



- **NON** - TOXIC
- **NO** ALCOHOL
- **NO** BLEACH
- **NO** RESIDUE
- **NON** - CARCINOGENIC
- **NON** - SCENTED
- **NON** - CORROSIVE
- **100%** BIODEGRADABLE

DESTROYS
99.9%
 Under 30 Secs
 *KILLS COVID-19

- VIRUSES
- BACTERIA
- MOLD
- FUNGUS
- ALGAE



FARMS & ANIMAL HUSBANDRY

Product name: BIOTECplus Total Disinfection

Product class: Disinfectant- Sanitizer

DESCRIPTION - QUATERNARY DISINFECTANT CLEANER is a concentrated, cost-effective germicide based on a blend of quaternaries and surfactants. It cleans, disinfects, and deodorizes with a neutral pH in dilution.

Product Composition and usage

Name	CAS#	TLV/PEL	%weight
N-Alkyl Dimethyl Benzyl Ammonium Chloride	85409-22-9	N/A	1
N-Alkyl Dimethyl Ethyl Benzyl Ammonium Chloride	8001-54-5	N/A	1
Water	7732-18-5	N/A	98

This article identifies the flora of pathogens existing in animal farms, and the reference to diverse ways BIOTECplus can alleviate the existing problems. Animal husbandry is the science of breeding and caring for animals

Microbial problems within Animal farms can be divided into two groups:

- (1) Bacterial contamination of animal feed
- (2) Pathogen infestation of general animal environment



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As farming methods have become more intensive, there is an increasing number of animals reared in confined spaces. This is combined with breeding and feeding approaches designed to increase production. It is often at the expense of the animals' welfare, but it also puts human health at risk. It increases the risk of certain diseases, which can lead to serious illness in humans and may be fatal. As we consume more animal products, particularly chicken and pig meat, there is greater risk of exposure to these illnesses. Salmonella, E. coli and Campylobacter are all bacteria that can cause food poisoning. We can get ill when consuming contaminated meat, eggs, and dairy. It is not only what we eat that puts us at risk; influenza viruses that affect poultry and pigs on farms can give rise to a 'flu that infects humans and can lead to rapid, widespread disease as well.

Table 1.0 represents the types of pathogens existing at beverage process plants and the associated contamination

Pathogens	Areas of contamination	Causes of contamination
<ul style="list-style-type: none"> ✚ Bacteria ✚ Virus ✚ Fungus 	<ul style="list-style-type: none"> ✚ Poultry coops ✚ Poultry beds ✚ Hatcheries ✚ Barns ✚ Pigsty ✚ Waste area ✚ Silos 	<ul style="list-style-type: none"> ✚ Poor farm management ✚ Poor slaughtering processes ✚ Antibiotic resistance ✚ Inability to stop transmissions among farm animals due to lack of education

BIOTECplus is tested and certified to kill Algae, Yeast, Mold, Bacteria, and Viruses.



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BACTERIA associated with Animal farms

E.coli

Sources of infection and effects of farming systems

The serious and sometimes fatal nature of pathogenic E. coli gives it high importance. Cattle, sheep, and pigs may carry E.coli without developing disease. Cattle, and therefore beef, are the main source of E.coli, particularly minced or ground beef, due to its large surface area that supports the bacteria and, because it may be produced from multiple cuts of meat from several animals. The use of feedlots as an intensive system to fatten beef cattle prior to slaughter seems to be a particular risk for E.coli infection. Transmission from one animal to another is more likely as a result of high stocking densities in feedlots. Feedlot cattle are fed a diet of grain to fatten them for slaughter quickly. This diet promotes the growth of E. coli, in the hindgut, leading to increased colonization and shedding of E.coli, which can then spread to other animals. Cattle fattened in feedlots may also be under considerable environmental stress in hot and crowded conditions, which can also lead to increased shedding of bacteria in faeces. Long transport times and poor conditions while awaiting slaughter or at markets may further increase shedding.

Campylobacter and Staphylococcus Aereus

The single biggest identified cause of bacterial infectious intestinal disease in people in much of the developed world. Recently, the World Health Organization declared it the most important foodborne pathogen. Symptoms of acute Campylobacter infection vary from mild diarrhea lasting 24 hours to severe illness lasting more than a week. Around 1% of cases go on to develop long-term complications. Poultry are the main source of Campylobacter infection and are estimated to be responsible for up to 80% of cases in the EU. The biggest risk is chicken meat (including chicken liver). Levels of surface contamination of Campylobacter on chicken carcasses from gut contents at slaughter are high, probably due to the speed of slaughtering and the fact that chicken carcasses and portions are generally wrapped, keeping meat surfaces moist, which facilitates Campylobacter survival. Cross-contamination in catering is also an important risk factor. Unlike other meat products, Campylobacter is also found deep inside chicken muscle (meat) and liver, rather than just on the surface. This internal contamination of edible tissues poses a major public health threat, as the bacteria may survive cooking better.



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At approximately five weeks of age, around 30% of birds are removed for slaughter at a lighter weight, with the remainder being kept for around another week so they are heavier. Infection can be introduced during catching of the birds by people and machines coming in from outside. The birds remaining in the house will be stressed making them more susceptible to infections like *Campylobacter*. Feed is withdrawn from poultry flocks prior to slaughter to reduce the risk of faecal

contamination of carcasses during the slaughter process. However, fasting tends to increase the number of *Campylobacter* in the gut and the stress caused by feed withdrawal may pre-dispose birds to *Campylobacter* infection and increased shedding. Research has indicated that viable *S. aureus* cells and filter-sterilized cell-free media obtained from *S. aureus* prolonged the survival of *Campylobacter* at low temperature and during aerobic conditions. Biofilm formation of *Campylobacter* strains was significantly enhanced in the presence of viable *S. aureus* cells. The presence of *S. aureus* cells therefore enhances survivability of *Campylobacter* strains in adverse conditions such as low temperature and aerobic conditions.

Salmonella

Salmonella is a major worldwide problem for both animal and public health. Most of the 2,500 strains of *Salmonella enterica* can infect a wide range of animal species and can cause diarrhea in humans. Throughout the world, the most important foodborne *Salmonella* strains are *Salmonella Typhimurium* and *Salmonella Enteritidis*, both in terms of number of cases and the severity of infection caused. *Salmonella* infection can sometimes be fatal.

It is thought around 20% of human cases of *Salmonella* infection in the EU are due to consumption of pork or pork products. Pigs may also be infected without showing signs of disease, although young pigs may develop diarrhea in much the same way as humans. The industrial nature of both production and slaughter makes the spread of infection relatively easy in poultry. Carcasses are frequently contaminated by gut contents during slaughter. In laying hens, eggs may become infected within the reproductive tract. Faecal contamination of eggs after laying may also occur, which appears to be a problem in intensive, cage-based systems.



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A **BIOTECplus** and Bacteria

BIOTECplus works optimally across a wide temperature and pH range and is therefore effective in any environment. BIOTECplus is certified against the most extreme gram positive/Gram negative bacteria and not only eliminates these pathogens, but in a record disinfection time of 15 minutes to 15 seconds respectively. From our testing are few of the bacteria that BIOTECplus is certified to neutralize(gram+) Staphylococcus aureus, (gram-)Escherichia coli and Salmonella. Campylobacter is eliminated as designated gram-negative bacterium using BIOTECplus

VIRUSES associated with Animal farms

Swine and Avian flu

Avian and swine influenza are caused by influenza A viruses. There are many different subtypes, categorized according to two types of protein that project from the surface of the virus. Avian influenza has the potential to cause rapid and widespread mortality in domestic chickens and turkeys. Usually, influenza infection in poultry causes mild disease, referred to as low pathogenicity avian influenza (LPAI), but two subtypes (H5 and H7) can mutate to a highly pathogenic form (high pathogenicity avian influenza, HPAI) in poultry. There is particular concern about H5N1 HPAI, which has affected flocks in over 60 countries. Swine influenza typically causes respiratory disease in pigs with a rapid onset of fever, loss of appetite and coughing. It is rarely a fatal illness; animals may lose a considerable amount of weight, which has economic consequences, but they usually recover within 7 to 10 days.

BIOTECplus and Viruses

BIOTECplus is particularly tested against the most difficult of viral components and has demonstrated excellence in its ability to effectively and safely eliminate them. The H5N1 (Avian) and H1N1 (Swine) are enveloped flu viruses like all other viruses. BIOTECplus is proven to penetrate the layers of enveloped viruses thereby exposing the inner most organelles immediately rendering the viral organism dead. Disinfection requires a maximum time of 10 minutes while sanitizing requires a maximum time of 15 seconds



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KEY PATHOGENIC ISSUES

The bacteria contaminate meat or animal products from fecal material in the lower gut or on the hide of animals at slaughter. Specific areas within meat process plants are more susceptible to multiplying bacteria. Handling and maintenance without strict protocol as well as lack of understanding of interaction between existing bacteria will lead to serious and fatal contamination of meats, particularly poultry, pork and beef products. Cross contamination between raw and cooked meat is a particular risk. When this happens in the food industry, the consequences can be catastrophic. Avian and swine influenza viruses can sometimes infect and cause disease in people, causing worldwide concern. Occasionally, a new strain emerges that can be transmitted easily from person-to-person and a pandemic can result, often with devastating consequences

Control Measures

How BIOTECplus supports your protocols

The dilutions of BIOTECplus allow for specificity in areas of application, whether sterilizing, sanitizing or general disinfecting.

Specific to different health and safety animal requirements

Control measures include maintaining the cleanliness of equipment with **BIOTECplus**

The user can apply BIOTECplus in all areas to effectively eradicate all pathogens while significantly reducing any chance of S.Aereus supporting the proliferation of Campylobacter.

Increasing progeny size while reducing mortality rates

To be applied prior to housing animals, maintenance and for remediation or removal of harmful microbes

Benefits of BIOTECplus

BIOTECplus is tested safe and effective against extreme pathogens existing in Animal and farm facilities. The product allows fast turnovers in each department(max 15 min), taking the place of numerous individual cleaners and thus saving costs to the manufacturer. The NON-toxic, Biodegradable, Biomedically standardized disinfectant and sanitizer efficiently works by ionization and is safe for human contact, is non-abrasive, non-corrosive and certified for food contact surfaces.



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BIOTECplus is tested at the Microchem laboratory, Texas USA
 ISO 17025 Accredited and GLP Compliant Laboratory
 Microchem maintains compliance with EPA and FDA Good Laboratory Practices
 BIOTECplus is manufactured using EPA certified active ingredients

Study Title	Test Method
Antibacterial Activity and Efficacy of BIOTECplus Test Substance for use in medical institutions	Modified AOAC Official Method 960.09 Germicidal and Detergent Sanitizing Action of Disinfectants Study Identification Number
Pseudomonas aeruginosa (bacteria)	NG11206
Staphylococcus aureus (MRSA- bacteria)	NG11206
Escherichia coli (bacteria)	NG11409
Trichophyton interdigitale (fungus)	NG11332
Human Coronavirus	ASTM E1053, Standard Test Method to Assess Virucidal Activity of Chemicals Study Identification Number NG14878

Test Facility

Microchem Laboratory
 1304 W. Industrial Blvd
 Round Rock, TX 78681
 (512) 310-8378

***See MSDS and certificates for verification**

Microchem maintains ISO 17025 accreditation through ANSI National Accreditation Board (ANAB). Accreditation provides our clients with additional confidence in the laboratory’s quality system and technical competence. In addition to ISO 17025 accreditation, Microchem maintains compliance with EPA and FDA Good laboratory practices (GLPs)



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#1 IN TOTAL DISINFECTION

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Microchem's current scope of accreditation includes the following standards

- AAMI TIR12- Disinfection Validation- designing, Testing and Labelling Reusable Medical Devices for Reprocessing in Healthcare Facilities: A Guide for Medical device Manufacturers.
- AAMI TIR30- Cleaning Validation- A compendium of processes, materials, test methods, and Acceptance Criteria for Cleaning Reusable Medical Devices
- ISO 11930- Evaluation of the Antimicrobial Protection (Preservation) of Cosmetic Products

This article was created by the manufacturer's YBMS Biotec Ltd. in conjunction with tests carried out using BIOTECplus against respective pathogens existing in the farming and animal husbandry industry.

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