vitaMK7® is the optimal vitamin K2

Gnosis offers a large range of vitaMK7® in powder and oil grades (concentration from 1,000 ppm to 20,000 ppm) for nutraceuticals and functional foods

(concentration from 1,000ppm to 20,000ppm)	VitaMK7®	VitaMK7® Powder	VitaMK7® Soybean Oil	VitaMK7® Sunflower Oil	K2&Olive®
Tablets	●	●			
Softgel capsules			●	●	●
Hard capsules	●	●	●	●	●
Fortified Food	●	●	●	●	●

Tailored fit

Vegan · Vegetarian · GMO Free · Soy Free · Solvent Free · Gluten Free · Metal Free · Lactose free

Highest Quality Standards

- ★ Kosher
- ★ Halal approved
- ★ EU GMP manufacturing
- ★ US Patent No. 7,718,407
- ★ EP Patent No. 1803820
- ★ JP Patent No. 5043425
- ★ USP and TGA compliance
- ★ Allowed in China

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.
This is a business-to-business information intended for food and supplement producers, and is not intended for the final consumer.
Manufacturers should check local regulatory status of any claims according to the intended use of their products.

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vitaMK7®

Natural vitamin k2 as MK7

Natural

VitaMK7® is produced naturally from the patented biofermentation process of the *Bacillus subtilis* ssp natto, **without using other chemical compounds.**

Pure

VitaMK7® contains >99% *all-trans* Menaquinone-7 (MK7), the only active form of vitamin K2, and no trace of unknown impurities.

Stable

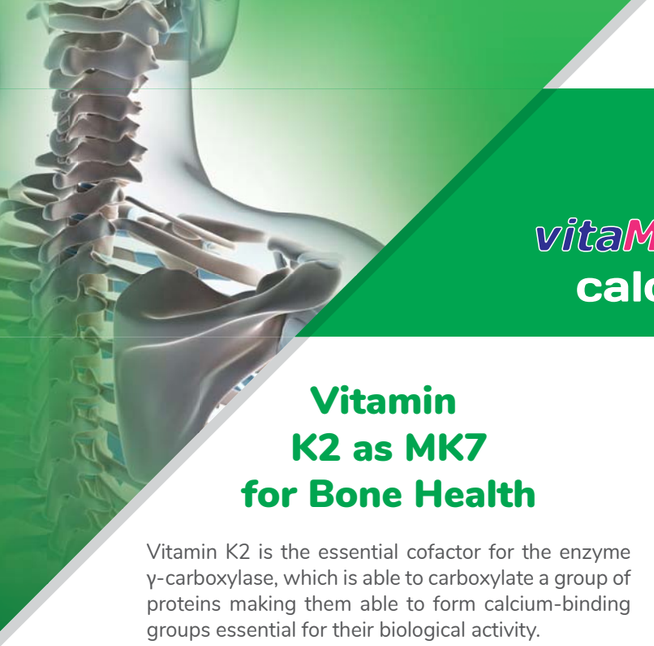
Thanks to its purity, **VitaMK7®** has an **extraordinary stable profile** (4 years at room temperature) and short time light recovery (48 hours), showing optimal stability **even in formulations**.

Reliable

VitaMK7® is the only European vitamin K2 as MK7 of natural origin, developed through a controlled & reliable supply chain, available in powder & oil grades in different concentrations according to customers needs.

The optimal vitamin K2

gnosis
advanced biotech



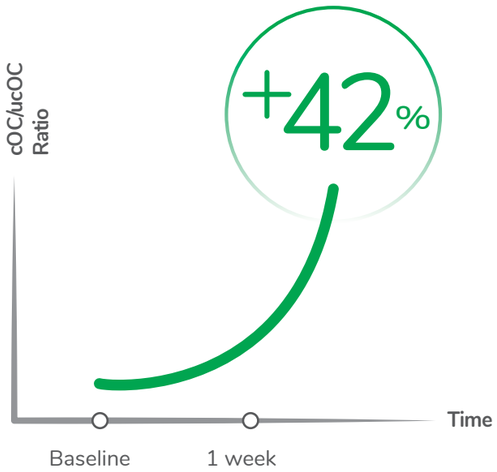
Vitamin K2 – and especially its active *all-trans* isomer, Menaquinone-7 - improves bone and heart health. vitaMK7® is a powerful cofactor for the transport of "excess" of calcium out of the arteries and blood and fixing it into bones.

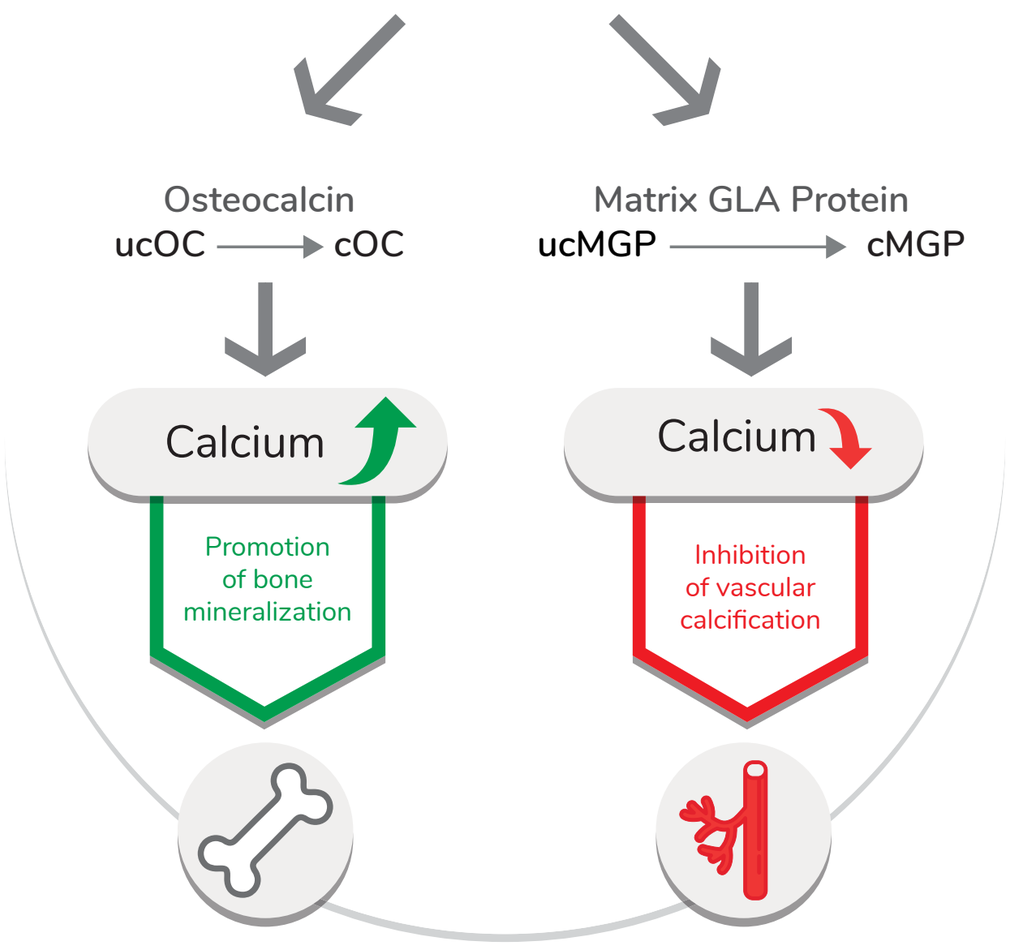
Vitamin K2 as MK7 for Bone Health

Vitamin K2 is the essential cofactor for the enzyme γ-carboxylase, which is able to carboxylate a group of proteins making them able to form calcium-binding groups essential for their biological activity.

Effects of vitamin K2 as MK7 on osteocalcin carboxylation

Serum osteocalcin (OC) level is a sensitive marker that reflects specifically bone formation. According to Gnosis' in vivo study, the overall activity of cells operating in bone formation was significantly affected by treatment with VitaMK7® already after 1 week. The ratio of carboxylated and undercarboxylated osteocalcin (cOC/ucOC) increased by 42%.



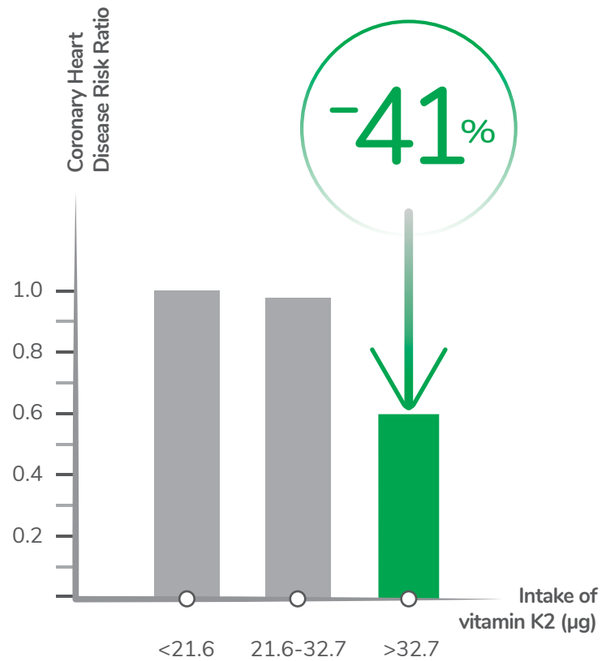


Vitamin K2 as MK7 for Cardiovascular Health

The level of calcium in cellular tissues is a sign of tissue damage, cellular aging and a risk of associated injury in several structures and organs. The vitamin k-dependent Matrix Gla protein (MGP) is recognized as the most potent inhibitor of calcification presently known. (Price 1983)

Effects of vitamin K2 as MK7 on cardiovascular health

Studies have proven that vitamin K2 as MK7 dramatically reduces the risk of cardiovascular diseases (CVD) and early mortality when taken daily. (The Rotterdam Study – 2004)



Coronary Heart Disease Incidence

Vitamin K2 as MK7 and the "calcium paradox"

The strong connection between calcium and vitamin K2 has been described in the so called "calcium paradox" where the highest rates of hip fractures occur in the countries with the highest calcium consumption.

As defined by EFSA 2015 in the "Scientific Opinion on Dietary Reference Values for Calcium", is unlikely to occur with high intake of calcium from the diet alone but can be caused by high-dose calcium supplements, especially when accompanied by vitamin D supplements, as these can increase calcium absorption.

Vitamin K2 as MK7 may have a crucial role in bone tissue homeostasis at already 45 µg/daily improving bone mineral density (BMD), activating bone formation by stimulating osteoblastic cells and reducing calcium concentration into blood.

vitaMK7® is the unique European fermented vitamin K2 as MK7, produced by Gnosis in its own European cGMP manufacturing site.

vitaMK7® is the real natural *all-trans* Vitamin K2 Menaquinone-7 product in the market

VitaMK7® derives from the well-controlled fermentation processes of a not genetically modified strain of *Bacillus subtilis* natto, isolated from the commercial Japanese natto food.

This *Bacillus* is considered as the sole bacterium needed to produce good natto rich in natural vitamin K2.

The identity of Gnosis' proprietary strain has been genetically characterized by the most advanced techniques.

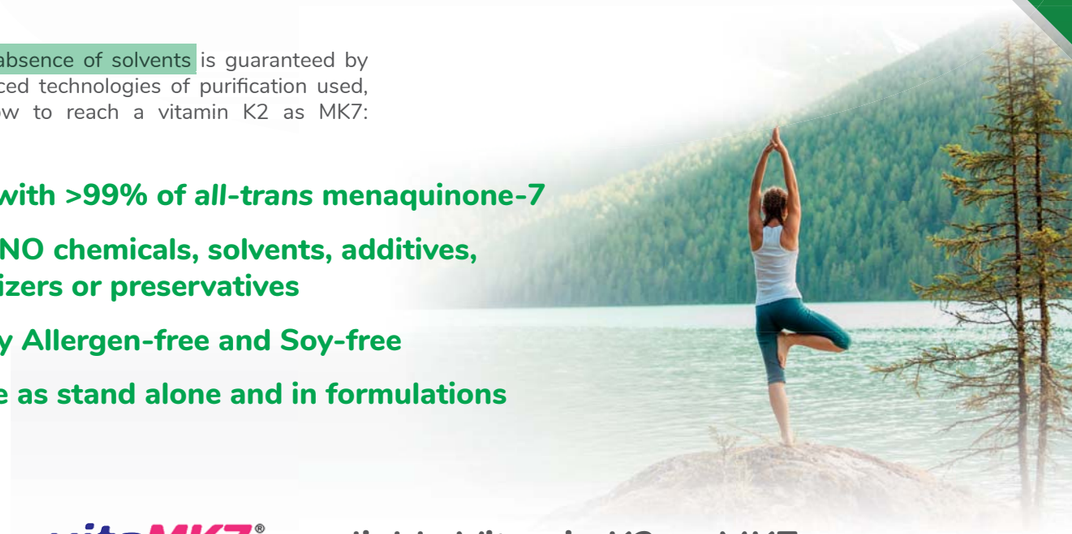
No other types of *Bacillus* are used by Gnosis (i.e. *Bacillus licheniformis* used in other K2 derivates).

Natural

vitaMK7® is produced by Gnosis through the patented biofermentation process of *Bacillus subtilis* spp natto cultures, without using any chemicals

The total absence of solvents is guaranteed by the advanced technologies of purification used, which allow to reach a vitamin K2 as MK7:

- **Pure with >99% of *all-trans* menaquinone-7**
- **With NO chemicals, solvents, additives, stabilizers or preservatives**
- **Totally Allergen-free and Soy-free**
- **Stable as stand alone and in formulations**



vitaMK7®: a reliable Vitamin K2 as MK7

Gnosis is the only European manufacturer and supplier of fermented vitamin K2 as MK7.

With no intermediaries or brokers, Gnosis is able to guarantee a reliable supply chain tightly controlled from the raw material to the large range of vitaMK7® powder/oil grades.

Reliable

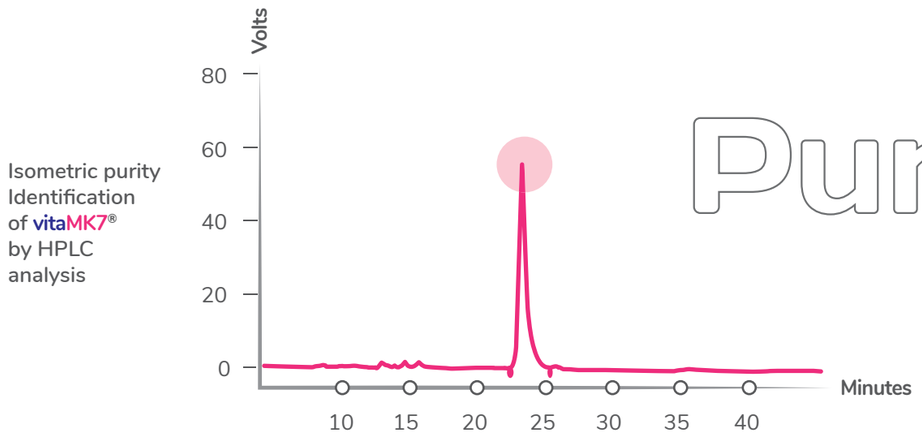
With a proactive approach from product concept development to manufacturing and distribution, Gnosis optimizes for you what nature offers.

vitaMK7® contains the true >99% *all-trans* composition

The biological activity of MK7 is strictly linked to its natural, structural *all-trans* configuration. In natural environments, bacteria produce menaquinone-7 only in the *trans* form whereas **the synthetic methods produce a mixture of both *trans* and *cis* isomers** by default.

VitaMK7® has a very high content of *all-trans* MK7, more than 99%, much higher than the synthetic ones.

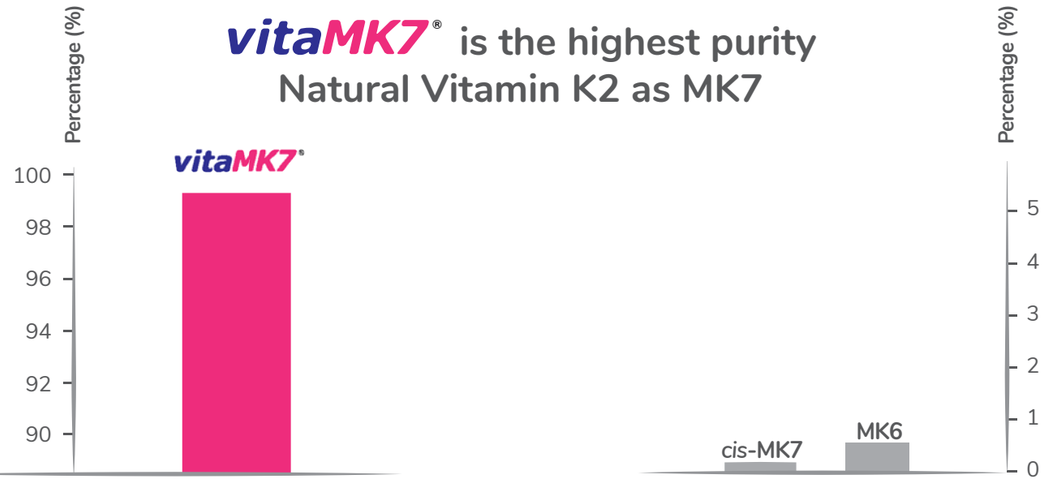
Through the gentle and effective purification process, the content of *all-trans* MK7 is preserved avoiding unpleasant possible degradation and isomerization processes, visible in poor fermentation-derived products.



Isometric purity Identification of vitaMK7® by HPLC analysis

Pure

vitaMK7® is the highest purity Natural Vitamin K2 as MK7

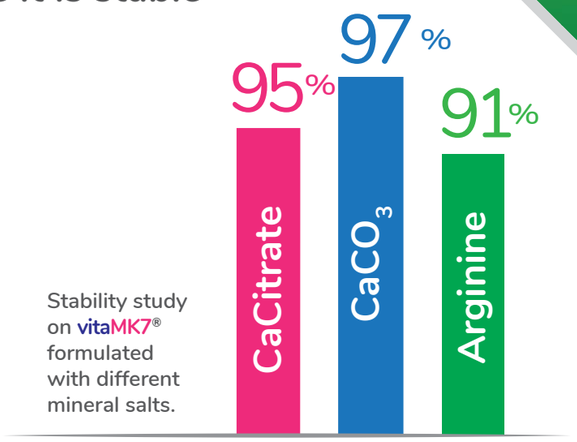


Typical content profile of vitaMK7®

The more the product is pure, the more it is stable

In formulation, vitaMK7® shows an optimal stability with the different calcium salts, without any coating increasing non-natural substances. A pure and stable MK7 ingredient like vitaMK7® minimizes the cross-reactions with other ingredients/excipients included in a formulation for the whole shelf life of the product, and offers extended warranty of stability.

Stable



Stability study on vitaMK7® formulated with different mineral salts.

Stability data after 12 months at 25°C / 60% RH

vitaMK7® has a safe profile, suitable for everyone

Safety guaranteed from clinical validation.

All clinical trials were performed with Vitamin K2 as MK7 from *Bacillus subtilis* natto (minor extent of MK6) as it is present in the natto food. The observation of the benefits of this relatively new vitamin came in fact from Japan where natto has been historically used.

- ✓ Soy-free
- ✓ Allergen-free
- ✓ 100% non-GMO product
- ✓ Gluten-free
- ✓ Lactose-free
- ✓ Toxins and pesticides-free

vitaMK7® is multi-benefit and multi-target

Safe