Product Data Sheet FOOD

Mineral Fortification Concepts for Beverages

Product no.	524010910	**Sport Isotonic Premix**
	524010920	**Energy Premix**
	524010930	**Wellness-Immune-Beauty Premix**

General Information

Sport Isotonic

During vigorous physical activity, your body loses a lot of fluid through the skin. This loss in fluid can amount to 2 - 3 l/h for a physically-fit person, and about 600 - 900 ml/h for someone not exercising regularly! Along with the water, a lot of important electrolytes (Potassium, Sodium, Magnesium, Calcium) and energy are lost during perspiration.[1]



The **Sport Isotonic** premix was carefully adjusted to the body‘s needs in electrolytes during sport activities. The Potassium, Sodium, Magnesium and Calcium compounds contained in this premix are highly soluble, bioavailable and tasty.

Energy

Energy drinks continue to be a trend and are particularly popular with young people. As their name implies, energy drinks are meant to provide energy in all situations.
This is as:

- ✓ Stimulant in the morning
- ✓ Enhanced sportive performance
- ✓ Enhanced performance at work
- ✓ Stimulant in the night on parties

Beverage manufacturers aiming to highlight health-related information with reference to „energy“ on their product packaging, can now add minerals such as iron, calcium and magnesium according to the Health Claim Regulation.



The **Energy** premix contains high-quality Iron, Calcium and Magnesium. According to the requirements of the Health Claim Regulation[2], health-related statements in terms of “energy” as well as “mental and physical performance” can now be claimed.

Wellness-Immune-Beauty

Magnesium and calcium are proven minerals when it comes to fortifying food. However, other minerals such as zinc are gaining in significance. There is a close correlation between zinc and the immune system, as the latter is most sensitive to early signs of a zinc deficiency[3].
A sufficient supply of zinc is important, especially in winter when the risk of infection is high and the immune system is weaker. Fortified products, e.g. tea or juice beverages, can ensure that the body is consistently supplied with zinc.



The **Wellness-Immune** premix also contains Zinc, Iron, Copper and Selenium. All four minerals support the body‘s natural defenses - in line with the Health Claims Regulation.[2] For all minerals exists a variety of Health Claims relating to skin, hair, nails and cell protection. The premix is highly soluble, bioavailable and tasty.

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General Characteristics of the Premixes

	Sport Isotonic premix	Energy premix	Wellness-Immune-Beauty premix
Appearance	white powder	white powder	gray-greenish powder
Flavor	slightly sour	slighty sour, bitter	slightly netallic
pH (5 %)	approx. 5.5	approx. 4.2	approx. 6.2
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.

Premix Composition

Ingredients Sport Isotonic premix	% NRV*	Mineral content approx. 0.5 g/100 g final product
Potassium Magnesium Citrate	–	approx. 22.5 mg K
Magnesium Citrate	–	approx. 10.0 mg Mg
Calcium Lactate PLUS	–	approx. 22.5 mg Ca
Sodium Citrate	–	approx. 50.0 mg Na

Ingredients Energy premix	% NRV*	Mineral content approx. 1.3 g/100 g final product
Ferrous Citrate	15 % Fe	approx. 2.1 mg
Magnesium Citrate	15 % Mg	approx. 56.25 mg
Calcium Lactate PLUS	15 % Ca	approx. 120 mg

Ingredients Wellness-Immune-Beauty premix	% NRV*	Mineral content approx. 0.1 g/100 g final product
Ferrous Bisglycinate	7.5 % Fe	approx. 1 mg Fe
Zinc Gluconate	7.5 % Zn	approx. 0.75 mg Zn
Copper Sulfate	7.5 % Cu	approx. 0.075 mg Cu
Sodium Selenite	7.5 % Se	approx. 0.004 mg Se
Carrier Maltodextrin		

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

Possible Application Areas

- Beverages such as “Near Water”, tea drinks, sport drinks or fruit juice products
- Foodstuffs
- Dietary supplements
- Dietetic Foods

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.

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Example Formulations

Sport Isotonic drink

Ingredients	g/100 g final product
Water	approx. 94 g
Invert sugar syrup	approx. 4.5 g
Premix Sport Isotonic	approx. 0.5 g
Citric acid	approx. 0.5 g
Flavor (citrus, grapefruit)	approx. 0.2 g
Others	approx. 0.3 g
Total	**approx. 100 g**
Osmolarity (finished product)	approx. 259 mOsmol/kg

Energy drink

Ingredients	g/100 g final product
Water	approx. 83.6 g
Invert sugar syrup	approx. 13 g
Premix Energy*	approx. 1.3 g
Energy compound I & II	approx. 1.5 g
Citric acid	approx. 0.3 g
Taurin & glucuronolacton	approx. 0.2 g
Others	approx. 0.1 g
Total	**approx. 100 g**

* 15.0 % NRV in 100 ml

Wellness-Immune-Beauty drink

Ingredients	g/100 g final product
Water	approx. 95 g
Invert sugar syrup	approx. 4.4 g
Premix Wellness-Immune-Beauty**	approx. 0.1 g
Citric acid	approx. 0.4 g
Flavor (Hibiscus, apple, rose hip)	approx. 0.007 g
Others	approx. 0.093 g
Total	**approx. 100 g**

** 7.5 % NRV in 100 ml / 15.0 % NRV in 200 ml

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Health-Claims[2]

Health-Claims for Sports Isotonic
Carbohydrate-electrolyte solutions[2] contribute to the **maintenance of endurance performance during prolonged endurance exercise** and enhance the **absorption of water during physical exercise**

Health-Claims for Energy
Calcium, Iron and Magnesium contributes to **normal energy-yielding metabolism**
Iron and Magnesium contribute to a **reduction of tiredness and fatigue**
Iron contribute to **normal cognitive function**

Health-Claims for Wellness-Immune and Beauty
Iron, Copper, Selenium and Zinc contribute to the **normal function of the immune system**
Zinc contributes to the **maintenance of normal hair, nails and skin**
Selenium contributes to the **protection of cells from oxidative stress**
Selenium contributes to the **maintenance of normal hair and nails**
Copper contributes to **normal hair and skin pigmentation**
Copper contributes to **maintenance of normal connective tissues**
Copper contributes to the **protection of cells from oxidative stress**
Iron has a **role in the process of cell division**
Iron contributes to the **reduction of tiredness and fatigue**

Retest Period

18 months 524010930
24 months 524010910 | 524010920

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 Pfeifer, P., Benker, J.: „Sportgetränke ein Thema für Chemie, Biologie- und den Sportunterricht.“ NiU-Chemie 9, Nr. 43, 32, 1998
2 Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods
3 Schuchardt, J.P., Hahn, A.: Ernährungsphysiologische Bedeutung von Zink, Dt. Lebensmittel-Rundschau April 2009

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