

Excential Smart hydroxy trace minerals

A solution for mineral reactivity



Inorganic trace minerals are highly reactive and can interact with vitamins, other minerals, amino acids, and enzymes such as phytase, reducing nutrient stability and bioavailability. These antagonisms create hidden costs due to lost nutrients and compromised animal performance. Excential Smart hydroxy trace minerals offer a stable solution: their strong covalent bonds and low reactivity minimize destructive interactions in premixes and feed, ensuring higher nutrient availability and consistent biological response.

Why do some trace mineral sources behave differently?

Solubility is one of the parameters that can explain the difference in behavior between trace mineral sources. Solubility is needed for absorption but on the other hand, high solubility allows the dissociated minerals to be reactive with other components in the feed. First generation trace mineral sources, like sulphates, have ionic bonds, which causes them to easily dissolve. This will allow for high reactivity and the formation of insoluble complexes.

Hydroxy trace minerals (Excential Smart) on the other hand have strong covalent bonds, ensuring a slow release over time, which allows for targeted release at the right time and right place. This does not only increase bioavailability of the trace minerals itself but also reduces the interactions with other nutrients.

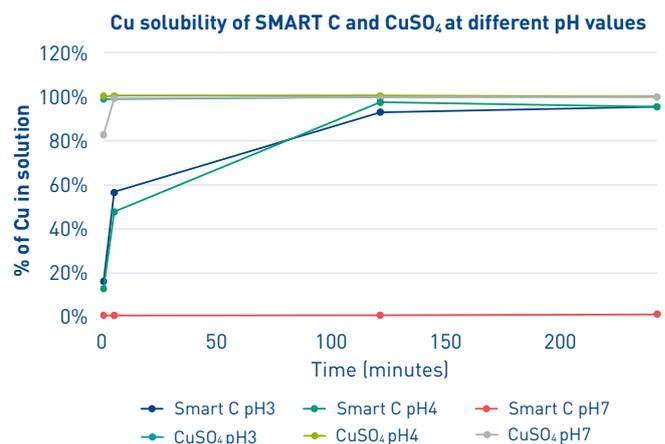


Figure 1: Solubility of Excential Smart C vs copper sulphate

Figure 1 shows how copper sulphate (CuSO₄) is shown to easily dissolve in all pH levels. Excential Smart C is shown to be not soluble in the neutral pH of the saliva, meaning:

- No dissociation in the mouth which can cause bad taste and formation of insoluble complexes.
- Upon lower pH levels of 3-4, representing the stomach environment, Excential Smart C is shown to be gradually released over time which ensures optimal absorption and minimal interactions with other feed molecules.





Figure 2: Vitamin A stability in premix

Vitamins and enzymes: protecting your investment

Due to the different behavior of trace mineral sources, some sources are more likely to interact with vitamins and enzymes. In an in vitro trial, Orffa tested the concentration of vitamin A (Figure 2) and vitamin E in a premix containing either copper, zinc and manganese from Excential Smart or in sulphate form. Results showed that the premix containing Excential Smart minerals allowed 10% higher vitamin A and E content after a three-month storage period.

Another group of expensive ingredients that you want to protect from unnecessary breakdown are enzymes. For enzymes, such as phytase, several studies have investigated the differences in efficacy in presence of either sulphates or hydroxy trace minerals. It was shown that phytase efficacy was higher for premixes containing hydroxy trace minerals compared to premixes containing sulphates. This shows the importance of choosing the right source of minerals to protect the efficacy of vitamins and enzymes. Overall, it can be concluded that Excential Smart hydroxy trace minerals present a solution to minimize interactions and ensure optimal availability of the ingredients in your premix!



Slow release



Reduced interaction with other nutrients



Stability of vitamins and phytase



No hidden cost!

For more information please visit our website and contact one of our specialists

