Dr. Paul Lohmann®

Product Data Sheet FOOD

Mineral Fortification Concepts for Bread and Bakery Products

Product no.	524030940	**Weight Management Premix**
	524030950	**Sports and Energy Premix**
	524050390	**Women's Health Premix**

General Information

Bakery products are worldwide consumed within all populations and ages, and suitable for nearly all dietary habits.

Cereals are by nature the most important sources of carbohydrates and also important sources of protein and fiber. But cereals are not rich in all nutrients, for example, the essential minerals – Calcium or Iron. Many people can cover these nutrients with other foods like milk, meat or mineral-rich vegetables. But there are certain situations where a mineral fortification of cereal based products makes very good sense. Bread and bakery products as well as cereal bars are an excellent "carrier" for the fortification with Mineral Salts. Aim of the fortification is using minerals to create a product, which supports a healthy lifestyle.

The Mineral Salts used in our concepts are stable within usual processes as e.g. baking or extruding.



The **Weight Management** premix containing Potassium, Calcium, Phosphorus, Magnesium, Iron, Zinc, Copper, Manganese, Selenium and Iodine is carefully adjusted to the body´s specific needs during a weight reduction program.



The **Sports and Energy** premix contains aside from Calcium and Magnesium also Potassium, Iron, Zinc, Manganese, Copper, Iodine and Selenium. Calcium and Magnesium to a normal muscle functions and – in the case of Magnesium – it also helps to prevent muscle cramps[1].



The **Women´s Health** premix contains Calcium, Magnesium, Iron, Zinc, Iodine as well as folic acid – which all play an important role in health and wellbeing of women.

General Characteristics of the Premixes

	Weight Management premix	Sports and Energy premix	Women´s Health premix
Appearance	white to yellowish powder	white to grayish powder	white-grayish powder
Flavor	neutral	neutral	neutral
pH (5 %)	approx.7	approx. 7	approx. 6
Solubility (25 °C)	−−	−−	−−

++ > 100 g/l | + 10 - 100 g/l | − 1 - 10 g/l | −− < 1 g/l
The solubility specified here was measured in water. The solubility is influenced by many factors in the application.

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Premix Composition

Ingredients Weight Management premix	% NRV*	Mineral content approx. 2.26 g/100 g end-product (dry matter)
Calcium Phosphate	26 % Ca	approx. 202 mg Ca
Potassium-Magnesium Citrate	15 % Mg	approx. 56 mg Mg
Potassium-Magnesium Citrate Potassium Phosphate	24 % K	approx. 475 mg K
Ferric Pyrophosphate	50 % Fe	approx. 7 mg Fe
Zinc Sulfate	35 % Zn	approx. 3.5 mg Zn
Copper Sulfate	51 % Cu	approx. 0.5 mg Cu
Sodium Selenite	31 % Se	approx. 0.017 mg Se
Manganese Sulfate	15 % Mn	approx. 0.31 mg Mn
Potassium Iodate	27 % I	approx. 0.040 mg I
Potassium Phosphate Calcium Phosphate Ferric Pyrophosphate	28 % P	approx. 198 mg P

Ingredients Sports and Energy premix	% NRV*	Mineral content approx. 2.67 g/100 g end-product (dry matter)
Calcium Citrate	30 % Ca	approx. 240 mg Ca
Magnesium Citrate Potassium-Magnesium Citrate	30 % Mg	approx. 113 mg Mg
Potassium-Magnesium Citrate	15 % K	approx. 300 mg K
Ferric Pyrophosphate	30 % Fe	approx. 3 mg Fe
Zinc Sulfate	30 % Zn	approx. 3 mg Zn
Copper Sulfate	30 % Cu	approx. 0.30 mg Cu
Sodium Selenite	30 % Se	approx. 0.017 mg Se
Manganese Sulfate	30 % Mn	approx. 0.6 mg Mn
Potassium Iodate	30 % I	approx. 0.045 mg I

Ingredients Women's Health premix	% NRV*	Mineral content approx. 0.97 g/100 g end-product (dry matter)
Calcium Citrate	15 % Ca	approx. 120 mg Ca
Magnesium Citrate	15 % Mg	approx. 56.4 mg Mg
Ferric Pyrophosphate	30 % Fe	approx. 4.2 mg Fe
Potassium Iodide	20 % I	approx. 0.03 mg I
Folic acid	30 % Folic	approx. 0.06 mg Folic acid
Zinc Sulfate	30 % Zn	approx. 3 mg Zn

* NRV (nutrient reference value) according to Regulation (EU) 1169/2011

The information given in the document corresponds to our current knowledge. We warrant in the frame of our General Terms and Conditions of Sale that our products are manufactured in accordance with the specifications. However, we disclaim any liability with regard to the suitability of our products for a particular purpose or application or their compatibility with other substances. Tests have to be performed by the customer who also bears the risk in this respect. Nothing herein shall be construed as a recommendation to use our products in conflict with third parties' rights.

Mineral Fortification Concepts for Bread and Bakery Products

Possible Application Areas

- Bread, bakery products and snacks
- Cereals and cereal bars

Example Formulation: Fortified White Bread

Ingredients	Quantity
Wheat Flour	100 g
Water	55 g
Salt	2 g
Yeast	2.5 g
Bread Improver	1.8 g
Mineral Premix	Quantity of the respective premix:
Weight Management or Sports and Energy premix or Women´s Health premix	approx. 3.25 g approx. 3.85 g approx. 1.38 g

Baking process
40 min starting at 240 °C, cool down to 200 °C during baking process
Moisture loss due to the baking process has to be considered.
This is an application for presentation of the mineral concept. Further variations in the final application have to be done.

Premix	Weight	Loaf Size	Appearance	Taste	Results
Target	1045 g	L 35.5 cm W 18.0 cm H 10.0 cm		good	crumb with proper pores, pale crust
Weight Management	1070 g	L 34.5 cm W 16.5 cm H 8.5 cm		similar to target	crumb with proper pores, dark crust, dough slightly less elastic than target
Sports and Energy	1070 g	L 33.5 cm W 15.0 cm H 9.0 cm		similar to target	crumb with proper pores, medium dark crust
Women's Health	1038 g	L 35.5 cm W 17.0 cm H 10.5 cm		similar to target	crumb with proper pores, medium dark to dark crust

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Health-Claims[1]

Health-Claims for Weight Management
Copper, Iron, Iodine, Potassium and Magnesium contribute to **normal energy-yielding metabolism**
Zinc contributes to **normal macronutrient metabolism and a normal carbohydrate metabolism**
Iron contributes to the **normal functions of the immune system**

Health-Claims for Sports and Energy
Iron and Magnesium have a role in the **process of cell division**
Iron and Magnesium contribute to the **reduction of tiredness and fatigue**
Calcium, Magnesium and Manganese contribute to the **normal energy-yielding metabolism**
Calcium and Magnesium contribute to **normal muscle function**
Potassium contributes to the **maintenance of normal blood pressure**

Health-Claims for Women´s Health
Calcium, Iron, Magnesium have a role in the **process of cell division**
Zinc contributes to the **maintenance of normal hair, normal nails, normal skin**
Zinc contributes to **normal cognitive functions**
Iodine contributes to the **normal production of thyroid hormones and normal thyroid functions**

Retest Period

24 months

Storage Conditions

Keep well closed, dry and at room temperature

Packaging

25 kg – different types of packaging are available on request

Certification

Our company is GMP (according part II – active pharmaceutical substances), FSSC 22000/ISO 22000 and DIN EN ISO 9001 certified, and our products are: Made in Germany.
Dr. Paul Lohmann GmbH & Co. KGaA and Dr. Paul Lohmann Inc. are committed to and comply with the FSMA (food safety modernization act).

References

[1] Commission Regulation (EU) No 432/2012 of 16 May 2012 establishing a list of permitted health claims made on foods, other than those referring to the reduction of disease risk and to children's development and health

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