Evans Vanodine
EST. 1919

MICROBIOLOGICAL PROFILE

Handsan™

70% Alcohol-based hand disinfectant

Edition 8: February 2023

HANDSAN MICROBIOLOGICAL PROFILE

INTRODUCTION

HANDSAN is a ready to use, quick acting and highly effective, alcohol based hygienic hand rub.

HANDSAN is an authorised biocide UK-2019-1195-0001.

HANDSAN is bactericidal and virucidal against enveloped viruses, it evaporates from hands leaving no odour or residue.

HANDSAN is suitable for areas where food is handled, prepared and served and for areas where soap and water are not readily available.

HANDSAN is ideal for use in-between patient contact in non-surgical medical care establishments to help prevent the risk of cross infection. The Infection Control Nurses Association (ICNA) recommends the use of an alcohol-based waterless hand rub for the following:

Before and after patient contact	**After removing gloves**	**Before meals/breaks**
After contact with items or surfaces that are likely to be contaminated		**Following personal hygiene measures**

HANDSAN - EFFICACY SUMMARY

HANDSAN has been tested and proven to be effective against a range of micro-organisms. European Standard (EN*) test methods were used to prove efficacy against bacteria, viruses and yeast.

The UKAS accredited Microbiology Laboratory at Evans Vanodine International plc. (Testing number 1108) performed tests with bacteria and yeast including important organisms of medical significance e.g. anti-biotic resistant bacteria. In addition, EN 1500 which involves experimental exposure of hands with *Escherichia coli* followed by application of the product was carried out by an independent laboratory.

HANDSAN has also been tested against Leptospira, Mycobacteria and viruses at independent expert laboratories using appropriate methods.

*EN - European Norm
Published in the UK as BS EN by the British Standards Institution.

The following tables include information of relevant, applicable test methods, conditions, contact times and organisms.

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BACTERIAL TEST PROFILE				
ORGANISM	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (SECONDS)**	**SOILING LEVEL**
Acinetobacter baumananii	EN 1276	20	30	Clean
Enterococcus hirae				
Escherichia coli				
Escherichia coli (Extended Spectrum Beta Lactamase)				
Proteus hauseri				
Pseudomonas aeruginosa				
Shigella sonnei				
Staphylococcus aureus				
*Streptococcus pyogenes**				
Enterococcus hirae	EN 13727	20	30	Clean
Escherichia coli O157				
Escherichia coli K12				
Methicillin Resistant *Staphylococcus aureus*				
Pseudomonas aeruginosa				
Salmonella typhimurium				
Shigella sonnei				
Staphylococcus aureus				
*Streptococcus pyogenes**				

* Tested using EN 1276:1997

VIRUS TEST PROFILE				
VIRUS	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (SECONDS)**	**SOILING LEVEL**
Vaccinia virus	EN 14476	20	60	Clean
Porcine Influenza A (H1N1)			30	Dirty

YEAST TEST PROFILE				
ORGANISM	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (SECONDS)**	**SOILING LEVEL**
Candida albicans	EN 13624	20	30	Clean
Candida auris			60	

INDEPENDENT LABORATORY TESTS				
ORGANISM	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (SECONDS)**	**SOILING LEVEL**
Escherichia coli K12	EN 1500	N/A	60	N/A
Leptospira interrogans	N/A	Room temp	30	N/A
Mycobacterium terrae	EN 14348	20	60	Clean

N/A - Not applicable.

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HAND HYGIENE TEST METHODS

Hand disinfectants can be divided into two groups, hygienic and surgical. These can then be further divided into handwashes or handrubs.

A hygienic handwash uses water to wash hands whilst a hygienic handrub involves rubbing hands without the addition of water.

Hand disinfectants can be used in a variety of areas e.g. hospitals, health care institutions, food, beverage, industrial, domestic. There are two types of laboratory test method for disinfectants i.e. suspension methods and surface methods.

There are 3 different claims that can be made when virus tests are used either for full virucidal activity, limited spectrum virucidal activity or activity against enveloped viruses. It will depend on the viruses tested which claim can be applied.

The interfering substances used in hand hygiene EN test methods are described as dirty or clean in medical, food, industrial, domestic and institutional areas. They simulate levels of soiling encountered in practical, real-life situations.

EN TEST METHODS

TEST REFERENCE	TEST PASS CRITERIA	TEST TYPE	ORGANISM	TEST PASS CRITERIA
EN 1276	For bactericidal activity in the food, industrial, domestic and institutional areas.	Suspension	Bacteria	≥5 log reduction (handrubs)
EN 1500	For establishing whether a hygienic hand rub reduces transient flora on artificially contaminated hands.	N/A	Bacteria	Better than standard reference product
EN 13624	For fungicidal or yeasticidal activity in the medical area.	Suspension	Fungi/Yeast	≥4 log reduction
EN 13727	For bacterial activity in the medical area.	Suspension	Bacteria	≥3 log reduction (handrubs)
EN 14348	For mycobactericidal activity in the medical area. (This method is also applicable to demonstrate tuberculocidal activity).	Suspension	Mycobacteria	≥4 log reduction
EN 14476	For virucidal activity in the medical area.	Suspension	Viruses	≥4 log reduction

LOG REDUCTION

Products claiming they will kill 99.9% of bacteria sounds extremely efficient, however it does not prove that a product is an effective disinfectant.

In order to demonstrate effectiveness, disinfectants should be tested using European Standard Test Methods. Depending on the applicable area and test used, relevant log reductions are specified and must be achieved to claim effectiveness with a test method. This means a reduction in microbial numbers must be seen when compared to the number of organisms at the start of the test or, for surface tests, to a water control performed at the same time. As the numbers are large it is generally accepted that they are expressed as a logarithm. The reduction can be written as either a log value or a percentage i.e. a 5 log reduction is equivalent to a 99.999% reduction, a 3 log reduction is equivalent to 99.9% reduction.

Bacteria are microscopic free living single celled organisms. A surface contaminated with raw meat for example could have millions of bacteria per square centimetre e.g. a surface with 1,000,000 bacteria treated with a product that kills 99.9% of bacteria would still have 1000 bacteria remaining. **If the surface were treated with a product that kills 99.999% of bacteria only 10 bacteria would remain**.

Bacterial growth rates vary depending on the surface, type and degree of soiling, temperature, and presence of water. For example, E.coli under ideal conditions multiplies every 15 minutes. If conditions are less than ideal (lowering the temperature or drying the surface) the growth rate slows down. e.g. 1,000 bacteria would increase to 2,000 after 15 minutes, after 30 minutes it would be 4,000 and after 1 hour 16,000 and 256,000 after 2 hours, **10 bacteria would only have multiplied to 2560 in the same 2 hour period.**

The presence of bacteria does not automatically lead to infection, susceptibility to disease and the infectious dose (number of bacteria required to cause infection) are vitally important. Some bacteria will cause an infection with less than 100 cells ingested or introduced into cuts or wounds. For this reason, it is important to reduce numbers of harmful bacteria to the lowest number possible wherever the risk of infection is high.

THE FOLLOWING FIGURES APPLY IF THE NUMBER AT THE START POINT WAS 1,000,000		
LOG REDUCTION	**NUMBER REMAINING**	**PERCENTAGE REDUCTION**
1	100,000	90%
2	10,000	99%
3	1,000	99.9%
4	100	99.99%
5	10	99.999%