oleon
a natural chemistry

www.oleon.com

NUTRITION

DONUTS

A donut is a fried sweet dough that is either yeast leavened or chemically leavened. The dough is mixed and shaped, fried into hot oil and often artistically decorated or glazed. Donuts are characterized by their unique ring or globule form.

Yeast-raised donuts *are lighter in texture. Their production process is longer due to the fermentation and proofing steps.*

Chemically-raised donuts *made with baking powder or soda are more dense. The production of dough is faster and similar to cake.*

CHALLENGE
The consistency and handling properties of the dough are critical to enable proper donut shaping and conveyor transport. Next to this production challenge, the fried donut is expected to have a soft and light texture during its complete shelf life.

WE KNOW IT'S **MORE THAN DONUTS**

- Easy **handling** and processing
- Dough **consistency**
- **Shape** retention
- Reduce **staling rate**

APPLICATION TEST

for yeast leavened donuts

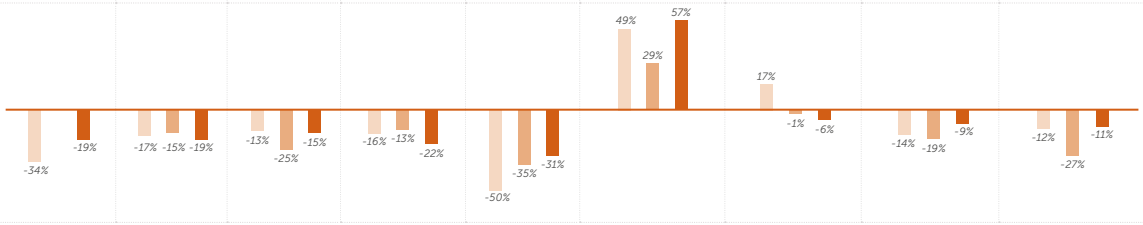
Formulation *(on 100% flour)*

Flour	**Bread flour** *(13% protein)*	50 %
	All-purpose flour *(9% protein)*	50 %
Cold water		48 %
Whole eggs		10 %
Shortening		18 %
Sugar		6 %
Milk solid non fat		6 %
Salt		1.5 %
Instant yeast		1.5 %
Baking powder		1.5 %
Emulsifier		0 - 0.625 %

Results

	Mono- and diglycerides		Diacetyl tartaric acid esters		Sodium stearoyl lactylate	Polyglycerol monostearate	Mono- and diglycerides & Polyglycerol monostearate	Mono- and diglycerides & Polyglycerol monostearate	Sodium stearoyl lactylate & Polyglycerol monostearate
	MG 2918K *0.5%*	**MG 2913K** *0.5%*	**Datem 2004K** *0.5%*	**Datem 2005K***** *0.625%*	**SL 2990K** *0.5%*	**Poly 2247K** *0.5%*	**MG 2918K + Poly 2247K** *0.5%*	**MG 2913K + Poly 2247K** *0.5%*	**SL 2990K + Poly 2247K** *0.5%*
Dough handling*	+	+	++	++	-	+++	+++	+++	+++

Firmness impact**
at day 1
at day 3 or 4
at day 8



** Evaluation compared to blanco reference*
+++ easy to process / - difficult to process
*** Evaluation compared to blanco reference*
**** contains 20% anticaking*

Conclusion

Radiamuls MG and SL reduce the staling rate and extend the shelf life of the donut. The physical form of the emulsifier, more specifically the particle size, shows to have an impact on functionality. A finer powder results in an overall lower firmness. Radiamuls Datem and Poly facilitate dough processing and increase consistency.

OUR **SOLUTIONS**

- **Mono- and diglycerides**
  Radiamuls MG 2918K & 2910K & 2912K & 2913K
- **Diacetyl tartaric acid esters of mono- and diglycerides**
  Radiamuls Datem 2004K & 2005K
- **Sodium stearoyl lactylate**
  Radiamuls SL 2990K
- **Polyglycerol esters**
  Radiamuls Poly 2247K

radiamuls