

EFFICACY TESTS

These tests confirm the **effectiveness of Polti Sani System's superheated dry steam** and HPMed for steam disinfection.

The superheated dry steam of Polti Sani System has been subjected to laboratory tests and studies, both in Italy and other countries, which attest to the effectiveness of Polti Sani System in the reduction of viruses, bacteria, fungi and spores and in the eradication of bedbugs.

WITH ALL ITS UNIQUE PROPERTIES THE **SUPERHEATED DRY STEAM** HAS MANY AREAS OF APPLICATION, INCLUDING FACTORIES, OFFICES, TRANSPORT, HOTELS, RESTAURANTS, HEALTH FACILITIES AND PUBLIC PLACES IN GENERAL.

THE TESTS AND RESULTS ON EFFECTIVENESS ARE SHOWN BELOW

1

Evaluation of the virucidal efficacy (SARS-CoV2) of the superheated dry steam

Laboratory Eurofins Biolab - Vimodrone (MI) - Italy

Considering that:

- The SARS-CoV2 virus - according to published information - has heat-sensitive properties similar to other Coronaviruses;
- Thermosensitive viruses *are completely deactivated in a few seconds at very high temperatures, for example from 150° to 160°C due to the heat and the deactivation speed for each log is minimal, quantifiable as about 0.1 second;*
- Coronaviruses are completely deactivated within one minute at 80°C from the heat generated by dry steam and the log deactivation speed is approximately 10 seconds;
- The viral load of Coronavirus can be partially reduced within one minute at 65°C from the heat generated by dry steam;

It can be said that the steam treatment of Polti equipment must be considered effective in completely deactivating the SARS-CoV2 virus at a temperature of 80°C or higher. With the very high temperatures reached by Polti Sani System, deactivation is effective in very short exposure times (a few seconds).

2

Evaluation of the virucidal efficacy (H1N1) of superheated dry steam and HPMED

Laboratory Biolab - Vimodrone (MI) - Italy

Virucidal efficacy was assessed according to European standard EN 14476 (quantitative test in suspension for the evaluation of virucidal activity in the medical area).

Based on the results obtained, in the experimental condition adopted, **the product** under examination **causes a reduction greater than or equal to 4 Log (99.99%) against Human Influenza A (H1N1) after 15 seconds.**

3 Evaluation of the bactericidal activity of superheated dry steam and HP MED

Cantonal Institute of Microbiology - Bellinzona - Switzerland

Sanitisation has proved effective for the disinfection of a **work surface previously contaminated with the following microorganisms**: Escherichia coli, Staphylococcus coagulase negative, Klebsiella pneumoniae and Proteus mirabilis. After the treatment, **no bacterial growth was found on the surfaces**.

4 Effectiveness of superheated dry steam and HP MED to eradicate Cimex lectularius infestations

Pest 2000&Pest 3000 - Pest Control Management Services - Milan - Italy

The evidence shows that the product concerned **kills 100% of the eggs** and 90% of the adult bed bugs at the first pass. In the field tests it **completely eliminated** the **Cimex infestation** with between two and three treatments, also successfully degrading the sticky substance that binds the eggs to the surfaces, reducing the smell of bedbugs and eliminating the traces of excrement thanks to the combined use of steam and HP MED.

5 Evaluation of the bactericidal activity of superheated dry steam and HP MED against methicillin resistant Staphylococcus aureus (MRSA)

Cantonal Institute of Microbiology - Bellinzona - Switzerland

The bactericidal activity on two strains of Methicillin Resistant Staphylococcus Aureus (MRSA) was analysed on different surfaces.

Use for 30 seconds proved **effective for the sanitisation of various materials**, including stainless steel and melamine coatings, with a reduction in the bacterial load of 4 logarithms, while as regards ceramics, a bacterial residue was found only for the most resistant MRSA strain (3 logarithms).

This type of test demonstrates a reduction in the bacterial load of 4 log and therefore a reduction of up to 99.99%.

6 Evaluation of the antimicrobial activity of superheated dry steam and HP MED in a hospital setting

Orthopaedics and Traumatology Unit and Microbiology Unit - San Carlo Borromeo Hospital - Milan - Italy

The product concerned showed activity on several Gram positive and Gram negative bacteria and on different types of fungi. **Antimicrobial activity** has been found on inert equipment, environments and materials such as plastic, metal and glass. Preliminary tests carried out on inert materials demonstrated a significant reduction of up to 99.999% of the tested species.

Under standard operating conditions, the sanitisation carried out caused a reduction in the total microbial load of 91.6%, compared with 88.8% with the traditional method of sanitisation (using chemical products).

7

Effectiveness in reducing the microbial load of surfaces of superheated dry steam and HP MED

Swinburne University of Technology - Australia

30 seconds of treatment with superheated dry steam and HP Med proved **effective in reducing the microbial load by 99.999% for Gram positive, Gram negative, filamentous fungi and yeasts. 30 seconds of treatment reduced the spores by 97%.**

8

Superheated dry steam and HP MED test on ambulances

Hospital of San Severo - ASL Foggia - Italy

Experimentation in a real context shows that this **is a valid method for sanitising ambulances because it drastically reduces the total microbial load present on surfaces.**