

Unlike traditional antimicrobial dressings, Imbed's ultrathin Microfilm™ technology enables **Microlyte™ Ag** wound dressing to conform intimately to the tissue of a wound bed. By exerting sustained antimicrobial activity of silver (Ag) for up to 72 hours in the microscopic environment of the wound tissue, it kills > 99.99% CFU (colony forming units) of clinically relevant microbes at 100x lower levels of silver compared to other dressings.

Broad Spectrum Antimicrobial Activity of Microlyte Ag Wound Dressing

In this study, antimicrobial activity of **Microlyte™ Ag** wound dressing was evaluated against Gram-positive bacteria, Gram-negative bacteria and fungi frequently isolated from wound infections (**Table 1**), including Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin-resistant Enterococcus faecalis (VRE). All antimicrobial tests were conducted by an independent CRO under quality control in GMP compliance.

Method

Briefly, **Microlyte™ Ag** wound dressing (5 cm x 5 cm), placed in a sterile petri dish, was inoculated with Nutrient Broth containing $1.0-2.5 \times 10^6$ CFU of microbes and maintained for 24 hours or 72 hours at 37°C in a humidified chamber. Nutrient Broth contained inorganic salts and proteins to provide nutritional growth environment (for microbes) similar to that found in a wound fluid and to simulate clinical soil. Product samples manufactured without silver were used as the negative untreated controls in the test. After 24 hours or 72 hours incubation, the test article in the dish was rinsed with Lethen broth (with Lecithin to neutralize silver), and its serial dilutions plated on agar plates to quantify viable test organisms. Antimicrobial activity (R') was calculated as the difference in CFU/sample recovered from dressings with or without silver after incubation. The acceptance criterion for antimicrobial performance was $> 4 \text{ Log}_{10}$ reduction in microbial CFU, in other words > 99.99% CFU.

Results

As documented in Figure 1, **Microlyte™ Ag** wound dressing containing only 0.01 mg/cm² of silver killed more than 99.99% of all strains of bacteria and fungi tested, including Methicillin-resistant Staphylococcus aureus (MRSA) and Vancomycin-resistant Enterococcus faecalis (VRE) within first 24 hours. The results verify that the antimicrobial silver in the dressing suppresses the growth of microorganisms on the dressing, and is effective in preventing microbial colonization of the dressing for 3 days.

Conclusion

A **Microlyte™ Ag** wound dressings deliver powerful, broad-spectrum antimicrobial action for 3 days against microbes commonly isolated from wound infections, including drug-resistant MRSA and VRE strains.

TABLE 1: Clinically relevant microbial strains evaluated for Antimicrobial activity of **Microlyte™ Ag** wound dressing

MICROBIAL STRAIN	GRAM (+)/(-)	ATCC NO.
Staphylococcus aureus	(+)	6538
Methicillin-resistant Staphylococcus aureus (MRSA)	(+)	33591
Vancomycin-resistant Enterococcus faecalis (VRE)	(+)	51575
Pseudomonas aeruginosa	(-)	9027
Escherichia coli	(-)	8739
Klebsiella pneumoniae	(-)	4352
Candida tropicalis	Fungus	750
Candida albicans	Fungus	10231

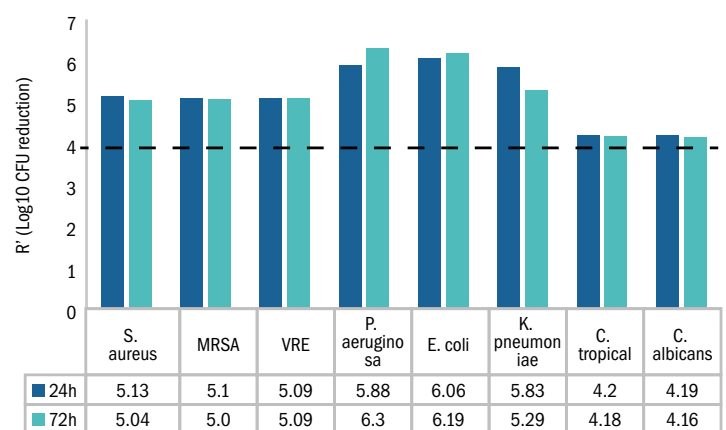


FIGURE 1: Antimicrobial activity of **Microlyte™ Ag** wound dressings when incubated with 10⁶ CFU of microbes in simulated wound fluid for 24 or 72 hours. Pass criterion, $R' > 4 \text{ Log}_{10}$, is shown as the dashed line.