



Enjoying life after local  
management of infection.  
It is possible.

## BIOCERA-VET BONE SURGERY COMBO-CLEAN, CALCIUM-PHOSPHATE BONE SUBSTITUTE MIXABLE WITH ANTIBIOTIC FOR A LOCAL AND LONG-LASTING ACTION

- ▶ Mixable with several antibiotics among which the 7 most commonly used
- ▶ Sustained antimicrobial activity up to 30 days
- ▶ Osteointegration and osteoconduction
- ▶ High porosity promoting bone remodeling
- ▶ Unique self-setting and mechanical strength

RECOMMENDED FOR CANINE AND FELINE BONE  
SURGERY WITH RISK OF INFECTION

BONE SURGERY COMBO-CLEAN 3cc kit  
includes

- ▶ 1 jar containing the powder
- ▶ 1 jar containing the mixing liquid

Antibiotic is not provided in the kit.



UNIQUE  
IN VETERINARY  
ORTHOPEDICS

TheraVet® is a vet company headquartered in Belgium. Its mission is to develop innovative, safe and effective treatments to improve the well-being and quality of life of companion animals suffering from osteoarticular diseases. It is listed on Euronext Growth® Brussels and Paris.

More info at:  
[www.thera.vet](http://www.thera.vet) - [www.bioceravet.com](http://www.bioceravet.com)  
[customerservice@thera.vet](mailto:customerservice@thera.vet)



# BONE SURGERY COMBO-CLEAN



## A LOCAL AND SUSTAINED ANTIBIOTIC RELEASING BONE SUBSTITUTE

BIOCERA-VET® Combo-Clean features ideal properties of a bone substitute with local and sustained antibiotic delivery. Its high porosity allows an optimal osteointegration and promotes bone remodelling, provides stability along with antimicrobial action for up to 30 days\*.

BIOCERA-VET Combo-Clean is made of tricalcium phosphate ( $\alpha$ -TCP) and ortho-phosphate salts to which an antibiotic is added and that gives rise to calcium-deficient apatite after crystallization.

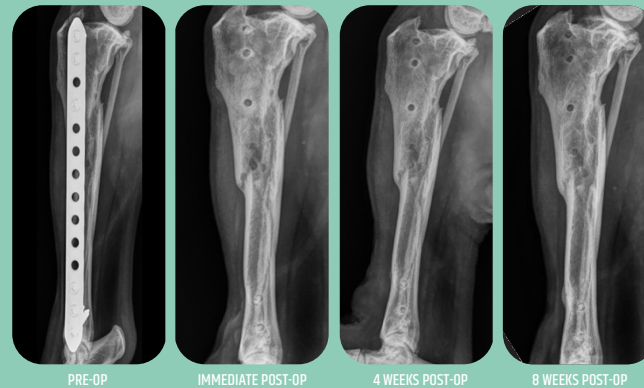
After crystallization, BIOCERA-VET Combo-Clean presents a high porosity (micro-, meso- and macro- pores) which supports bone remodeling through cell colonization and biological fluid penetration, and at the same time allows the paced release of antibiotic over time and its effect on local infection.

## CLINICAL CASE

A dog presented with a comminuted tibial and a simple fibula fracture was treated with a bridging plate resolving the acute lameness but a slow bone healing was observed 6 weeks after surgical treatment.

After the fracture management, a full-thickness skin wound at the level of the plate was reported. A swab confirmed bacterial infection and treatment with systemic antibiotics and NSAIDs was initiated but no complete bone healing was observed. Three months after systemic antibiotic treatment, the bridging plate was removed and BIOCERA-VET Combo-Clean + Gentamicin was injected into the proximal and distal holes.

At 2 month follow-up, an increased bone opacity at fracture line and bone healing at the screw holes as well as the gradual remodeling of BIOCERA-VET were observed. No pain and no lameness were reported.



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## ANTIMICROBIAL ACTION COVERING ALL THE COMMON BACTERIA INVOLVED IN BONE INFECTION

### Benefits

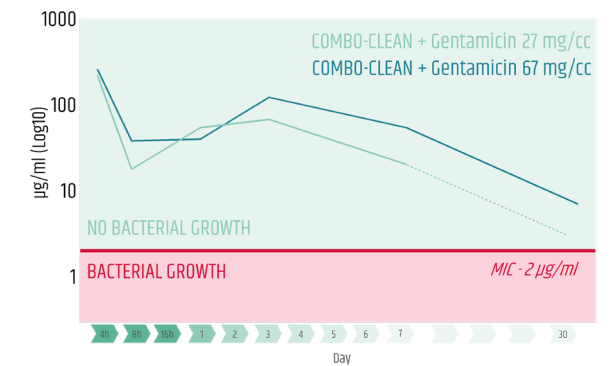
- Easy mixing with antibiotic solution (>5 min preparation)
- Local release of antibiotics
- Long-lasting antimicrobial activity for up to 30 days (depending on the antibiotic)
- Self-setting & mechanical strength
- Bone healing support

### Set of antibiotics

Gentamicin  
Cefazolin  
Amikacin  
Ampicillin  
Amoxicillin  
Vancomycin  
Ceftazidim

The 7 antibiotics suitable for BIOCERA-VET Combo-Clean cover all the most frequent Gram + (9 bacterial species) and Gram - (9 bacterial species) responsible for bone infection.  
Gram + : *S. Pseudointermedius*, *S. Aureus*, *Streptococcus sp.*, *Enterococcus sp.*, *Corynebacterium sp.*, *Clostridium sp.*, *Actinomyces sp.*, *Propionibacterium sp.*, *Peptostreptococcus sp.*  
Gram - : *Bacteroides sp.*, *Fusobacterium sp.*, *E. coli*, *P. aeruginosa*, *Enterobacter sp.*, *Pasteurella sp.*, *Klebsiella sp.*, *Serratia sp.*, *Proteus sp.*

## AN OPTIMAL LONG-LASTING RELEASE PROFILE



Release profile of gentamicin at low (27mg/cc of product) and high concentration (67 mg/cc of product). Gentamicin concentration is maintained above the MIC (2µg/ml *E.Coli*) for up to 30 days for the high concentration. Antibiotic concentration is above the MIC for at least 7 days for all antibiotics and concentrations tested. Yet, a high concentration of gentamicin, cefazolin and amoxicillin extended release above the MIC is observed until 30 days. Dotted line: extrapolation from D7 to D30.

ORTHO-PHOSPHATE SALTS

BIOCERA-VET COMPOSITION

ANTIBIOTIC SOLUTION

TRICALCIUM PHOSPHATE

\*antimicrobial activity depends on the antibiotic & can reach up to 30 days above the MIC for the gentamicin, cefazolin and amoxicillin (MIC of *S.aureus* (or *S. Agalactae* for amoxicillin) and *E.Coli*)

“BIOCERA-VET BONE SURGERY COMBO CLEAN was easy to mix with Gentamicin, injection at the surgical site was good allowing to provide a local and prolonged treatment with antibiotics. This resulted in a satisfactory new bone formation of an infected surgical site.”

Dr. Inge Comeyne, DVM, Orthopedic Surgeon, Belgium

