

Virkon[®] **H2O**

Multifunctional Poultry Drinking Water Disinfectant and Acidifier



Disinfects and acidifies drinking water to help protect against infection and promote good flock performance



Virkon® H2O

**Multifunctional Poultry Drinking Water
Disinfectant and Acidifier**

The ideal multifunctional disinfectant choice for enhancing poultry drinking water quality and promoting good flock performance.

In line with the Virkon® product philosophy “the science to kill pathogens,” the unique and powerful oxidising formulation of Virkon® H2O has been specifically engineered to be used as part of a poultry production drinking water quality management system, to help:

- Reduce bacterial pathogen pressure during stress periods and disease outbreaks
- Prevent build-up and remove biofilms
- Inactivate antibiotic residues in the drinking waterline
- Acidify the waterline





Introduction

Poultry are natural hosts for a multitude of disease-causing organisms, and the water they drink during their lifecycle can often be a potentially potent source of infection.

Food poisoning pathogens such as Salmonella, Escherichia coli, Campylobacter jejuni, and other organisms of concern like Pseudomonas aeruginosa can be introduced easily to the birds, and rapidly spread throughout the flock via contaminated drinking water supplies. It is therefore essential that poultry have access to good quality, clean, safe drinking water throughout the duration of their life.

Whilst antibiotic treatment via drinking water ensures the birds receive an added boost to their natural immune system and helps improve performance, the reliance on them to ensure safe meat production is being challenged by governmental bodies and consumers worldwide.

In addition, a specified withdrawal time period must be observed prior to the birds going to slaughter to ensure unacceptable concentrations of antibiotic residues do not occur in the poultry meat.

The introduction of vaccines, medication and feed additives to the water can potentially leave residues within the system. These residues can culminate in assisting the build-up of biofilms within the drinking water system and lines, resulting in reduced water flow, blocked drinker nipples, and the continuous recontamination of the drinking water itself.

Therefore, best practice for continuous and terminal biosecurity is essential. To help promote good flock performance during times of increased stress, feed additive and antibiotic withdrawal periods, we have engineered this powerful dual action disinfectant and acidifying agent specifically developed for poultry drinking water systems.



Operational benefits

Excellent control of food poisoning pathogens to EN test standards.

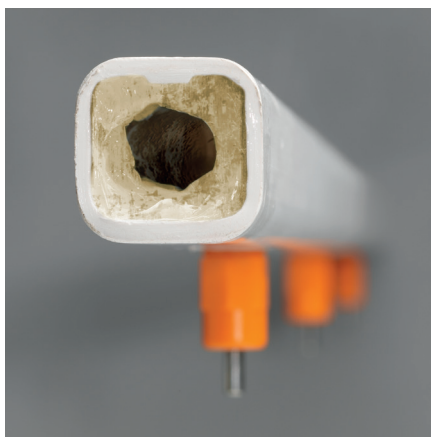
Independent studies conducted to European disinfectant test standards (EN 1276, EN 1656) have shown that Virkon® H2O is effective against key poultry pathogens of concern at a 1:800-1:1500 dilution rate. These include the food poisoning pathogens *Escherichia coli*, *Salmonella enteritidis* and *Campylobacter jejuni*. Additionally, Virkon® H2O is UK DEFRA Approved for Diseases of Poultry (DoP) and General Orders (GO)*

Support improved flock performance.

In times of flock stress such as; post vaccination, medical or micronutrient application periods, or after the 'flock thinning' process, Virkon® H2O can be applied to the drinking waterline for a period of between 2-3 days to help ensure the highest level of biosecurity is maintained, promoting good flock performance. Virkon® H2O has been formulated with enhanced solubility, to aid with easy preparation.

Prevents biofilm build-up.

After periods of medication or feed additives to the waterline, there is an increased risk of biofilm build-up within the water system itself. Dosing Virkon® H2O post treatment



can help reduce any biofilm build-up within the drinking water system by controlling the planktonic bacteria that can initiate and increase biofilms.

* Please refer to efficacy table on page 6 for approved UK DEFRA dilution rates and contact times.

Inactivates antibiotics in the drinking waterline.

Due to its unique and powerful oxidising formulation, Virkon® H2O, at a 1:800-1:1500 dilution rate, has been shown to help inactivate some antibiotics in poultry drinking waterlines. This application can therefore help assist in the deactivation of antibiotic residues, after their withdrawal, and prior to the birds going to slaughter.



Promotes good flock performance.

Virkon® H2O can be dosed into the drinking water system up until the end of a flock cycle to disinfect and acidify the water during the antibiotic exclusion period, when there is a greater risk of pathogen challenge to the flock. Field trials and independent analysis have confirmed that there is no need for a Virkon® H2O withdrawal period, with no residues of concern present in the birds at time of slaughter.

Good operator safety.

Virkon® H2O powder concentrate is not corrosive to skin and does not cause sensitisation via the dermal and inhalation routes of exposure. A typical in-use dilution of 1:100-1:1500 is non-irritating to skin and eyes and is not a sensitising agent.

Proven activity at low temperatures.

The ability of a disinfectant to work well at low temperature, especially in water, contributes to the value of its use on a daily basis. Temperature is a major factor for consideration, when selecting the best products for farm applications. Virkon® H2O has been shown to be effective at 4°C ensuring biocidal activity is retained under lower temperature conditions.



Environmental profile.

The Virkon® H2O oxygen-based chemistry contains simple inorganic salts and organic acids and the active ingredient decomposes by a variety of routes within the environment, in soil and water, breaking down to form the naturally occurring substances, potassium salts and oxygen. The major organic components are classified as readily biodegradable according to OECD and EU tests.

Virkon® H2O is not classified as H413* and is not persistent in the environment, according to the standard European process for the classification and labelling of chemical preparations.

Supporting the reduction of antibiotics.

Governments worldwide are seeking reductions in the use of medicinal livestock antibiotics to limit the development of antibiotic resistance passing into the human population. Targeted legislation to reduce the use of prophylactic antibiotics in the food chain is now becoming a reality within the EU, with the result that producers are taking steps to improve their biosecurity measures.

With proven efficacy against food poisoning disease-causing organisms, Virkon® H2O meets the toughest poultry drinking water biosecurity challenges and leads the way in biosecurity 'best practice' programmes.

NB. Virkon® H2O is a biocidal product formulation, and is not classified as a licenced antibiotic material within the EU. Due to the potential for inactivation or interference with veterinary medicines (vaccines and antibiotics), do not apply Virkon® H2O to the waterline for 12 hours prior to, or 12 hours after the application of antibiotics, or up to 48 hours after the administration of a vaccine to the waterline. Consult your veterinarian for further advice.

*H413 – May cause long lasting harmful effects to aquatic life.

Proven efficacy

Organism type	Poultry Disease/ Related Condition	Pathogen(s) tested	Dilution Rate	Contact time (mins)
Bacteria*	Bacterial reference test strains	<i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Escherichia coli</i> <i>Enterococcus hirae</i>	1:1000	30
Bacteria*	Bacterial reference test strains	<i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Escherichia coli</i> <i>Enterococcus hirae</i>	1:1500	60
Bacteria	Food poisoning – humans	<i>Salmonella enteritidis</i>	1:1000	60
Bacteria	Food poisoning - humans	<i>Salmonella java</i>	1:1500	30
Bacteria	Food poisoning – humans	<i>Salmonella typhimurium</i>	1:2000	60
Bacteria	Food poisoning – humans	<i>Campylobacter jejuni</i>	1:1000	30
Bacteria	Food poisoning – humans	<i>Escherichia coli</i> O157:H7	1:1000	30
Bacteria	Respiratory infection, Septicaemia	<i>Pseudomonas aeruginosa</i>	1:800	60
Bacteria	Respiratory infection, Septicaemia	<i>Pseudomonas aeruginosa</i> (biofilm)	1:100 (terminal disinfection) 1:800 (water disinfection) 1:2000 (water disinfection)	120 120 240
Bacteria	DEFRA 'General Orders'	<i>Salmonella enteritidis</i>	1:100	30
Virus	Avian Influenza	AIV H5N8	1:1500	30
Virus	DEFRA 'Diseases of Poultry' **	NDV	1:200	30
Virus	Newcastle disease (fowl pest)	NDV	1:800	30

* Virkon® H2O was tested in the prescribed method using a temperature 15°C, under dirty conditions (>15mg/litre DOC), with contact times as specified in the table.

** Approval also covers the control of AI (Avian Influenza) virus.

The specified uses and registered claims for Virkon® H2O may vary from country to country. Please contact LANXESS directly to verify country specific approved usages.

Application methods

Virkon® H2O is intended to be applied to poultry drinking water during periods when there is a greater risk of pathogen challenge, and to assist in the reduction of biofilm build up, as described in the following table:

Facility	Challenge period - examples	Application period
Broiler farms	During antibiotic withdrawal period	For up to 5 days at the end of the flock cycle
	Broiler start up	Day 1 to day 10
	Stress periods, e.g. after veterinary application (vaccination, medical or micronutrient); during flock thinning	24 hours after veterinary application, for 2 days. The day prior to flock thinning and two days thereafter
Layer and breeder farms	Disease outbreak (e.g. E. coli)	For up to 5 days
	During stress periods	Week 25 and week 40, for 3 days

Dilution rate

Virkon® H2O is effective against bacteria* in the range of 1.25 g/litre (1:800) to 0.67 g/litre (1:1500). The dilution rate should be selected based on the water pH recorded at the drinker point after initial dosing of Virkon® H2O. The target pH range when using Virkon® H2O is between pH 5.0 and pH 6.5. Simple experimentation may therefore be required in order to determine the necessary dilution for your water conditions.

It is advised to start with a dilution of 1 g/litre (1:1000) and in cases where acidity is too high (e.g. pH <5.0), the concentration of Virkon® H2O can be lowered to 0.67 g/litre (1:1500). Where acidity is too low (e.g. pH >6.5), the concentration of Virkon® H2O can be increased up to 1.25 g/litre (1:800).

**In accordance with testing conducted according to European Standard EN 1276 (modified as per efficacy guidance for biocides intended for use in animal drinking water), in high soil conditions (15 mg/L Dissolved Organic Carbon).*

Preparation and use for continuous application periods

Virkon® H2O can be applied to closed drinking water systems as a measured application to the reservoir/header tank, or via suitable dosing equipment attached directly to the incoming water supply, on a continuous basis over a the prescribed number of days.

Application via dosing equipment

It is advised to apply Virkon® H2O via a dosing system set to an application rate of either 1% or 2%. In order to achieve the required dilution in the waterline, a concentrated stock solution of Virkon® H2O must be prepared.

To prepare the stock solution, follow the steps opposite:

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Calculating the required amount of Virkon® H2O powder and water for the disinfectant stock solution:

Preparation of STOCK solution

- A** Required dilution rate (g/Litre)
- B** Volume of water to be treated (Litres)
- C** Doser application rate (%)

STEP 1 Powder calculation

Calculate the amount of powder required

$$\text{A} \times \text{B} = \text{g VIRKON}^{\circledR} \text{H2O POWDER}$$

STEP 2 Doser rate calculation

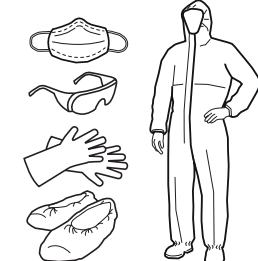
$$100 \div \text{C} = \text{DOSER RATE FACTOR (DRF)}$$

STEP 3 Water calculation

Calculate the amount of water required for the stock solution

$$\text{B} \div \text{DRF} = \text{Litres WATER}$$

Wear appropriate personal protective equipment (coveralls, personal protective eye wear, boots and gloves)




Example calculation:

A. 1 g/litre (1:1000) dilution required. **B.** 500 litres water to be treated. **C.** 2% dosing rate.

Step 1.
A(1 g/litre) x B (500 litres) = 500g powder required

Step 2.
100 / C (2%) = 50 (DRF)

Step 3.
B(500 litres)/DRF (50) = 10 litres of water required





Terminal disinfection for the end of the production cycle

Any pathogen challenge from one production cycle can offer a risk to the following production cycle. To reduce this risk the water lines must be cleaned, cleared of biofilm and disinfected, including the evacuation of any water held in the drinking points/nipples. Virkon® H2O has been proven to remove biofilm in a 2-hour period when applied at a concentration of 1% (1:100).



Antec International Limited
LANXESS Material Protection Products
Windham Road, Chilton Industrial Estate,
Sudbury, Suffolk, CO10 2XD
United Kingdom

Tel: +44 (0)1787 377305
biosecurity@lanxess.com
biosecuritysolutions.lanxess.com
lanxess.com

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Use biocides safely. Always read the label and product information before use.

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