Evans Vanodine
EST. 1919

MICROBIOLOGICAL PROFILE

Chlor Tabs

Effervescent chlorine tablet

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CHLOR TABS MICROBIOLOGICAL PROFILE

INTRODUCTION

CHLOR TABS is a quick dissolving effervescent chlorine tablet.

CHLOR TABS kill bacteria, fungi, viruses and spores.

CHLOR TABS is suitable for a wide range of applications in kitchens, food preparation areas and medical establishments.

CHLOR TABS is ideal for general cleaning, disinfecting and washing vegetables.

Tablets are convenient and easy to use	**Longer shelf life than liquid hypochlorite**	**Effective against Coronavirus**
Each tablet produces 200ppm chlorine in 5 litres of water		**Effective against Clostridium difficile**

CHLOR TABS - EFFICACY SUMMARY

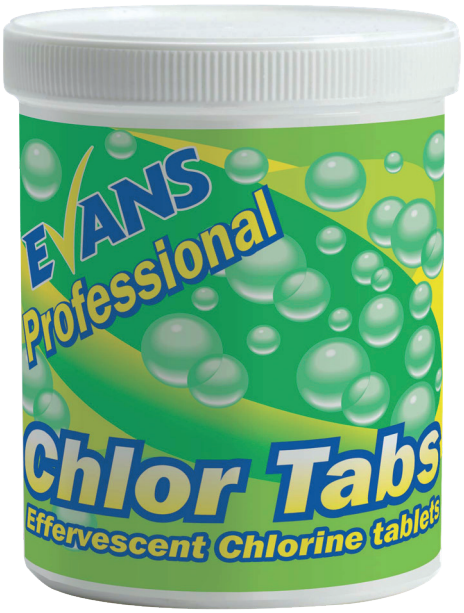
CHLOR TABS has been tested and proven to be effective against a range of micro-organisms. European Standard (EN*) test methods were used to prove efficacy against bacteria and yeast.

The UKAS accredited Microbiology Laboratory at Evans Vanodine International plc. (Testing number 1108) performed tests with bacteria, yeast, fungi and spores. In addition, virus test EN 14476 has been performed by an independent expert laboratory.

*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, organisms and contact times.

The current advice from GOV.UK states products containing chlorine can be used as a disinfectant, at a minimum 1000ppm available chlorine, to control the spread of Coronavirus, CHLOR TABS are therefore considered to be effective against Coronavirus (COVID-19). They should be used as part of a cleaning and disinfection programme and will be most effective where a neutral detergent is used to clean, followed by CHLOR TABS to disinfect surfaces.



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ACTIVITY AGAINST BACTERIA

BACTERIA TEST PROFILE							
ORGANISMS	**TABLET(S)**	**LITRES OF WATER**	**PPM**	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (MINUTES)**	**SOILING LEVEL**
Enterococcus hirae	1	6	147	EN 1276	20	5	Clean
Escherichia coli							
Pseudomonas aeruginosa							
Staphylococcus aureus							
Escherichia coli O157		20	50				
Escherichia coli ESBL						1	
Klebsiella pneumoniae		10	100				
Listeria monocytogenes							
Methicillin Resistant Staphylococcus aureus		20	50			5	
Salmonella typhimurium							
Streptococcus pyogenes							
Enterococcus hirae		10	100		25	1	
Escherichia coli							
Pseudomonas aeruginosa							
Staphylococcus aureus							
Enterococcus hirae	1	10	100	EN 16615*	Room Temp	1	Clean
Escherichia coli		20	50				
Escherichia coli ESBL		5	200				
Escherichia coli O157		20	50				
Listeria monocytogenes							
Methicillin Resistant Staphylococcus aureus		10	100				
Pseudomonas aeruginosa							
Salmonella typhimurium		20	50				
Staphylococcus aureus		5	200				
Enterococcus hirae	1	1	1000	EN 13697	20	5	Dirty
Escherichia coli							
Pseudomonas aeruginosa							
Staphylococcus aureus							
Enterococcus hirae	1	5	200	EN 13727	20	5	Clean
Pseudomonas aeruginosa							
Staphylococcus aureus							

*Modified see page 5

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ACTIVITY AGAINST BACTERIAL SPORES

BACTERIAL SPORES TEST PROFILE							
ORGANISMS	**TABLET(S)**	**LITRES OF WATER**	**PPM**	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (MINUTES)**	**SOILING LEVEL**
Bacillus subtilis	3	1	3000	EN 13704	20	5	Clean
Clostridium difficile							

ACTIVITY AGAINST FUNGI

FUNGI TEST PROFILE							
ORGANISMS	**TABLET(S)**	**LITRES OF WATER**	**PPM**	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (MINUTES)**	**SOILING LEVEL**
Candida albicans	1	8	125	EN 1650	20	15	Clean
		1	1000				Dirty
Aspergillus brasiliensis	1	1	1000				Clean
	3		3000				Dirty
Candida albicans	1	5	200	EN 13624	20	15	Clean
Aspergillus brasiliensis	2	1	2000				
Candida albicans	1	10	100	EN16615*	Room Temp	1	Clean

*Modified see page 5

ACTIVITY AGAINST VIRUSES

VIRUS TEST PROFILE							
ORGANISMS	**TABLET(S)**	**LITRES OF WATER**	**PPM**	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (MINUTES)**	**SOILING LEVEL**
Adenovirus	1	10	100	EN 14476	20	15	Clean
Poliovirus							

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EN TEST METHODS

There are two types of laboratory test methods for disinfectants i.e. suspension methods and surface methods.

Surface methods use different carriers depending on the application area, e.g. stainless steel discs, (food). PVC tiles, (medical) wood (veterinary), synthetic skin (veterinary). The inoculum is dried on to the surface before the disinfectant is applied, mechanical action is also employed in one method by using wipes.

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

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.

HARD SURFACE PRODUCT TEST METHODS

For the Biocidal Product Regulation (BPR) there are two product types applicable to hard surface disinfectants. Product Type 2; Disinfectants used for the disinfection of surfaces, materials, equipment and furniture which are not used for direct contact with food or feeding stuffs, and Product Type 4; Disinfectants used for the disinfection of equipment containers, consumption utensils, surfaces or pipework associated with the production, transport, storage or consumption of food or feed for humans and animals.

As a minimum for general purposes, products should be effective against bacteria and yeast.

The scope of food area EN test methods applies to disinfectants used in food, industrial, domestic, institutional areas, excluding areas and situations where disinfection in medically indicated, and products used on living tissue except those for hand hygiene in the above areas.

EN TEST METHODS FOR FOOD, INDUSTRIAL, DOMESTIC AND INSTITUTIONAL AREAS

TEST REFERENCE		TEST TYPE	ORGANISM	TEST PASS CRITERIA
EN 1276	For bactericidal activity.	Suspension	Bacteria	≥5 log reduction
EN 1650	For fungicidal or yeasticidal activity.	Suspension	Fungi/Yeast	≥4 log reduction
EN 13697	For bactericidal and/or fungicidal or yeasticidal activity on stainless steel carriers.	Surface	Bacteria	≥4 log reduction
EN 16615	For bactericidal and/or yeasticidal activity in the medical area. For products used to disinfect non-porous surfaces with a mechanical action. Modified to use stainless steel carriers, interfering substance and *Escherichia coli* parameters from food, industrial, domestic and institutional areas.	Surface	Bacteria	≥5 log reduction
		Surface	Yeast	≥4 log reduction
EN 13704	For sporicidal activity	Suspension	Bacterial spores	≥3 log reduction

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MEDICAL AREA PRODUCT TEST METHODS

For the Biocidal Product Regulations (BPR) there is one product type that is applicable. Product Type 2; Disinfectants used for the disinfection of surfaces materials, equipment and furniture which are not used for direct contact with food or feeding stuffs.

As a minimum for general hygiene purposes products should be effective against bacteria and yeast.

The scope of medical area EN test methods applies to hygienic and surgical, handwash and handrubs and instrument disinfection by immersion and surface disinfection by wiping, spraying, flooding or other means. As well as areas and situations where disinfection or antisepsis is medically indicated for patient care e.g. hospitals, community medical facilities dental institutions clinics of schools, nurseries and nursing homes.

EN TEST METHODS FOR MEDICAL AREAS

TEST REFERENCE		TEST TYPE	ORGANISM	TEST PASS CRITERIA
EN 13624	For fungicidal or yeasticidal activity.	Suspension	Fungi/Yeast	≥4 log reduction
EN 13727	For bactericidal activity.	Suspension	Bacteria	≥5 log reduction
EN 14476	For virucudal activity.	Suspension	Virus	≥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 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%