



Silver Shield Gel

Stock #4950-1 (3 oz.)

Bacterial resistance to commonly used antibiotics has exploded into a major global healthcare problem in recent years. Initially associated primarily with hospital-acquired infections among critically ill and immunocompromised patients, antibiotic resistance has now emerged in local communities and is no longer a problem exclusive to acute care hospitals and intensive care units. Just as alarming is the decline in research and development of new antibiotics to address the growing threat of resistant microbes.¹⁻⁶

In light of this current dilemma, silver, an age-old remedy, is experiencing renewed interest among a growing number of scientists, due to its extraordinary antibacterial properties and long history of use to fight infections, control food spoilage and purify drinking water. According to the U.S. Environmental Protection Agency (EPA), silver compounds have been employed for medical purposes for centuries. In the 19th and early 20th centuries, a silver compound known as silver salvarsan (or silver arsphenamine) was used to treat syphilis (a sexually-transmitted disease) and silver nitrate drops were used in newborns' eyes to prevent blindness caused by bacterial infections passed from mother to child during birth. In the last few decades, silver has been

introduced into the production of antimicrobial coatings and products, water purification, dietary supplements, and in modern medical applications such as special stents, catheters, wound dressings (for wounds from burns, trauma, diabetic ulcers, etc.), bone prostheses, cardiac devices and surgical appliances. Today, silver compounds are widely used as effective antimicrobial agents to combat pathogens (disease-causing organisms), including bacteria, viruses and eukaryotic microorganisms such as fungi, in both the clinical setting and for public health hygiene. Furthermore, based on current research, true bacterial resistance to silver is rare, making silver a viable alternative to antibiotics and disinfectants.⁷⁻²¹

Research into the use of silver for medical and other purposes has led to the development of silver nanoparticles—microscopic-sized silver particles that are less than 100 nanometers (a billionth of a meter) in diameter. These nanoparticles of silver have exhibited strong antibacterial activity and have been shown to be non-toxic and virtually free of adverse effects. Silver nanoparticles are already being used in the treatment of burns and wounds, and have been shown to provide rapid healing and improved cosmetic appearance in a dose-dependent manner—silver nanoparticles not only exert antimicrobial properties to prevent invasive infections, but also help reduce wound inflammation and scar formation. Breakthroughs in biotechnology have also enabled silver nanoparticles to be incorporated into fabrics for clinical use to reduce the risk of nosocomial (hospital-acquired) infections and for improved personal hygiene. In addition, new research has confirmed the effectiveness of silver nanoparticles against superficial fungal infections caused by dermatophytes—parasitic fungi that infect the skin.^{2,7,10-12,20,22-27}

Results from recent studies have confirmed the antibacterial activity of silver nanoparticles, even against proven resistant strains, as well as their potential as a broad-spectrum antiviral and antifungal agent. In addition, silver nanoparticles have been shown to produce synergistic and additive effects when used in combination with traditional antibiotics. For example, the antibacterial activities of penicillin G, amoxicillin, erythromycin, clindamycin, and vancomycin were all enhanced in the presence of silver nanoparticles against both *Escherichia coli* and *Staphylococcus aureus* in vitro tests—*Escherichia coli* can cause cellulitis and sepsis (a life-threatening illness), while *Staphylococcus aureus* infections can range from mild skin infections to severe and potentially fatal illnesses. Since antibiotic-resistant infections are a frequent occurrence that often results in therapeutic failure when treated with single-drug antibiotic regimens, some researchers have suggested the use of silver in combination with antibiotic therapy in order to achieve bactericidal synergism (a combined and increased effectiveness for killing bacteria).^{2,5,9,11,26,27}

NSP's **Silver Shield Gel** represents the latest technology in metallic silver nanoparticle solutions. Silver Shield Gel contains a patented silver aqua sol (U.S Patent No. 7,135,195) that has been shown in independent studies to have broad-spectrum antimicrobial activity in vitro against various pathogenic microbes, including *Candida albicans* (oral and genital infections), *Pseudomonas aeruginosa* (skin, soft tissue, bone and joint infections, and bacteremia (bacterial blood infection)), *Staphylococcus aureus* including methicillin-resistant strains or MRSA (illnesses ranging from minor skin infections to life-threatening diseases such as osteomyelitis (bone infection), toxic shock syndrome and sepsis), and *Trichomonas vaginalis* (vaginal infections).⁸

The growing magnitude of antibiotic-resistant infections such as methicillin-resistant *Staphylococcus aureus* (MRSA) infections was confirmed in the *Journal of the American Medical Association* in 2007. The report stated that the Centers For Disease Control estimates nearly 95,000 invasive MRSA infections occurred in the United States in 2005, resulting in 19,000 deaths, thus surpassing the estimated 17,000 deaths in the same year from AIDS. Given the

increasing health concerns resulting from MRSA infections, Silver Shield Gel's patented silver aqua sol formula was tested against a concentration of 6 million MRSA bacteria per milliliter. At a strength of only 10 ppm, the Silver Shield silver aqua sol killed more than 91% of the bacteria in 10 minutes. After one hour, 99.5% of the MRSA bacteria had been killed, with virtually all of the bacteria destroyed in one day—fewer than 10 of the 6 million bacteria remained.^{6,8}

Human studies have also been conducted using Silver Shield Gel's patented silver aqua sol formula as an alternative to traditional antibiotics. The studies were conducted in conjunction with 3 hospitals in Ghana, West Africa, involving a variety of human ailments among patients ages 5 to 75, including external skin infections (*Staphylococcus* skin infections, septic ulcers and infected abscesses), fungal skin infections, gingivitis (inflammation of the gums), gonorrhea (a sexually-transmitted disease), rhinitis (nasal inflammation associated with the common cold), and vaginal yeast (candida) infections. All patients experienced a full recovery and/or complete resolution of symptoms within 1 to 8 days (depending on condition) using only Silver Shield Gel's patented silver aqua sol formula at a strength of 10 ppm.⁸

In addition, Silver Shield Gel's patented silver aqua sol formula was tested alongside traditional antibiotics (representative of the main classes of antibiotics) to determine its effectiveness against gram-positive and gram-negative bacteria—bacteria are generally divided into either of two categories based on their cell wall structure, as determined by the Gram stain. At only 10 ppm, Silver Shield Gel's silver aqua sol was shown to exhibit an equal or broader range of antimicrobial activity than any single antibiotic tested, including tetracycline, ofloxacin, penicillin-G, cefoperazone and erythromycin. Silver Shield Gel's patented silver aqua sol formula has also been shown to have superior activity compared to other commercially available silver products.⁸

Silver Shield Gel contains 24 ppm (parts-per-million) of bioavailable silver and food-grade gelling ingredients, manufactured with a patented process using Aqua Sol Technology (U.S Patent No. 7,135,195). Silver Shield Gel contains no alcohol and is non-toxic and safe for use with children.

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