



## Mineral fortification

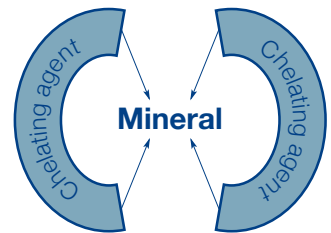
In Beverages

### Benefits at a glance

#### High bioavailability

Jungbunzlauer minerals are based on organic acids and are considered **nature-identical organic mineral salts**:

- Organic ligands like citrates or gluconates are chelating agents and shield minerals from substances that inhibit mineral availability
- Organic mineral salts are more bioavailable than inorganic salts
- Preferred source for superior nutritional products



#### Nutritional and health claims

Beverages fortified with minerals can be marketed with **nutritional or health claims**:

**Low taste impact even at high concentrations**, enabling the use of required mineral dosages without compromising flavour

- Claims facilitate various marketing strategies for mineral-fortified beverages



#### Solubility

Jungbunzlauer minerals boast **excellent solubility** and **rapid dissolution**:

- Sufficiently soluble to achieve multiple times the recommended daily intake in a single serving
- Citrate salts can additionally function as buffering agents, enhancing product stability

For suspensions or turbid liquids, such as dairy alternatives, Jungbunzlauer provides **micronised forms of less soluble mineral salts**:

- Improved mouth feel
- Enhanced dispersibility and better homogeneity



## Jungbunzlauer ingredients in function

	Product	Solubility salt	Corresponding mineral solubility	Recommended daily intake	
				NRV (Nutrient reference value, EU)	DV (Daily value, USA)
<b>Calcium salts</b>	Calcium Lactate Gluconate Tricalcium Citrate	400 g/L 1 g/L	52 g Ca/L 0.2 g Ca/L	800 mg/d	1300 mg/d
<b>Magnesium salts</b>	Magnesium Lactate Trimagnesium Citrate Anhydrous  Trimagnesium Citrate Nonahydrate Monomagnesium Citrate	84 g/L 200 g/L  16 g/L 270 g/L	8.4 g Mg/L (initial) 32 g Mg/L (stable) 1.9 g Mg/L 1.9 g Mg/L 23 g Mg/L	375 mg/d	420 mg/d
<b>Potassium salts</b>	Tripotassium Citrate Potassium Gluconate Potassium Lactate (sold as 60% solution)	1780 g/L 450 g/L 600 g/L	640 g K/L 100 g K/L 180 g K/L	2000 mg/d	4700 mg/d
<b>Zinc salts</b>	Zinc Gluconate Zinc Lactate Zinc Citrate	720 g/L 55 g/L 2.6 g/L	94 g Zn/L 13 g Zn/L 0.8 g Zn/L	10 mg/d	11 mg/d

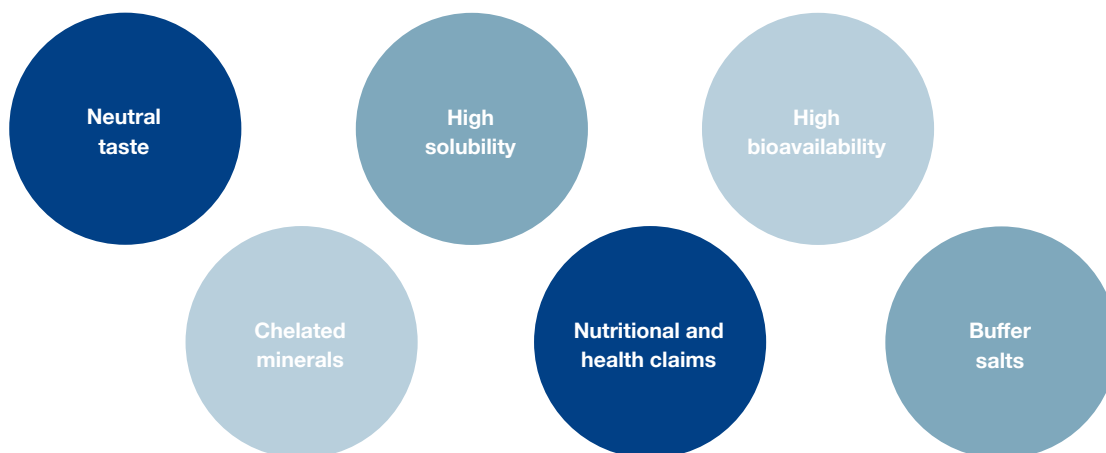
## Limitations in usage levels

**EU** ■ All products approved for food and beverage fortification according to Regulation (EC) No 1925/2006

**USA** ■ When used in fortified food and beverages:

- Magnesium Lactate: self-affirmed GRAS (Generally Recognized As Safe) up to 20% DV
- Monomagnesium Citrate: self-affirmed GRAS up to 20% DV
- Zinc Citrate: self-affirmed GRAS up to 100% DV
- Zinc Lactate: No GRAS or self-affirmed GRAS status

## Value proposition



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