







Product Portfolio

Dr. Paul Lohmann®

High value mineral salts

Dr. Paul Lohmann®

Product Portfolio Mineral Salts

Aluminium

- Aluminium Citrate
- Aluminium Hydroxide Acetate
- Aluminium Lactate
- Aluminium Potassium Sulfate
- Aluminium Acetotartrate

Ammonium

- Ammonium Acetate
- Ammonium Adipate
- Ammonium Citrate
- Ammonium Lactate
- Ammonium Oxalate
- Ferric Ammonium Citrate
- Ferric Ammonium Oxalate
- Ferric Ammonium Sulfate
- Ferrous Ammonium Sulfate

Calcium

- Calcium Acetate
- Calcium L-Aspartate
- Calcium Bisglycinate
- Calcium Carbonate
- Calcium Chloride
- Calcium Citrate
- Calcium Citrate Malate
- Calcium Copper EDTA
- Calcium Disodium EDTA
- Calcium Formate
- Calcium Gluconate
- Calcium Glycerophosphate
- Calcium Hydroxide
- Calcium Lactate
- Calcium Lactate PLUS
- Calcium Lactate Gluconate
- Calcium Malate
- Calcium Nitrate
- Calcium Oxalate
- Calcium Phosphate
- Calcium Phospholactate
- Calcium L-Pidolate
- Calcium Propionate
- Calcium Saccharate
- Calcium Stearate
- Calcium Succinate
- Calcium Sulfate
- Calcium Tartrate
- Sodium Calcium Edetate

Copper

- Copper(II) Acetate
- Copper(II) Hydroxide Carbonate
- Copper(II) Bisglycinate
- Copper(II) Citrate
- Copper(II) Sodium Citrate
- Copper(II) Calcium EDTA
- Copper(II) Formate
- Copper(II) Fumarate
- Copper(II) Gluconate
- Copper(II) Glycerophosphate
- Copper(II) Oxalate
- Copper(II) Pyrophosphate
- Copper(II) Sulfate
- Copper(II) Tartrate

Iron

- Ferric Albuminate
- Ferrous L-Ascorbate
- Ferrous Bisglycinate
- Ferrous Carbonate with sugar
- Ferric Subcarbonate
- Ferric Choline Citrate
- Ferric Citrate
- Ferrous Citrate
- Ferric Ammonium Citrate
- Ferric Manganese(II) Citrate
- Ferric Sodium Citrate
- Ferrous Sodium Citrate
- Ferric Sodium EDTA
- Ferrous Fumarate
- Ferrous Gluconate
- Ferric Glycerophosphate
- Ferrous Lactate
- Ferrous Oxalate
- Ferric Ammonium Oxalate
- Ferric Sodium Oxalate
- Ferric Peptonate
- Ferric Phosphate
- Ferrous Phosphate
- Ferric Phosphate, soluble with Ammonium Citrate
- Ferric Phosphate, soluble with Sodium Citrate
- Ferric Polymaltose Complex
- Ferric Pyrophosphate
- Ferric Pyrophosphate, soluble with Ammonium Citrate
- Ferric Pyrophosphate, soluble with Sodium Citrate
- Ferric Sodium Pyrophosphate
- Ferric Saccharate
- Ferrous Succinate
- Ferric Sulfate
- Ferrous Sulfate
- Ferric Ammonium Sulfate
- Ferrous Ammonium Sulfate
- Ferric Subsulfate
- Ferric Tartrate
- Ferrous Tartrate

Lithium

- Lithium Acetate
- Lithium Citrate
- Lithium Sulfate

Magnesium

- Magnesium Acetate
- Magnesium L-Ascorbate
- Magnesium DL-hydrogen Aspartate
- Magnesium L-hydrogen Aspartate
- Magnesium Aspartate PLUS
- Magnesium Bisglycinate
- Magnesium Carbonate
- Magnesium Chloride
- Magnesium Citrate
- Magnesium Citrate Malate
- Magnesium Potassium Citrate
- Magnesium Formate
- Magnesium Fumarate
- Magnesium Gluconate
- Magnesium Glutamate
- Magnesium Glycerophosphate
- Magnesium Hydroxide
- Magnesium Lactate

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Magnesium

- Magnesium Nitrate
- Magnesium Oxalate
- Magnesium Oxide
- Magnesium Peroxide
- Magnesium Phosphate
- Magnesium Hydrogen Phosphate
- Magnesium L-Pidolate
- Magnesium Propionate
- Magnesium Stearate
- Magnesium Sulfate
- Magnesium Tartrate
- Magnesium Trisilicate

Manganese

- Manganese Carbonate
- Manganese Citrate, soluble with Sodium Citrate
- Manganese Gluconate
- Manganese Glycerophosphate
- Manganese Lactate
- Manganese Phosphate
- Manganese Pyrophosphate
- Manganese Sulfate

Potassium

- Potassium Acetate
- Potassium Adipate
- Potassium DL-hydrogen Aspartate
- Potassium L-hydrogen Aspartate
- Potassium Magnesium L-hydrogen Aspartate
- Potassium Benzoate
- Potassium Carbonate
- Potassium Bicarbonate
- Potassium Chloride
- Potassium Citrate
- Potassium Magnesium Citrate
- Potassium Formate
- Potassium Fumarate
- Potassium Gluconate
- Potassium Glycerophosphate
- Potassium Lactate
- Potassium Malate
- Potassium Oxalate
- Potassium Phosphate
- Potassium Propionate
- Potassium Sulfate
- Potassium Aluminium Sulfate
- Potassium Tartrate
- Potassium Sodium Tartrate

Selenium

- Sodium Selenate
- Sodium Selenite

Sodium

- Sodium Acetate
- Sodium Diacetate
- Sodium Adipate
- Sodium Benzoate
- Sodium Carbonate
- Sodium Citrate
- Ferric Sodium Citrate
- Ferrous Sodium Citrate
- Ferric Sodium EDTA
- Calcium Disodium EDTA
- Sodium Calcium Edetate
- Sodium Formate
- Sodium Fumarate
- Sodium Glycerophosphate
- Sodium Beta Glycerophosphate
- Sodium Lactate
- Sodium Malate
- Sodium Oxalate
- Ferric Sodium Oxalate
- Sodium Phosphate
- Sodium Propionate
- Sodium Pyrophosphate
- Ferric Sodium Pyrophosphate
- Sodium Selenite
- Sodium Succinate
- Sodium Sulfate
- Sodium Tartrate
- Sodium Hydrogen Tartrate
- Sodium Potassium Tartrate

Strontium

- Strontium Acetate
- Strontium Citrate
- Strontium Lactate

Zinc

- Zinc Acetate
- Zinc L-Ascorbate
- Zinc DL-hydrogen Aspartate
- Zinc L-hydrogen Aspartate
- Zinc Bisglycinate
- Zinc Hydroxide Carbonate
- Zinc Citrate
- Zinc Gluconate
- Zinc Glycerophosphate
- Zinc Lactate
- Zinc Oxalate
- Zinc Oxide
- Zinc Peroxide
- Zinc L-Pidolate
- Zinc Pyrophosphate
- Zinc Stearate
- Zinc Sulfate

Various

- Calamine
- Glycerophosphoric Acid

Triturations

- Chromium Trit 5 % C
- Chromium Trit 10 % C
- Chromium Trit 1 % M
- Cupromin 6
- Cupromin 20
- Iodate Trit 1 % C
- Iodate Trit 5 % TCP
- Iodide Trit 1 % M
- Molybdenum Trit 1 % C
- Molybdenum Trit 1 % M
- Selenate Trit 0.5 % C
- Selenate Trit 0.4 % M
- Selenite Trit 0.85 % - 0.99 %
- Selohvita C

Our Special Product Lines

DC Granules

Directly compressible granules provide significant benefits for the production of medicines or dietary supplements in the form of tablets.

The biggest advantage of these products is the significant cost savings in production eliminating the need for wet granulation during the manufacturing process. This allows the fast and economical production of tablets.

Additonally our DC Granules can also be a great option for other dosage forms, such as sachets or stickpacks.
“In a nutshell” the advantages of Dr. Paul Lohmann® DC Granules are:

- ✓ Reduced production costs and time by sparing the wet-granulation.
- ✓ Good tabletting properties, which help to reduce the quantity and cost of binding agents.
- ✓ Good flowability and reduced agglomeration during transport and storage, which avoid additional processing costs.
- ✓ Easy dosing, making “carriers” unnecessary, thus helping to save costs.
- ✓ Reduced dust formation, therefore
  - Lower health risks at the workplace
  - Reduced loss of raw material during processing
  - Low-dust filling of sachets and sticks
  - High compressibility at low compression forces for harder tablets

Micronized Mineral Salts

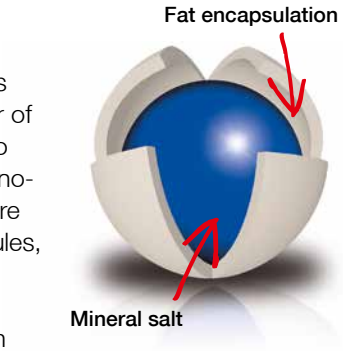
Micronized mineral salts are recommended for use in various foodstuffs and pharmaceutical products due to their exceptionally fine particle structure. The organoleptic properties and homogeneity of the salts used in the application are significantly improved. In addition, the special particle structure can also improve the absorption of these minerals.

Advantages:

- ✓ Improved dispersion behavior in suspensions, and consequently better homogeneity
- ✓ Less sedimentation
- ✓ Optimal sensory properties (no grittiness)
- ✓ Potential enhancement of bioavailability

Dr. Paul Lohmann®

Microencapsulated Mineral Salts



Through a uniquely developed coating procedure, mineral salts are covered with a layer of vegetable fat. Thanks to this encapsulation technology, the mineral salts are enclosed in microcapsules, while maintaining their natural function.
The microencapsulation of mineral salts offers formulators considerable advantages: Ingredients, which are usually not considered for food fortification or for dietary supplements (e.g. highly bio-available ferrous sulfate that is highly reactive) can now be used without adverse sensory implications, such as, a strong metallic taste or changes in the product color.

Further advantages:
- ✓ Prevention of interactions with other components, e.g. fat oxidation
- ✓ Excellent taste masking properties
- ✓ Improved flowability and dosing control
- ✓ High level of bioavailability and stomach tolerance due to a controlled release of the mineral within the digestive tract

Additional advantages of Micro2 Microencapsulated & micronized mineral salts
- ✓ Smaller particle size (d90: approx. 300 µm)
- ✓ Enlarged specific surface and therefore: Improved functionality (in liquid applications dispersible with reduced sedimentation) and improved bioavailability

Triturations

The Dr. Paul Lohmann® product portfolio contains several trace elements dissolved in inert carrier substances. These can be used to fortify foodstuffs and also in various dietary supplements.

Advantages:
- ✓ Cost savings in the process because products can be used and processed directly
- ✓ Easy dosing
- ✓ Safe handling
- ✓ Homogenous distribution of trace elements
- ✓ Reduced toxicity
- ✓ Odor-free

TRACE ELEMENT		DILUTED IN	INERT CARRIER
Selenium	RDA 55 µg		
Copper	RDA 1 mg		
Chromium	RDA 40 µg		
Molyb-denum	RDA 50 µg		
Iodine	RDA 150 µg		

e.g.
- Calcium Carbonate
- Maltodextrin
- Sodium Citrate
- Calcium Phosphate

Premixes

Besides pure mineral salts, Dr. Paul Lohmann® also offers mixtures of minerals. In these mixtures, mineral salts are optimally combined with regard to their particle size composition and stability. We will be pleased to work with you to develop tailored premixes for your applications.

LomaSalt®

The Tasty Way
of Sodium Reduction!

Our LomaSalt® products are ideal sodium-reduced replacements for table salt.

Special Qualities with Specific Purity Criteria

Mineral Salts low in Endotoxins

In order to help manufacturers of parenteral products comply with legal and quality requirements, Dr. Paul Lohmann® offers a range of mineral salts very low in endotoxins.

Our low-endotoxin mineral salts can be used for the production of parenteral products:

- Solutions for injection
- Solutions for infusion
- Solutions for:
  - Dialysis
  - Peritoneal dialysis
  - Haemofiltrations
- Ophthalmic preparations

Pharmaceutical manufacturers of preparations for infusion or injection are obliged to observe special regulations specified by the relevant pharmacopoeia and good manufacturing practices. We emphasize that our products are low in endotoxin content but not entirely free of endotoxins. Therefore, these products must be treated with special procedures prior to their use in finished pharmaceutical products. The pharmaceutical manufacturer must ensure that our products undergo special procedures and tests prior to being processed for infusion or injection preparations in order to induce their suitability for their intended purpose.

Low Heavy Metal Content

The EU has defined limit values for lead, cadmium and mercury, which cannot be exceeded in dietary supplements in Europe:

- **Lead** (max. 3.0 mg/kg)
- **Cadmium** (max. 1.0 mg/kg)
- **Mercury** (max. 0.1 mg/kg)

To ensure that the final products do not exceed the legally defined maximum for these heavy metals, Dr. Paul Lohmann® offers a wide variety of mineral salts with particularly low levels of these substances.

Advantages:

- ✓ Simplified compliance with the increasingly stricter standards on limit values for heavy metal content in dietary supplements
- ✓ Controlled low lead, cadmium and mercury levels
- ✓ Complete traceability through reliably documented processes

Low Aluminium Content

The Joint FAO/WHO Expert Committee for Food Additives (JECFA) has determined a new maximum limit for the weekly intake of aluminium, which is now 1 mg aluminium per kilogram of body weight.

Dr. Paul Lohmann® has the production know-how to offer a variety of mineral compounds as e.g. Calcium Citrates or Calcium Phosphates with a tightly controlled, low content of aluminium.

These products are particularly suitable to be used in food or pharmaceutical applications.

Application areas:

- Infant and baby food
- Dietary supplements for children
- Dietetic foodstuffs
- Medicine

High Purity Food Grade

Dr. Paul Lohmann® High Purity Food Grade products are particularly suitable for the production of sensitive applications and high value products:

- Infant formula and baby food
- Formula for special medical purposes (e.g. clinical nutrition)
- Dietary products
- Nutritional supplements

Advantages:

- ✓ Simplified compliance with increasingly stricter standards, for example, on limit values for microbiological parameters, heavy metals, trace elements and any other potential contaminants, such as, melamine
- ✓ Savings in time and cost
- ✓ Complete traceability is ensured by documented processes

With over 125 years of producing and providing mineral salts that meet only the highest quality standards, we have established ourselves as a leading global supplier to the pharmaceutical, nutritional supplement, food, and personal care industries.

Based on this experience, we can offer the following:

- GMP and DIN EN ISO 9001:2008 certified production sites
- Products in compliance with the most relevant pharmacopoeias (Ph.Eur., USP, BP), food codices (FCC, E-numbers, etc.) and customer specific requirements
- A wide range of more than 350 various mineral salts
- Regulatory documentation (CEP, ASMF, etc.)
- Tailor-made and innovative solutions for customer questions
- Joint product and application development together with our customers

Product modifications and customer orientated adaptations are possible with respect to:

PHYSICAL PROPERTIES	CHEMICAL PROPERTIES	PACKAGING	LABELING
• milling	• purities	• bags	• H- and P-phrases
• sieving	• pH-values	• big bags	• text
• micronization	• concentration	• containers	• code number
• compaction	• microencapsulation	• cartons	• color
• granulation	• premixes	• drums	• coding
• bulk density variation		• tanker trucks	• bar code
• wettability			
• flowability			
• blending			
• dissolving properties			
• solubility			