

# Calcium

20  
Ca  
Calcium

## Calcium carbonate



CALCIUM CARBONATE

### SOURCE

limestone, chalk, marble

- **Composition**  
calcium mono-compound
- **Structure**  
dense crystalline structure, which makes the substance difficultly soluble
- **Bioavailability**  
low (20–30%)

## Algae powder



LITHOTHAMNION SP.

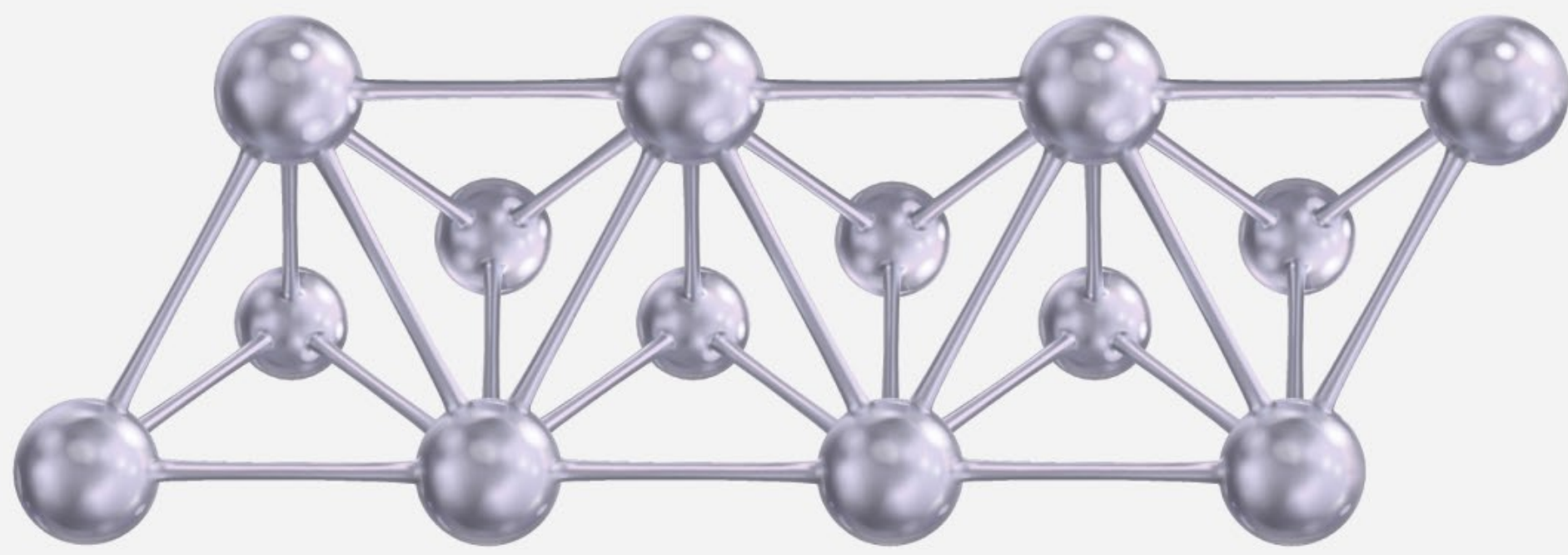
### SOURCE

powder from dry mineralized red coral algae Lithothamnion with a predominance of calcium

- **Composition**  
multi-mineral complex with a high content of Ca
- **Structure**  
porous, honeycomb
- **Bioavailability**  
high (70–80%)

There are various forms of calcium:

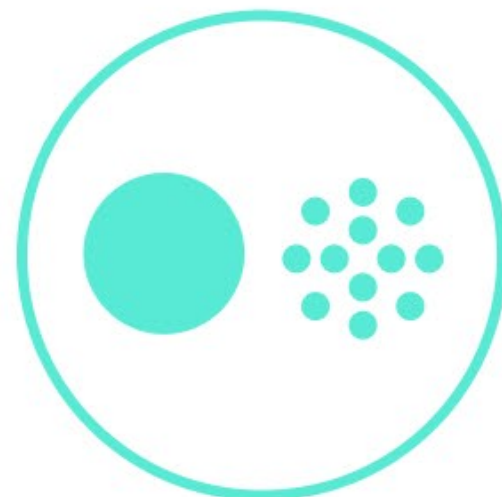
- Calcium carbonate
- Calcium citrate
- Calcium malate
- Calcium lactate
- Glycerophosphate
- Calcium gluconate
- Chelated calcium
- Calcium hydroxyapatite



The structure of Calcium

But in fact, all these forms have the same crystal lattice of calcium - **calcite**. It is an inorganic elemental calcium in conjunction with different acids, amino acids.

There are 2 concepts for calcium:



Solubility of the substance



Digestibility of the substance

With a high solubility of various types of calcium-containing substances, their digestibility is approximately the same (within 30%).

The most premium of them is white Japanese dolomite — by 37%



White Japanese dolomite

**Calcium carbonate** is an inorganic form of calcium. It is formed in the earth's crust in the form of limestone, chalk, and it is the basis of the composition of shells. Calcium carbonate has a **dense crystal lattice**, that's why it is difficult for the body to absorb it and include it in the metabolism.

Marine calcium differs in structure from calcium carbonate and is absorbed by the body differently.

**Red coral algae powder is not a mono-compound, but a multi-mineral complex of**

- Magnesium
- Boron
- Phosphorus
- Iron
- Copper
- Zinc
- Molybdenum
- Selenium

which are necessary to strengthen the mineral matrix of bone tissue and increase the effect of restoration of the bone framework.



The structure of the Lithothamnion algae

"**Aquamin**" in the composition of **Calcium Marine Greenflash** also contains aragonite and vaterite in addition to calcite. These are substances with completely different crystal lattices.

The structure differs from the structure of calcite, because the substance has been "digested" by the plant cell. Due to this transformation, a more accessible form for absorption by the human body was created.

The structure of this complex is special, as it is formed during the entire life cycle of the algae. It absorbs minerals from sea water and incorporates them into its structure like into honeycomb cells. The result is a **complex three-dimensional structure** formed by the algae cell wall and the multiminer complex.

**Sea water calcium** has been digested by the algae plant cell and converted by it into a form that is **easier to be absorbed** by the human body.

- **Microporous structure** of the plant cell

+

- **Special type** of crystal structure of calcium

+

- **Rich mineral composition** of powdered dried algae

Ca

=

MAXIMUM  
BIOAVAILABILITY  
**70–80%**

### STUDIES HAVE PROVEN THAT:

- Calcium of plant origin "Aquamin" has a more effective impact on calcium metabolism markers compared to calcium carbonate.

*JOURNAL OF MEDICINAL FOOD J Med Food 00 (0) 2017, 1–5 # Mary Ann Liebert, Inc., and Korean Society of Food Science and Nutrition DOI: 10.1089/jmf.2017.0023*

- "Aquamin", obtained from the marine red algae Lithothamnion sp. is an effective calcium supplement for people at risk of bone loss due to osteoporosis.

*JOURNAL OF MEDICINAL FOOD J Med Food 00 (0) 2017, 1–5 Effect of Calcium Derived from Lithothamnion sp. on Markers of Calcium Metabolism in Premenopausal Women John L. Zenk,1, Joy L. Frestedt,2 and Michael A. Kuskowski*

- The additional minerals in the composition of "Aquamin" may provide an additional mineralizing effect compared to taking calcium alone.

*Bone structure and function in male C57BL/6 mice: Effects of a high-fat Western-style diet with or without trace minerals Muhammad Nadeem Aslama,\*, Karl J. Jepsenb, Basma Khoury b, Kristin H. Graf b, James Varani.*