

## The innovative coating technology for infection prophylaxis by Heraeus



### Higher infection rates due to increased use of implants

In recent decades the quality of life of many patients has been considerably improved by the increased use of medical implants. As a consequence of the growing use of implants, a parallel trend to more infections can be observed.

### Danger of biofilm formation

Especially slightly roughened implants made of titanium exhibit a high tendency to be colonized by germs (formation of biofilm on the implant surface).

Implants are particularly accessible for pathogens, such as *S.aureus* and *S.epidermidis* during surgery, because the germs adhere to the implant surface, also guided by the patient's own proteins, and form the feared biofilm there. The pathogens are optimally protected from the body's own immune defense in a biofilm matrix. Even high degrees of local concentrations of antibiotics cannot kill bacteria in biofilms. Preventing the formation of such biofilms is therefore the objective of the anti-infective coating of implants.

### AntibiotiCoat® by Heraeus

The innovative anti-infective coating technology AntibiotiCoat® by Heraeus is based on thin layers consisting of antibiotics and fatty acids. The combination of these antibiotic fatty acid with medical implants is by definition a class III medical device. For example, marrow nails with lactic acid antibiotic coatings are already used in surgery as a class III medical device.

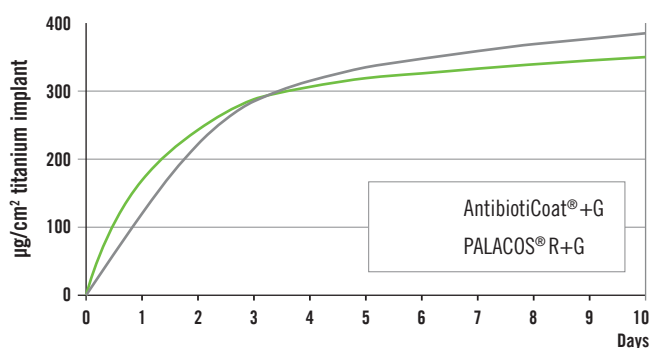
### Anti-infective coating of implants

Heraeus technology is based on a combination of antibiotics/antiseptics and fatty acids. Reciprocal saline exchange allows the formation of so-called antibiotic fatty acid salts. The active components of the antibiotics or antiseptics used remain entirely unchanged in the AntibiotiCoat® with full anti-infective efficacy.

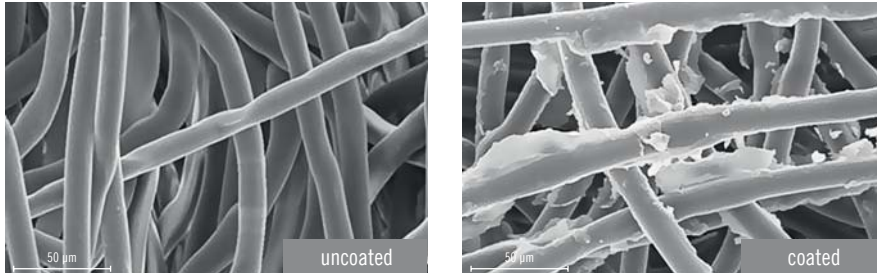
The coating of implants made of these antibiotics/antiseptic fatty acids solely consist of the agent as well as an intrinsic fatty acid. AntibiotiCoat® by Heraeus contains no biofilm-forming polymers and no critical degradation products are produced.

Infection care with antibiotic release rates ranging from several days up to several weeks can be set through factors such as solubility, surface roughness of the implant, composition of the coating solution and the coating technique. AntibiotiCoat® by Heraeus provides the anti-infective coating of the implants, biofilm prevention and local protection from infections in the implantation area in general.

### Gentamicin release of AntibiotiCoat®+G vs. PALACOS®R+G



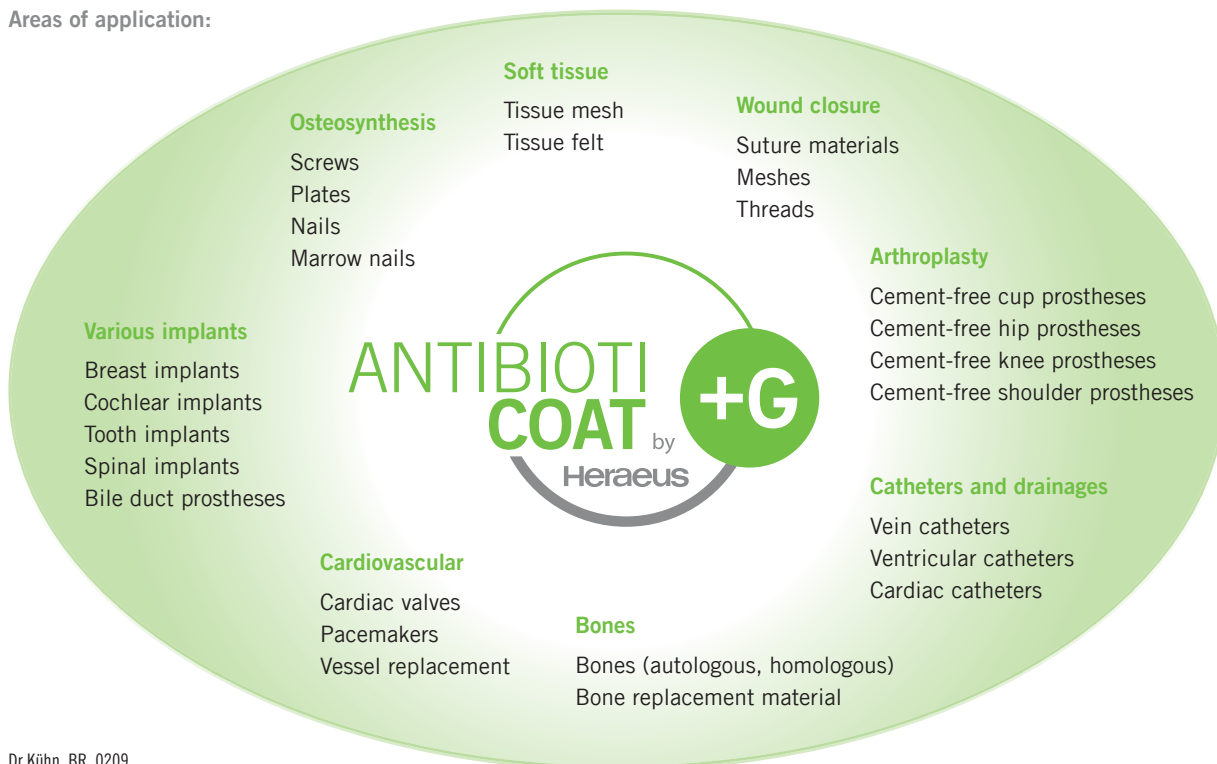
## Application example for AntibiotiCoat® (tissue mesh):



## Properties of AntibiotiCoat®:

- Unchanged efficacy of the antibiotics/antiseptics
- Wax-like consistency
- Good adhesion to surfaces
- Biocompatible and haemocompatible
- Release of active agent synchronized with solubility
- Simple coating technique (dipping, spraying)

## Areas of application:



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