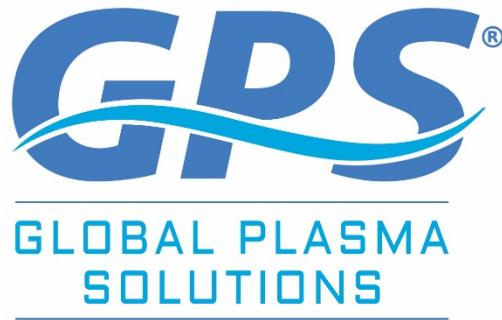


A WHITE PAPER

GPS Reports on Pathogen Testing



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Pathogen Testing

GPS has invested substantial resources for independent testing to confirm kill rates of various pathogens using needlepoint bipolar ionization technology. Tests were conducted to measure the kill rates of

1. **Mycobacterium terrae (Tuberculosis surrogate)** - M. terrae is commonly used as a surrogate test for Mycobacterium tuberculosis as it demonstrates similar physical characteristics and is slightly more resistant but is far less dangerous.
2. **Clostridium difficile (C. diff)** – also known as Clostridioides difficile and often referred to as C. difficile or C. diff, is a bacterium that can cause symptoms ranging from diarrhea to life-threatening inflammation of the colon.
3. **Feline calicivirus (human Norovirus surrogate)** – Feline calicivirus (FCV) and human noroviruses belong to the same viral family, Caliciviridae.
4. **Methicillin Resistant Staphylococcus Aureus (MRSA)** - Methicillin-resistant Staphylococcus aureus infection is caused by a type of staph bacteria that's become resistant to many of the antibiotics used to treat ordinary staph infections.
5. **Escherichia coli (E.coli)** - E. coli are a large and diverse group of bacteria.
6. **Legionella pneumophila** - The bacterium Legionella pneumophila is the principal etiologic agent of Legionnaires' disease.
7. **Mold** - The most common indoor molds are Cladosporium, Penicillium, and Aspergillus.

Summary Results of GPS' Needlepoint Ion Technology

Testing at several testing agencies produced following results:

| Pathogen | Test Time | Kill Rate | Test Agency |
|------------------------------|------------|-----------|-------------|
| Tuberculosis | 60 minutes | 69.09% | EMSL |
| Clostridium difficile | 30 minutes | 86.87% | EMSL |
| Norovirus | 30 minutes | 93.50% | ATS Labs |
| MRSA | 30 minutes | 96.24% | EMSL |
| E.coli | 15 minutes | 99.68% | EMSL |
| Legionella | 30 minutes | 99.71% | EMSL |
| Mold Spores | 24 hours | 99.50% | GCA |

Industry Wide Testing

Tests have been conducted by numerous parties throughout the world to measure the efficacy of bipolar ionization to kill harmful pathogens. Sharp Corporation conducted a series tests and produced a detailed compilation of lab results of bipolar ionization effects on various pathogens.

| Pathogen | Tests/Results | Organization | Overview | Date |
|-----------------------------------|---|---|-------------------------------------|------|
| H1N1 human Influenza Virus | 1m ³ box Time: 25 minutes 99.7% reduction | Kitasato Institute Medical Center Hospital, Japan | Influenza that infects humans | 2004 |
| H5N1 Avian Influenza Virus | 1m ³ box Time: 10 minutes 99% reduction | Retroscreen Virology Ltd., UK Prof. John Oxford | Influenza that infects birds | 2008 |
| Feline Coronavirus | 1m ³ box Time: 35 minutes 99.7% reduction | Kitasato Institute Medical Center Hospital, Japan | Feline infectious peritonitis virus | 2004 |
| Coxsackie Virus | One-pass test Time: 3.3 seconds 98.9% reduction | Kitasato Research Center of Enviro. Sciences, Japan | Virus causing summer illness | 2002 |
| Polio Virus | One-pass test Time: 3.3 seconds 98.9% reduction | Kitasato Research Center of Enviro. Sciences, Japan | Virus causing infant paralysis | 2002 |
| SARS Virus | One-pass test Time: 3.3 seconds 73.4% reduction | Retroscreen Virology Ltd., UK Prof. John Oxford | Virus of SARS | 2005 |

Source: https://global.sharp/pci/en/certified/pdf/petodor_01.pdf