

## PHMB-slow-release granula for wound disinfection

Disinfection, periodontitis, polyhexamethylene biguanide, PHMB, chronic inflammation

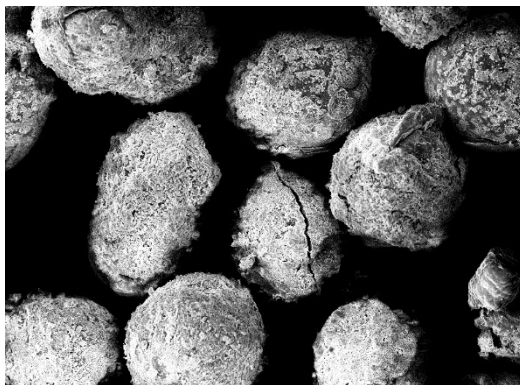
### DESCRIPTION OF TECHNOLOGY

Disinfection of chronically inflamed wounds is an important prerequisite for successful healing.

In periodontitis pockets around teeth are filled with a bacterial biofilm, which causes a local inflammation but may also provoke systemic reactions.

Apart from antibiotics in many cases chlorhexidin (CHX) is used for disinfection, which exerts release of CHX as active ingredient for a maximum time-span of 2 weeks. CHX may provoke side-effects and the available devices usually contain gelatin, which is of mammalian origin and may be the reason to refuse application by patients.

We present a gelatin-free alternative, using polyhexamethylene biguanide ("Polyhexanide", PHMB) as active ingredient instead of CHX and exerting a much longer (at least twice as long) time-span during which the active ingredient (PHMB) is released in therapeutic concentrations.



© JLU

The PHMB-granula presented herein may either be single-phased or core-shell structured in order to optimize the release-kinetics of PHMB and may also contain additional agents, which support the healing process, e.g. sodium ascorbate, selenium, zinc, vitamin D, vitamin E, vitamin K, vitamin K2 or coenzyme Q10.

### AT A GLANCE ...

#### Application Field

- Wound treatment
- Preventing of wound-infection
- Therapy of acute or chronic inflammations

#### Business

- Wound management
- Dental surgery,
- Periodontology

#### USP

- Short-term and
- Long-term efficacy ( $\geq 8$  weeks)
- Less side-effects than chlorhexidine
- Free of gelatin

#### Development Status

- Efficacy successfully proven on laboratory scale
- Proof of principle clinically evaluated

#### Patent Status

PCT-application pending  
(priority: 05.01.2021,  
cf. WO 2022/148788 A1)

REFERENCE NO.: **TM 1092/1157**

## APPLICATION FIELDS

The field of application of the PHMB-granula is primarily the area of wound-disinfection and the therapy of acute or chronic inflammations, especially the disinfection of niches and (periodontal) pockets in the area of (dental) medical treatments. For these areas the application was developed and quite numerous application data is already available. But the application is not confined to dental medical treatment. Any other area of medical treatment where niche-disinfection/pocket-disinfection is required, e.g. regarding complications with diabetic necrosis and other illnesses, the PHMB-granula may be applied successfully.

## ADVANTAGES OVER PRIOR ART

In contrast to the disinfection particles already known, which provide release of CHX for only about 2 weeks, the granula presented herein allow release of PHMB for at least about twice as long (available experimental data: > 56 days) and do not contain animal material (gelatin) and supply PHMB instead of CHX.

## STATE OF PRODUCT DEVELOPMENT

The effectiveness of the granula has been proven by seeding granula-containing agar-plates with *Streptococcus gordonii* and then observing the growth of *S. gordonii* over time. According to the size of the inhibition zones around the granula it is shown that the release of PHB is active and effective for at least about 60 days. In a first clinical study to demonstrate the proof-of-principle the antibacterial power of the devices showed an impressive reduction of the local bacterial load and the immediate healing of the lesions.

## SOURCE OF SUPPLY

The application of the granula has been developed by Prof. Joerg Meyle and Dr. Sabine Groeger at the Dental School, University of Giessen. Development is further proceeded and more detailed information as well as sample material may be obtained from the TransMIT-Projektbereich für orale Biologie, Implantologie und Parodontologie, led by Prof. Meyle.

## COOPERATION OPPORTUNITIES

On behalf of its shareholder Justus-Liebig-University Giessen TransMIT GmbH is looking for cooperation partners or licensees for distribution or further development in Germany, Europe, US, and Asia.

## A TECHNOLOGY OF



### Contact

TransMIT Gesellschaft  
für Technologietransfer mbH  
Kerkrader Straße 3  
35394 Giessen  
GERMANY  
[www.transmit.de](http://www.transmit.de)

### Contact Person

Dr. Andreas Fuß.  
Tel: +49 (0) 641 9 43 64 58  
Fax: +49 (0) 641 9 43 64 55  
E-Mail: [andreas.fuss@transmit.de](mailto:andreas.fuss@transmit.de)

