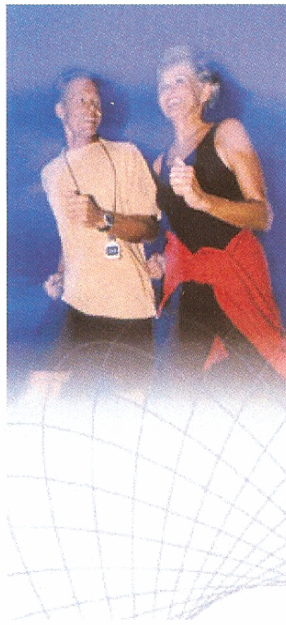
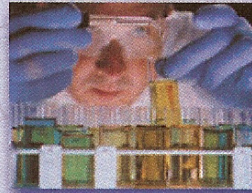


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The History of Silver as an Antimicrobial

For centuries, silver has been valued for its visual appeal in jewelry, as well as its inherent antimicrobial properties. Numerous examples of the use of silver as an antimicrobial have been documented from a variety of sources. In ancient times, it was discovered that wine, milk and water could be kept for longer periods of time when stored in silver containers. For example, Herodotus, the King of Persia (550BC - 529BC), was known to transport water on long journeys in horse-drawn buggies containing silver vessels. Currently, more than six million troy ounces of silver are used in water treatment with an expected growth of nearly 25% through 2006.

The use of silver as a pharmaceutical agent has been described in historical literature from as long ago as 1000 BC. More recently, silver has been used in a variety of applications ranging from a prophylactic treatment for eye infections in newborns to treatment of potable water. Today, silver is used in a variety of forms as medicinal treatment. For example, silver sulfadiazine is used as topical treatments for topical wounds, especially in burn therapy. In addition, many medical devices, including catheters, chronic wound care devices, and implanted materials are treated with silver to reduce the risk of infection. These many examples of silver throughout history serve to highlight the safety and long term proven efficacy of its antimicrobial nature.

Antimicrobial AlphaSan® Performance Comparison

| Technology | Efficacy | Durability | Heat Stability | Color Formation | Safety | Ease of Use |
|---------------------------------------|----------|------------|----------------|-----------------|--------|-------------|
| Silver Zirconium Phosphate (AlphaSan) | 5 | 5 | 5 | 4 | 5 | 5 |
| Silver Zeolites | 5 | 4 | 5 | 2 | 5 | 4 |
| Triclosan | 4 | 1 | 1 | 4 | 4 | 2 |
| Organo Tin | 1 | 2 | 2 | 4 | 1 | 1 |
| Quat Silanes | 3 | 1 | 2 | 4 | 3 | 3 |

Rankings: 1-5, 5 is most desirable