

hyperox

COMPOSITION

Colourless clear liquid with pungent odour. Blend of peracetic acid, hydrogen peroxide, acetic acid and surfactant in a stabilised aqueous solution.

GENERAL PROPERTIES

Provides broad spectrum biocidal activity with efficacy against spores, bacterial, fungal and viral organisms.

- **General purpose heavy-duty farm disinfectant for use with all types of livestock**
- **Superior, formulated product**
- **Increased stability gives greater killing power**
- **Completely biodegradable and breaks down to water, oxygen and carbon dioxide**
- **Safe to use, eco-friendly and does not pose a threat to the environment**
- **Effective in the presence of organic challenge and at low temperature**
- **Ideal for heavy-duty disinfection, thermal fogging and water system disinfection**
- **Available in 5 litre and 20 litre presentations**

Hyperox's advanced formulation results in greater efficacy. Independent testing shows Hyperox to be more powerful than other leading brands of peracetic acid. Hyperox is also more effective than glutaraldehyde/QAC mixtures - particularly at low temperatures.

Comparative German DVG test method results

Testing is performed at 20°C, in hard water with organic challenge.

Product	Bacteria porous surface test	Bacteria suspension test	Fungus suspension test	Virus porous surface test	Virus suspension test
Hyperox	1:67 (1.5%) 60 min	1:200 (0.5%) 30 min	1:200 (0.5%) 60 min	1:100 (1.0%) 30 min	1:200 (0.5%) 30 min
Competitor formulated peracetic acids	1:50 (2.0%) 60 min	1:100 (1.0%) 30 min	1:100 (1.0%) 60 min	1:100 (1.0%) 30 min	1:200 (0.5%) 60 min
Competitor glutaraldehyde/ QAC	1:100 - 1:25 (1.0% - 4.0%) 120 min	1:200 - 1:50 (0.5% - 2.0%) 60 min	1:100 - 1:17 (1.0% - 6.0%) 60 - 120 min	1:100 - 1:33 (1.0% - 3.0%) 60 - 120 min	1:100 (1.0%) 30 - 60 min

Comparative French AFNOR Homologations [Approvals]

Testing is performed at 20°C with varying degrees of organic challenge. For more details contact Antec International Ltd.

Product	Bacteria	Virus
Hyperox	1:200 (0.5%)	1:200 (0.5%)
Competitor formulated peracetic acids	1:125 (0.8%)	1:125 (0.8%)
Competitor glutaraldehyde / QAC	1:50 - 1:143 (2.0% - 0.7%)	1:200 - 1:33 (0.5% - 3.0%)

ENVIRONMENTALLY FRIENDLY

Hyperox is completely biodegradable and does not pose an eco-toxic threat. The following is a summary of the results of independent analysis performed by the UK Water Research Council, using internationally accepted protocols:

Effect on the performance of Sewage Treatment Facilities

Hyperox demonstrated an EC₅₀ of 770 (+/- 28) mg per litre. Even with the strict European standards, Hyperox should not pose a threat to sewage treatment works when used as directed.

Soil toxicity test using the earthworm, Eisenia foetida

Hyperox shows low toxicity to earthworms and can be described as being 'non-toxic' according to EU guidelines.

OPERATOR FRIENDLY

European Occupational Exposure Standards (OES) relate to safe levels of exposures for operators. Although there is no reported OES for the formulated product, OES levels do exist for the primary components: Acetic Acid [15ppm] and Hydrogen Peroxide [2ppm]; with normal cleaning practices falling within these limits.

The Maximum Exposure Level [MEL] for glutaraldehyde is 0.05ppm. Operators can therefore be exposed to up to 40 times more Hyperox than the maximum safe level of glutaraldehyde.

INDEPENDENT EFFICACY TESTING

Antec products are tested for their efficacy by independent agencies around the world. At the Ministry of Agriculture Food and Fisheries [MAFF], the UK agency, testing is conducted at 4°C and against organic challenge - a 5% yeast solution. This represents a practical farm environment - cold conditions and heavy soiling which can dramatically affect the performance of a disinfectant.

Results show Hyperox is effective in the face of organic challenge and at low temperature while the activity of glutaraldehyde is greatly influenced by temperature. Lower temperatures give significantly lower activity. For example, glutaraldehyde is 100 times less active against the Tuberculosis mycobacterium at 20°C than at 25°C.

Antec Hyperox has passed United States AOAC bactericidal, fungicidal and virucidal tests. Please contact Antec International Limited for more information.

MODE OF ACTION

Peracetic acid functions in a similar way to other peroxides and oxidising agents. Sulphur bonds in proteins, enzymes and other metabolites are oxidised. Peracetic acid disrupts the function of the cell membrane and causes rupturing of the cell wall. The potent protein denaturant action of peracetic acid gives sporicidal activity.

Hyperox Viral Efficacy

Genera	Organism	Ref No	Strain	Country	Comments	Dilution	Disease
Adenoviridae	ICH virus	7	-	France	AFNOR 72-180	1:200	Infectious Canine Hepatitis
Birnaviridae	IBD virus	11	DV86	UK	CVL	1:150	Infectious Bursal disease
Paramyxoviridae	Avian paramyxovirus 1	17		UK	MAFF approval	1:375	Newcastle disease
Paramyxoviridae	Avian paramyxovirus 1	8	Montana	Germany	DVG protocol*	1:1000	Newcastle disease
Paramyxoviridae	Avian paramyxovirus 1	16	Montana	Germany	DVG protocol*	1:100	Newcastle disease
Picornaviridae	FMDV	17		UK	MAFF approval	1:150	Foot & Mouth Disease
Picornaviridae	Porcine enterovirus 1	7	PK15	France	AFNOR 72-180	1:200	Teschen Talfan disease
Picornaviridae	Bovine enterovirus 1	8	LCR4 (ECBO)	Germany	DVG 72-180*	1:1000	Protocol organism
Picornaviridae	Bovine enterovirus 1	16	LCR4 (ECBO)	Germany	DVG protocol*	1:100	Protocol organism
Poxviridae	Vaccinia variola	8	Elstree	Germany	DVG protocol*	1:1000	Cowpox
Reoviridae	Avian reovirus	8	type 1	Germany	DVG protocol*	1:1000	Tenosynovitis
Reoviridae	Avian reovirus	16	type 1	Germany	DVG protocol*	1:400	Tenosynovitis
Togaviridae	CSF virus	13	-	UK	CVL	1:100	Classical swine fever

* (carrier test)

INDEPENDENT EFFICACY TESTING

Independent test reports available on request

UK - MAFF Approvals Testing is performed at 4°C, in hard water with organic challenge.

Product	Foot & Mouth Disease	Swine Vesicular Disease	Diseases of Poultry (Newcastle Disease)	Tuberculosis	General Orders
Hyperox dilution rates	1:150	1:50	1:375	1:100	1:179

Germany - using DVG test methods Testing is performed at 20°C, in hard water with organic challenge.

Product	Bacteria porous surface test	Bacteria suspension test	Fungus suspension test	Virus porous surface test	Virus suspension test
Hyperox dilution rates	1:67 (1.5%) 60 min	1:200 (0.5%) 30 min	1:200 (0.5%) 60 min	1:100 (1.0%) 30 min	1:200 (0.5%) 30 min

France - AFNOR Homologation [Approval]

Testing is performed at 20°C with varying degrees of organic challenge. For more details contact Antec International Ltd.

Product	Bacteria	Virus
Hyperox dilution rates	0.5%	0.5%

Hyperox Fungal Efficacy

Organism	Ref No	Strain	Country	Comments	Dilution
Absidia corymbifera	6	IP 1129.75	France	AFNOR 72-201	1:200
Absidia corymbifera	14	IP 1129.75	France	AFNOR 72-190	1:100
Aspergillus versicolor	14	IP 1187.79	France	AFNOR 72-190	1:100
Candida albicans	9	ATCC 10231	Holland	555- EST-V	1:200
Candida albicans	2	ATCC 10231	Germany	DVG protocol	1:400
Candida albicans	3	ATCC 10231	Germany	DVG protocol*	1:400
Cladosporium cladosporoides	14	IP 1232.80	France	AFNOR 72-190	1:100
Cladosporium cladosporoides	6	IP 1232.80	France	AFNOR 72-201	1:1000

Hyperox Bacterial Efficacy

Organism	Ref No	Strain	Country	Comments	Dilution
Enterococcus faecium	2	Kulmbach Str. 2	Germany	DVG protocol	1:200
Enterococcus faecium	3	DSM 2918	Germany	DVG protocol*	1:400
Enterococcus hirae	4	CIP 58.55	France	AFNOR 72-171	1:1000
Enterococcus hirae	5	CIP 58.55	France	AFNOR 72-171	1:100
Enterococcus hirae	12	CIP 58.55	France	AFNOR 72-190*	1:1000
Escherichia coli	4	CIP 54.127	France	AFNOR 72-171	1:10000
Escherichia coli	5	CIP 54.127	France	AFNOR 72-171	1:200
Escherichia coli	10	O157	England	EST - prEN1656	1:200
Escherichia coli	12	CIP 54.127	France	AFNOR 72-190*	1:1000
Mycobacterium tuberculosis	17	-	UK	MAFF approval	1:100
Proteus mirabilis	2	ATCC 14153	Germany	DVG protocol	1:200
Proteus mirabilis	3	ATCC 14153	Germany	DVG protocol*	1:400
Pseudomonas aeruginosa	2	ATCC 15442	Germany	DVG protocol	1:200
Pseudomonas aeruginosa	3	ATCC 15442	Germany	DVG protocol*	1:200
Pseudomonas aeruginosa	4	CIP A22	France	AFNOR 72-171	1:1000
Pseudomonas aeruginosa	5	CIP A22	France	AFNOR 72-171	1:100
Pseudomonas aeruginosa	9	ATCC 15442	Holland	555- EST-V	1:200
Pseudomonas aeruginosa	12	CIP A22	France	AFNOR 72-190*	1:1000
Salmonella typhimurium	1	DT104	UK	EST - prEN1656	1:200
Salmonella typhimurium	9	ATCC 13311	Holland	555- EST-V	1:200
Staphylococcus aureus	2	ATCC 6538	Germany	DVG protocol	1:200
Staphylococcus aureus	3	ATCC 6538	Germany	DVG protocol*	1:400
Staphylococcus aureus	4	CIP 53.154	France	AFNOR 72-171	1:1000
Staphylococcus aureus	5	CIP 53.154	France	AFNOR 72-171	1:100
Staphylococcus aureus	9	ATCC 6538	Holland	555- EST-V	1:200
Staphylococcus aureus	12	CIP 53.154	France	AFNOR 72-190*	1:200
Staphylococcus aureus	15	CIP 53.154	France	AFNOR 72-190*	1:200
Streptococcus faecalis	9	NCTC 8213	Holland	555- EST-V	1:200