Evans Vanodine
EST. 1919

MICROBIOLOGICAL PROFILE

Vanoquat

Formulated quaternary disinfectant

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VANOQUAT MICROBIOLOGICAL PROFILE

INTRODUCTION

VANOQUAT is a concentrated quaternary disinfectant for use in the food process and animal husbandry industries.

VANOQUAT is bactericidal and yeasticidal. It is also effective against enveloped viruses including coronavirus and is CEFAS listed.

VANOQUAT is a blended detergent/disinfectant and is ideal for hygiene sensitive areas.

VANOQUAT may be applied at ambient or elevated temperatures by brushing, soaking, spraying or fogging.

Effective in all water conditions	**Suitable on a variety of hard surfaces**	**Non-tainting and non-staining**
Ideal for single or two-stage clean and disinfection programmes		**Non-corrosive to surfaces**

VANOQUAT - EFFICACY SUMMARY

VANOQUAT 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. Other tests were performed by independent expert laboratories and included the virus test EN 14476.

*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.

VANOQUAT MICROBIOLOGICAL PROFILE

SUMMARY OF TEST RESULTS FOR FOOD, INDUSTRIAL, INSTITUTIONAL AND DOMESTIC AREAS

BACTERIA TEST PROFILE

ORGANISMS	DILUTION	TEST METHOD	TEMP (°C)	CONTACT TIME (MINUTES)	SOILING LEVEL
Campylobacter jejuni	1:800	EN 1276	20	5	Dirty
Enterococcus hirae	1:800				
Escherichia coli	1:200				
Escherichia coli "0157"	1:100				
Listeria monocytogenes	1:800				
Pseudomonas aeruginosa	1:100				
Ralstonia solanacearum	1:200		30		
Salmonella enterica	1:100		20		
Salmonella typhimurium	1:100				
Staphylococcus aureus	1:800				
Enterococcus hirae	1:120	EN 16615*	Room temp	1	Dirty
Escherichia coli	1:200				
Pseudomonas aeruginosa	1:100				
Staphylococcus aureus	1:200				

* Modified see page 5

FUNGI TEST PROFILE

ORGANISMS	DILUTION	TEST METHOD	TEMP (°C)	CONTACT TIME (MINUTES)	SOILING LEVEL
Aspergillus brasiliensis	Undiluted	EN 1650	20	15	Dirty
Candida albicans	1:100				
	1:400	EN 16615*	Room temp	1	Dirty

* Modified see page 5

SUMMARY OF TEST RESULTS FOR MEDICAL AREAS

VIRUS TEST PROFILE

ORGANISMS	DILUTION	TEST METHOD	TEMP (°C)	CONTACT TIME (MINUTES)	SOILING LEVEL
Influenza A H1N1	1:50	EN 14476	20	5	Clean
Vaccinia virus	1:25				

VANOQUAT MICROBIOLOGICAL PROFILE

SUMMARY OF TEST RESULTS FOR VETERINARY AREAS

BACTERIA TEST PROFILE					
ORGANISMS	**DILUTION**	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (MINUTES)**	**SOILING LEVEL**
Aeromonas salmonicida	1:200	EN 1656	4	30	High
Carnobacterium maltaromaticum	1:200				
Lactococcus garvieae	1:200				
Yersinia ruckeri	1:100				

FUNGI TEST PROFILE					
ORGANISMS	**DILUTION**	**TEST METHOD**	**TEMP (°C)**	**CONTACT TIME (MINUTES)**	**SOILING LEVEL**
Fusarium oxysporum f.sp. *cubense*	1:100	EN 1657	20	30	High

EN TEST METHODS

There are two types of laboratory test method for disinfectants, suspension 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 substance 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.

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.

TEST REFERENCE		TEST TYPE	ORGANISM	TEST PASS CRITERIA
EN 1276	For bactericidal activity in the food, industrial, domestic and institutional areas.	Suspension	Bacteria	≥5 log reduction
EN 1650	For fungicidal or yeasticidal activity in the food, industrial, domestic and institutional areas.	Suspension	Fungi/Yeast	≥4 log reduction
EN 14476	For virucidal activity in the medical area.	Suspension	Virus	≥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

MEDICAL AREA PRODUCT TEST METHODS

For the Biocidal Product Regulation (BPR) there is one product type 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 apply to hygienic and surgical handwash and handrubs and instrument disinfection by immersion and surface disinfection by wiping, spraying, flooding or other means.

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.

TEST REFERENCE		TEST TYPE	ORGANISM	TEST PASS CRITERIA
EN 14476	For virucidal activity in the medical area	Suspension	Virus	≥4 log reduction

VETERINARY DISINFECTANT PRODUCT TEST METHODS

Veterinary disinfectants can be used in a variety of areas e.g. the breeding, husbandry, production, transport and disposal of all animals except when in the food chain following death and entry to the processing industry.

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

The scope of veterinary EN test methods does not specify application of the product but does include disinfection by immersion and surface disinfection by wiping, spraying, foaming or other means. It does not include aerial disinfection.

TEST REFERENCE		TEST TYPE	ORGANISM	TEST PASS CRITERIA
EN 1656	For bactericidal activity.	Suspension	Bacteria	≥5 log reduction
EN 1657	For fungicidal and/or yeasticidal activity.	Suspension	Fungi/Yeast	≥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%