture over time. Finally, taste is king! And you can expect great taste in your low carb baked goods using a wheat-based low carb solution.

# OTHER INGREDIENT CONSIDERATIONS

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Wheat flour is a multifunctional, multidimensional ingredient in bakery products. Replacing flour impacts strength and tolerance, but also sweetness, yeast activity, emulsification, and water binding. Enzymes may be needed to help provide yeast with a source of energy for metabolism. Avoiding sugar for carb counts may require alternative solutions, like allulose, to optimize color and sweetness. These sweeteners have different rheological impacts on the dough, and different options may be needed for cookies, muffins, and breads. Gums can improve water binding, but some have a positive impact on the dough, while others can degrade the gluten matrix. Lecithin can provide the emulsification needed for optimum cell structure and improved mouthfeel. Just like any bakery system, preservation and shelf-life extending agents would be necessary to retain the eating properties of your products over time.

## Innovation Center

The Manildra technical team applies our expertise in wheat to offer innovative solutions to enhance your low carb products. We strive to serve every customer with quick, reliable service, and solutions that are inventive and personalized. Schedule time to visit our Innovation Center and let us help guide you to your personalized solution!



**Stacked Solutions. Superior Support.**

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