

Acticoat Post-Op Antimicrobial Silver Dressing - FAQ

Q1. Why should ACTICOAT be moistened with water and not saline?

A. The chloride ions in saline have the potential to neutralize released Ag + ions so to prevent this, water is the best wetting agent.

Q2. What is the minimum age a patient should be for ACTICOAT application?

A. ACTICOAT should only be used in premature infants (<37 weeks gestation) when clinical benefits outweigh any potential patient risks. No clinical data is available in this age group and only limited data is available for use in neonates.

Q3. How long can ACTICOAT be used for?

A. ACTICOAT should not be required for more than 4-6 weeks on wounds showing signs and symptoms of infection. Progress should be assessed every 2 weeks to help dictate forward strategies in terms of therapeutic options. In certain "at risk" wound types (including surgical incisions) ACTICOAT use can be part of a preventative strategy even though the signs and symptoms of infection are absent. Use over extended time periods should be based on a clinical and microbiological justification.

Q4. Is silver toxic?

A. A study of silver levels in patients dressed with ACTICOAT for skin grafts, and residual burn sites showed that the levels of serum silver for ACTICOAT were less than the maximal level reported in the literature for patients treated with SSD cream¹. The authors concluded that the use of ACTICOAT was not associated with clinical, biochemical or haematological signs of toxicity ¹. Another study found no significant difference between

ACTICOAT and SSD with routine blood tests, liver and renal function tests. Additionally, no side effects were found relating to the use of ACTICOAT². In relation to chronic wounds, blood testing of a cohort of venous leg ulcer patients showed no clinically relevant changes in serum silver concentrations, haematology or biochemistry results following ACTICOAT usage³.

Q5. ACTICOAT contains nanocrystalline silver, aren't nanoparticles dangerous?

A. A nanoparticle and the nanocrystalline structure of ACTICOAT are very different. ACTICOAT does not contain nanoparticles. The word nanocrystalline refers to the structure of the silver and its ability to have a high surface area in contact with the wound bed and wound fluid. The silver released into the wound is Ag + ions, which is the same antimicrobial agent that is released from other silver containing dressings. Silver release from ACTICOAT does not involve the release of free nanoparticles.

Q6. Why are the levels of silver release higher with ACTICOAT compared to some other silver dressings?

A. The level of silver released from ACTICOAT has been demonstrated to have bacteriocidal effects (in-vitro) against a broad spectrum of over 150 Gram positive and Gram negative bacteria and fungal wound pathogens^{14,22,4}. It is also effective (in-vitro) against Antibiotic- resistant bacteria such as Pseudomonas, Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin-Resistant Enterococcus (VRE)²¹. In the clinical setting ACTICOAT has been demonstrated to be more effective than competitor silver dressings including faster resolution of the signs of infection and faster healing⁵.

Q7. How are the high levels of silver release maintained compared to some other silver dressings?

The higher levels of silver at the wound when ACTICOAT is applied occur due to its efficient and prolonged release of silver ions. This is due to its nanocrystalline structure formed from column-shaped crystals which are deposited on the dressing surface by a physical vapour deposition process. This process creates a surface topography with features on the nano-scale. This specialist structure presents a larger surface compared to other silver presentations. The SILCRYST nanocrystalline structure consists of small clusters of water soluble crystals; when moistened these atomic clusters, which are very porous, rapidly release and replenish concentrations of silver ions at sufficient levels (in-vitro)⁶

Q8. What about silver resistance?

A. Unlike antibiotics, which tend to act on a single target within the bacteria, silver acts on multiple targets. These include the respiratory action in cytochromes, components of the microbial electron transport system and DNA replication⁷. Chopra (2007) describes how faster acting antimicrobial dressings will present less risk of resistance developing as organisms are more likely to be killed, removing the chance of a build-up of the resistant population⁸. The author also states that the multi-faceted mode of action of silver means that resistance is unlikely. SILCRYST Silver provides a sustained release of silver with a rapid action due to its nanocrystalline structure.

Q9. Why is speed of kill so important?

A. Bacteria reproduce very rapidly. For example, E.coli reproduces about every ~20 minutes (depending on the strain)⁹ and with each new generation, mutations are possible. The longer a given microbe is allowed to live and multiply in the presence of an antimicrobial agent, the greater the chances for selection of resistance to that agent. Guarding against resistance is a huge benefit of a rapid kill rate (for any antimicrobial agent). In addition, preventing biofilm formation (under appropriate conditions,

biofilms can begin to form rapidly)¹⁰ is another potential advantage of a quick acting agent.

Q10. What makes SILCRYST nanocrystalline silver different from other silvers?

A. The SILCRYST nanocrystalline silver utilized in the ACTICOAT range is unique in that it is formed from column-shaped crystals which are deposited on the dressing surface by a physical vapour deposition process. This process creates a surface topography with features on the nano-scale. This specialist structure presents a larger surface area to volume ratio compared to other silver presentations. This structure enables the rapid release and replenish concentrations of silver ions at sufficient levels (in-vitro)¹¹ ACTICOAT is proven (in-vitro), to begin working within 30 minutes^{‡.11,12,13,14,15,22}. This rapid action gives the bacteria very little time to multiply.

Q11. Isn't silver expensive?

A. The unit cost for an ACTICOAT dressing may be greater than a non-antimicrobial but the benefits to both the patient and the overall care budget outweigh this difference. ACTICOAT has been shown to decrease the length of inpatient stay and has been demonstrated to lower overall treatment costs compared to SSD in the high cost burns arena¹⁶. ACTICOAT has also been shown to be more effective in a chronic setting by promoting faster wound healing compared to competitors⁵. In a comparative study ACTICOAT was shown to not only result in faster time to resolution of infection¹⁷ but also a decreased overall cost compared to competitors. In terms of the total cost of wound care it is the complications such as infection that drive up costs. For example infection may cause an increase in bed days, increased antibiotic use and increased clinician time. So an interventional, fast acting product with improved outcomes can easily justify a higher price.

Q12. How long does it take ACTICOAT to have an effect?

A. ACTICOAT has been shown (in-vitro) to kill bacteria in as little as 30 minutes.

Q13. What microbes is ACTICOAT effective against?

A. ACTICOAT is effective (in-vitro) against a broad spectrum of over 150 Gram positive and Gram negative bacteria and fungal wound pathogens. 14,21,22 It is also effective (in-vitro) against Antibiotic- resistant bacteria such as Pseudomonas, Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin-Resistant Enterococcus (VRE)⁶. ACTICOAT has been shown, in a 2010 study, to reduce MRSA bacteraemias.¹⁹

Q14. How long does ACTICOAT remain active for?

A. ACTICOAT and ACTICOAT Flex 3 both have a sustained release of silver (in-vitro) for up to 3 days²⁰ and have been shown to maintain antimicrobial barrier efficacy for 3 days (in-vitro)²⁵. Other variants including ACTICOAT 7^{21,22}, ACTICOAT Flex 7^{3,24,25}, ACTICOAT Moisture Control²⁶ and ACTICOAT Absorbent²⁷ maintain antimicrobial barrier efficacy for up to 7 days.

Q15. When should ACTICOAT dressings be changed?

A. ACTICOAT dressings have recommended wear times of between 3 and 7 days depending on the variant (please refer to dressing specific insert leaflet), appropriate clinical protocols and judgement should always be used when deciding on dressing change timings.

Q16. Can I use ACTICOAT under NPWT?

A. ACTICOAT and ACTICOAT Flex are both indicated for use under negative pressure devices. ACTICOAT requires fenestration before application while the mesh structure of ACTICOAT Flex gives fluid transfer properties for use as an antimicrobial layer under NPWT^{28,29,30} and can be used for up to 3 days.

Q17. Why should I use ACTICOAT compared to other silver dressings?

A. When compared to other silver dressings or traditional dressing protocols studies have shown ACTICOAT to provide a) faster healing^{2,1,31}, b) faster time to resolution of infection²⁰, c) a decrease in odour causing bacteria^{23,32}, d) decreased pain (compared to SSD)^{33,34}, e) a reduced number of dressing changes^{35,36}, f) decreased in-patient stay³⁷ and g) decreased antibiotic usage⁴²