

OptiPhos® Plus shows high stability as a product and when mixed in a concentrated 0.1% premix

Trial description

1 Set-up

- **Location:** Biovet, Bulgaria
- **Testing stability as product:**
 - Three batches of OptiPhos® Plus 5000 G and three batches of OptiPhos® Plus 5000 CT were tested by storing the products in small size recipients (one for each measuring point), simulating the original market packaging consisting of a primary polyethylene bag and a secondary paper bag. Recipients were incubated at 25°C ± 2°C and 60% ± 5% relative humidity for 24 months.
 - Three batches of OptiPhos® Plus 5000 L were tested by storing the product in small size plastic bottles (one for each measuring point), simulating the original market IBC container. Recipients were incubated at 25°C ± 2°C and 60% ± 5% relative humidity for 12 months.
- **Testing stability in premix**
 - Three batches of OptiPhos® Plus 5000 G and three batches of OptiPhos® Plus 5000 CT were tested by mixing the product in a concentrated 0.1 % premix (Table 1) at 20 g/kg. After mixing, samples of 200 g were packed into polyethylene bags (one for each measuring point), and placed in double paper bags. Samples were incubated at 25°C ± 2°C and 60% ± 5% relative humidity for 6 months.

Table 1: Composition of the premix containing choline chloride and high levels of microminerals.

Nutrient	Unit	Content
Vitamin A	IU/kg	405000
Vitamin D ₃	IU/kg	63000
Vitamin E	mg/kg	2500
Vitamin K ₃	mg/kg	98
Vitamin B ₁	mg/kg	80
Vitamin B ₂	mg/kg	200
Nicotinic acid	mg/kg	100
Pantothenic acid	mg/kg	625
Vitamine B ₆	mg/kg	130
Vitamin B ₁₂	µg/kg	1000
Biotin	µg/kg	500
Choline chloride	mg/kg	10000
Folic acid	mg/kg	38
Mg	mg/kg	10000
Fe	mg/kg	2500
Mn	mg/kg	1500
Cu	mg/kg	4125
Zn	mg/kg	4000
I	mg/kg	31
Co	mg/kg	16.8
Se	mg/kg	7.5

2 Measurements

- Stability as product: sampling was performed after 0, 6, 12 and 24 months (OptiPhos® Plus G and CT) and after 0, 6 and 12 months (OptiPhos® Plus L) of incubation.
- Stability as premix: sampling was performed after 0, 3 and 6 months of incubation.

Results

- OptiPhos® Plus G and CT show less than 10 % loss of the original activity after 24 months of storage (Fig. 1). This indicates that both products have a shelf life of at least 24 months at 25°C.
- OptiPhos® Plus L shows a loss of activity of 10 % after 12 months or storage (Fig. 1). This indicates that OptiPhos® Plus has a shelf life of at least 12 months at 25°C.
- Both OptiPhos® Plus G and CT show a shelf life of at least 6 months at 25°C when mixed in a concentrated premix (losses < 20 %; Fig. 2). OptiPhos® Plus CT shows a slightly better stability in the premix compared to OptiPhos® Plus G.

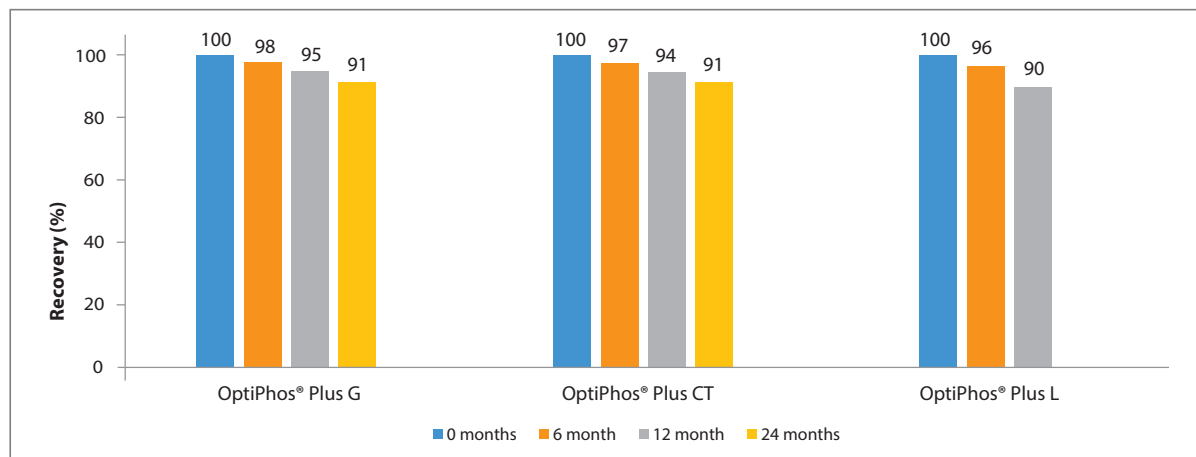


Fig. 1: Stability of OptiPhos® Plus G, CT and L as product

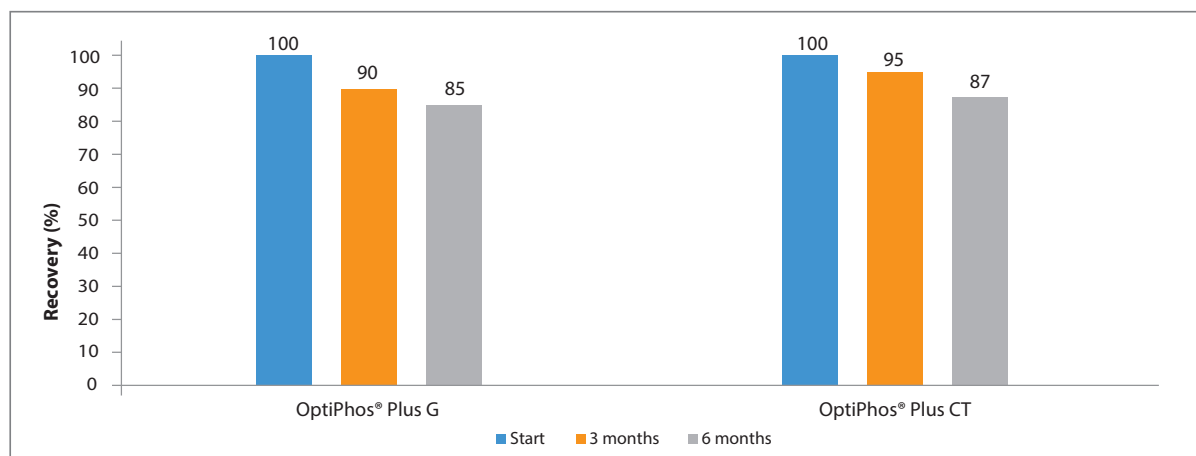


Fig. 2: Stability of OptiPhos® Plus G and CT when mixed in a 0.1 % premix

Conclusion

- OptiPhos® Plus G and CT show a shelf life of at least 24 months when stored at 25°C as a product and of at least 6 months when mixed in a 0.1 % premix and stored at 25°C.
- OptiPhos® Plus L shows a shelf of at least 12 months at 25 °C.