Dodge[®]

THE DODGE COMPANY

Protecting your work environment with Tested and Proven non-Hazardous products.

Funeral, Mortuary, Healthcare and Bio-Security Products Created with your Safety in Mind.





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Dodge is a family-owned business since 1893 and is known globally as a leader in the field of embalming fluids, supplies, and innovation. Our research is never-ending in the quest to provide you with the best and safest products.

Dodge has had the only significant breakthroughs in our field including Synergism, Plasdoform, Dynachrome, and more recently Freedom Art the most effective Formaldehyde-Free arterial fluid, and Freedom Cav. Like most companies the ability to change and evolve with the times is a vital tool that ensures future development and growth, and Dodge is no different. We have worked with leaders in manufacturing and research and development to achieve the best products that will suit any environment. As part of our continued efforts, we offer a single solution to your disinfection and sanitation needs with consideration to safety of use, non-toxicity, and the environment.

This innovative development of a full product line will dramatically reduce costs from administration as well as Health and Safety aspects, thus reducing errors within the working environment.

To provide assurance that Dodge and our disinfectant product line meets or EXCEEDS all European Standards, we and our manufacturer have put in place a Quality Assurance Management System on:

- Maintaining improvements of Customer Satisfaction.
- Examining our involvement and relationships with our Suppliers and other interested parties focusing on Environmental Impact.
- Continuous improvement of our process of Operation.
- Development of staff within the Organization, and
- Continuous improvement in the effectiveness of the Quality Management System.

While our ambition is to be the best provider of Disinfectant needs for Funeral Homes, Mortuaries, and all funeralcare related businesses; we can only be successful by providing total commitment to exceptional standards of performance and productivity, working together effectively, and with a willingness to learn and develop continuously.

The Dodge Company will always be available to offer help and advice on our products and their proper uses and applications. We are hopeful that this technical bulletin will provide you with a better understanding the effectiveness of our products as well as how beneficial their use will be within your workplace.

Feel free to contact your Dodge Sales Representative or call our Customer Service Department at **01256893883**, by free phone at **08008815654**, or email us at: **enquiries@dodge-uk.com**

Thank you for your interest in The Dodge Company Ltd.

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DODGE DISINFECTANT

Protecting your work environment with Tested and Proven non-Hazardous products.

Funeral, Mortuary, Healthcare and Bio-Security Products Created with your Safety in Mind.

All products are produced in the European Union and comply with all of the latest regulations under the European Biocidal Products Directive (98/8/EC).

This product has been scientifically designed to meet your exacting standards for today's infection prevention and hygiene needs.

The product is effective against a wide spectrum of Bacteria, Viruses, Protozoa, Moulds and Yeasts. You just can't get better cover.

DODGE DISINFECTANT is a broad spectrum fast acting biocide with the following key benefits:

- Broad spectrum of bactericidal activity, against both Gram-negative and Gram- positive bacteria
- Active against odour-causing bacteria
- Active against moulds and yeasts
- Active against viruses
- Fast rate of kill at low levels
- Activity retained in the presence of organic matter e.g. blood
- Non- corrosive
- Non-staining
- No smell; non-volatile
- Extensive toxicity studies suggest acceptable use risk to humans
- Non-specific mode of action with no known evidence of organism resistance.
- Safe for use on all surfaces hard and soft
- Can be manufactured for use in skin products
- Not tested on animals
- Contains Anticeptic properties
- Non-hazardous in use
- Not effected by hard water or changes in pH.
- Does not contain Chlorine, Glutaraldehyde, Formaldehyde, Alcohol or any other harmful chemicals.
- Simply dilute 100:1 with water and spray of wipe on to the surface. It cleans and disinfects in one single action saving time and money.
- For 'difficult to kill' viruses and spores it may be necessary to increase end-product use concentration up to 6-fold.



AGAINST SOME BACTERIA RESPONSIBLE FOR PRODUCING HOSPITAL ACQUIRED INFECTIONS (HAI)

The Problem Microorganisms

Many bacteria, mycobacteria, fungi and viruses can cause opportunistic infections or deleterious effects. Below we outline some of these micro-organisms.

Staphylococcus aureus is the most important nosocomial pathogen causing widespread morbidity and mortality in hospitalised patients. Infections may range from minor skin and would infections to pneumonia and septicaemia.

Resistant strains are an increasing problem in most hospitals. Strains demonstrating resistance to methicillin (Methicillin Resistant Staphylococcus aureus - MRSA) are generally resistant to a range of other antibiotics.

Streptococcus pyogenes is a common cause of sore throat and an occasional cause of skin and wound infections. Although it is not a very common nosocomial pathogen, the severity of the illness which can result from infection makes it an important pathogen to eradicate from the hospital environment. Multiple resistant strains are rare.

Enterococcus faecium has emerged as an important nosocomial pathogen over recent years due to their acquired resistance to a wide range of antimicrobials. Of great concern is the resistance of some strains to Vancomycin (Vancomycin-resistant Enterococci - VRE).

Clostridium difficile and **Clostridium perfringens** are spore-forming bacteria that cause nosocomial diarrhoea. C.difficile in particular is the commonest cause of nosocomial diarrhoea and is the cause of much morbidity and mortality in elderly hospitalised patients. It is known within Funeral Service to cause tissue gas.

Enterobacteriacea. There have been many well documented hospital outbreaks due to multiantibiotic resistant strains of these bacteria. A range of species is responsible for such outbreaks but one of the most problematic species is Enterobacter cloacae. This species is commonly resistant to a range of antibiotics.

Gram negative, non-fermenting species such as those belonging to the genera Acinetobacter, Pseudomonas and Burkholderia can pose an even greater threat to hospitalised patients. These may be resistant to almost all available antibiotics and thus pose major problems for clinicians.

Information on Diseases

Internet Diseases caused by bacteria - BioTopics www.biotopics.co.uk/g11/bacterial_problems.html



THE ACTIVITY OF DODGE DISINFECTANT

Hepatitis C Virus, Hepatitis B and HIV (AIDS). Intravenous drug users are at high risk of hepatitis C virus (HCV) and hepatitis B virus (HBV) infection, which represent a global and challenging health problem due to chronic hepatitis and predisposition to both cirrhosis and hepatocellular carcinoma (HCC). HCV infection is an increasingly major public health problem, threat and concern worldwide. A high rate of HCV infection has been found in intravenous drug users worldwide. In contrast to individuals who have been infected sporadically or through transfusion, intravenous drug users may be exposed repeatedly to HCV- contaminated blood through needle sharing.

Human immunodeficiency virus, (HIV), is the virus that causes Acquired Immunodeficiency syndrome (AIDS). In the UK it's estimated there are 98,400 (easier figures "around 100,000) people living with HIV, nearly 30% of these are undiagnosed. HIV weakens a person's ability to fight infections and cancer. HIV transmission can occur during unprotected sex or needle sharing. Symptoms of HIV vary widely, with some infected people not showing any signs or symptoms. There is no HIV cure, although medications can delay the onset of AIDS.

MINIMUM INHIBITORY CONCENTRATIONS (MICs).

An MIC is the lowest concentration of an antimicrobial that will inhibit the visible growth of a microorganism after overnight incubation.

Minimum inhibitory concentrations are used to confirm resistance of microorganisms to an antimicrobial agent and also to monitor the activity of new antimicrobial agents. A lower MIC is an indication of a better antimicrobial agent.

3.1 TABLE 1 MIC (Minimum Inhibitory Concentration) against Gram-Negative Bacteria

Micro-organism	Strain No.	DODGE Disinfectant (ppm product)
Acinetobacter baumannii	ATCC 19606	140
Aeromonas hydrophila	ATCC 7966	280
Aeromonas hydrophila	NCTC 8049	35
Campylobacter jejuni	ATCC 29428	280
Citrobacter freundii	ATCC 8090	140
Edwardsiella tarda	NCTC 11934	70
Enterobacter aerogenes	ATCC 13048	70
Enterobacter cloacae	NCIB 8271	280
Enterobacter cloacae	NCTC 11936	560
Escherichia coli	NCIB 9132	1120

Escherichia coli	NCTC 5934	35
Escherichia coli	ATCC 9001	35
Escherichia coli 0157:H7	NCTC 12900	560
Klebsiella aerogenes	NCTC 9528	175
Klebsiella pneumoniae	ATCC 4352	210
Klebsiella pneumoniae	NCIB 11467	560
Legionella pneumophila	Not specified	35
Proteus mirabilis	NCTC 10975	1120
Proteus rettgeri	NCTC 7475	1120
Proteus vulgaris	NCTC 4175	280
Pseudomonas aeruginosa	ATCC 25668	2170
Pseudomonas aeruginosa	NCTC 10662	280
Pseudomonas aeruginosa	NCIB 6750	280
Pseudomonas aeruginosa	ATCC 15442	280
Pseudomonas aeruginosa	ATCC 13388	420
Pseudomonas cepacia	NCTC 10661	1120
Pseudomonas fluorescens	ATCC 13525	280
Pseudomonas perolens	Not specified	175
Pseudomonas putida	Not specified	175
Salmonella choleraesuis	ATCC 13311	840
Salmonella dublin	ATCC 13311	840
Salmonella dublin	Not specified	420
Salmonella poona	NCTC 4840	280
Salmonella typhimurium	ATCC 14028	1120
Serratia marcescens	NCIB 9523	1120
Serratia marcescens	NCTC 11935	210
Stenotrophomonas maltophilia	Not specified	13637
Vibrio cholerae Non 0:1	NCTC 11348	35
Yersinia enterocolitica	NCTC 10460	2170

3.1 TABLE 1 cont. MIC (Minimum Inhibitory Concentration) against Gram-Negative Bacteria

Strain No.

ATCC 11775

Micro-organism

Escherichia coli

DODGE Disinfectant

(ppm product)

560

3.2 TABLE 2 MIC (Minimum Inhibitory Concentration) against Amoeba

Amoeba

Acanthamoeba

2.2 TADIE 2

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MIC (Minimum Inhibitory C	oncentration) against Gram-P	ositive Bacteria
Micro-organism	Strain No.	DODGE Disinfectant (ppm product)
Bacillus cereus	ATCC 9139	140
Bacillus cereus	ATCC 10876	1120
Bacillus megaterium	Not specified	70
Bacillus polymyxa	Not Specified	70
Bacillus subtilis	NCIB 3610	1.5
Bacillus subtilis	ATCC 6633	35
Clostridium perfringens (welchii)	Not specified	420
Clostridium perfringens	NCTC 8081	12
Corynebacterium acnes	Not specified	105
Enterococcus faecium	NCIB 11508	70
Enterococcus faecalis	NCTC 775	140
Enterococcus hirae	ATCC 1054	10541
Listeria monocytogenes	ATCC 15313	210
Mycobacterium avium	Not specified	15769
Mycobacterium bovis	Not specified	19210
Mycobacterium terrae	Not specified	15755
Mycobacterium tuberculosis	Not specified	25177
Staphylococcus aureus	NCTC 6571	35
Staphylococcus aureus (MRSA)	NCTC 11940	18
Staphylococcus aureus (MRSA)	NCTC 12493	18
Staphylococcus aureus	NCTC 1803	140
Staphylococcus epidermidis	ATCC 14990	70
Streptococcus faecalis	Not specified	35
Streptococcus lactis	NCTC 7944	140
Streptococcus pyogenes	Not specified	210

3.4 TABLE 4 BSEN 13727: 2003 Quantitative suspension test for the evaluation of the bactericidal activity of DODGE Disinfectant for instruments used in the medical area.

Organism	Strain No.	Log reduction		
		1 minute	5 minutes	
Pseudomonas aeruginosa	ATCC 15442	2.83	5.69	
Staphylococcus aureus	ATCC 6538	5.41	6.43	
Enterococcus hirae	ATCC 10541	>6.37	>6.37	

BSEN 13727: 2003 Quantitative suspension test for the evaluation of the bacterial activity of **DODGE DISINFECTANT** for instruments used in the medical area.

The product complies with the criteria of BSEN 13727:2003 (log 5 reduction in 60 minutes) in 1 minute against Enterococcus hirae, and 5 minutes against Staphylococcus aureus and Pseudomonas aeruginosa. Analysis carried out by Scientific Services Report No. K114117-8 29th September 2015

3.5 TABLE 5 BSEN 13704 Testing against Clostridium difficile spores: NCTC 11209

Dilution rate	Log reduction	on in C. diff. spores after	contact times.
Percentage (%)	1 minute	5 minutes	10 minutes
5	1.85	2.85	3.8
10	2.52	4.73	>6.33
20	>4.32	>5.36	>6.33

DODGE Disinfectant complies with the criteria of BSEN 13704:2002 (log 3 reduction in 60 minutes) against Clostridium difficile spores under the test conditions stated. Rapid Kill Rates of C. diff. spores were achieved within 5 minutes at a concentration of 5% Nuevo disinfectant.

Analysis carried out by Scientific Services, Report No.K114191-2 1st October 2015.

3.6 TABLE 6 MIC (Minimum Inhibitory Concentration) against Moulds and Yeasts

Micro-organism	Strain No.	DODGE Disinfectant (ppm product)
Aspergillus niger	ATCC 16404	16404
Candida Albicans	ATCC 10231	10000
Rhodotorula rubra	NCYC 1659	753
Saccharomyces cerevisiae	ATCC 9763	2100
Saccharomyces cerevisiae	NCPF 3178	1120

From the laboratory data above for bacteria moulds, and yeasts the recommended usage rate of DODGE Disinfectant is 100:1 which delivers 10,000 ppm of active product. This level also ensures high performance cleaning for all surfaces whilst ensuring that the actives control the bacteria. Higher concentrations of DODGE disinfectant are needed to ensure effective kill rates of some viruses and bacterial endospores.

NOROVIRUS / SWINE FLU H1N1

Viruses are divided into families on the basis of size, symmetry, type of nucleic acid genome (ribonucleic acid (RNA) or deoxyribonucleic acid (DNA)) and mode of replication. Viruses of different families vary in their resistance to disinfectants, enveloped viruses usually being more sensitive than non-enveloped viruses.

DODGE Disinfectant has been shown to have broad spectrum virucidal activity against both enveloped and naked RNA/DNA viruses.

DODGE Disinfectant was as shown to be active against a range of medically important viruses including Herpes simplex type 1 (Herpesviridae), Influenza Hong Kong Virus (Orthomyxoviridae) and Vaccinia (Poxviridae).

DODGE Disinfectant has also been shown to be highly effective against a virus associated with gastroenteritis (Rotavirus) and also a range of bird and animal viruses including Herpes virus, Coronavirus, Poxvirus and Parvovirus. Specifically, DODGE Disinfectant has been shown to be active against Foot and Mouth Virus (Picornaviridae) and pathogenic Avian influenza virus (both H7N1 and H5N1). Technical data is shown below.

The procedures used are typical of those used for the quantitation of infectious viruses; calculation of the end point of a quantal titration is the dilution of virus which infects or kills 50% of inoculated hosts (TCID50) and cytopathic effects (virus induced lysis or necrosis) which can be observed both macro and microscopically.



NOROVIRUS

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SWINE FLU H1N1

4.1 TABL Summary o	E 1 f Antiviral Ad	ctivity of DOI	DGE Disinfec	tant	No.	
Virus	Disease	Ту	pe	Structure	Test Conditions (type of test, diluent, interfering substances, contact time and temp.)	DODGE Disinfectant Dilution Rate
Influenza Hong Kong Virus	Flu	Orthomyxoviridae	Lipophilic	Enveloped, RNA	Surface test, SDW, 10% albumin, 10min contact time, RT	100:1
Herpes Simplex Type 1 Virus	Herpes	Herpesviridae	Lipophilic	Enveloped, DNA	Surface test, SDW, 10% albumin, 10min contact time, RT	100:1

4.1 TABL	E 1 Cont.			1		1. 1. 40
Virus	Disease	ту		Structure	Test Conditions (type of test, diluent, interfering substances, contact time and temp.)	DODGE Disinfectant Dilution Rate
Vaccinia Virus	Smallpox	Poxviridae	Partial lipophilic	Naked, DNA	Surface test, SDW, 10% albumin, 10min contact time, RT	100:1
Rotavirus	Gastroenteritis	Reoviridae	Partial lipophilic (capsomeric lipophilicity)	Naked, RNA	Suspension test, SDW, 0.03% albumin, 5min contact time, R	150:1
Avian Infectious Laryngotracheitis Virus	Laryngotracheitis	Herpesviridae	Lipophilic	Enveloped, DNA	Suspension test, phosphoric acid buffer, 15min contact time, RT	1500:1
Avian Herpes Virus	Mareks Disease	Herpesviridae	Lipophilic	Enveloped, DNA	Suspension test, phosphoric acid buffer, 15min contact time, RT	1500:1
Fowl pox Virus	Fowl pox	Poxviridae	Partial lipophilic	Naked, DNA	Suspension test, SDW, 15min contact time, RT	375:1
Transmissible Gastroenteritis of Swine Virus	Gastroenteritis	Coronaviridae	Lipophilic	Enveloped, RNA	Suspension test, phosphoric acid buffer, 3hour contact time, RT	375:1
Foot & Mouth Disease Virus	Foot & Mouth Disease	Picornaviridae	Hydrophilic	Naked, RNA	Suspension test, WHO hard water, 1% serum, 30min contact time, 4oC	15:1
Feline Coronavirus	Feline Infectious Peritonitis	Coronaviridae	Lipophilic	Enveloped, RNA	Suspension test, SDW, 2hour contact time, RT	75:1
Feline Calicivirus (Norovirus surrogate)	Gastroenteritis	Caliciviridae	Partial lipophilic	Naked, RNA	Surface test, SDW, 0.06% serum, 5min contact time, RT	150:1
Canine Parvovirus	Parvoviral Enteritis	Parvoviridae	Hydrophilic	Naked, DNA	Suspension test, SDW, 0.06% serum, 15 min contact time, RT	75:1
Pathogenic Avian Influenza Virus (H7N1)	Avian Influenza	Orthomyxoviridae	Lipophilic	Enveloped, RNA	Suspension test, hard water, 0.3% BA & 1% BA + 1% YE, 30 min contact time, 10oC	75:1
Highly Pathogenic Avian Influenza Virus (H1N1)	Avian Influenza	Orthomyxoviridae	Lipophilic	Enveloped, RNA	Suspension test, hard water, 5% chicken serum, 10 min contact time, RT	100:1
Hepatitis C Surrogate.	Hepatitis C	Flaviviridae	Lipophilic	Enveloped RNA	Surface test, 5% horse serum. 20 ⁰ C. 1 min	20:1 50:1 100:1

4.2 TABLE 2 Activity of DODGE Disinfectant Against Medically Important Viruses (1)

DODGE DISINFECTANT Dilution Rate	TCID50 at 10 Minutes Contact Time			
	Vaccinia	Flu A2 Hong	Herpes Simplex	
		Kong	Type 1	
100:1	10 ²	10 ²	10 ²	
600:1	10 ^{3.5}	10 ^{3.6}	10 ²	
3000:1	104.5	10 ^{4.6}	10 ^{4.9}	
Control	104.5	10 ^{5.1}	10 ^{4.7}	

Quantitative suspension test on dried viruses. Test conditions; product diluted in sterile distilled water, dirty conditions (10% bovine plasma albumin), inoculum = test viruses at log 5-7 titre. The data shows 100:1 dilution of DODGE CRTSTAL CLEAR[®] Disinfectant to be active against Vaccinia, Flu A2 Hong Kong and Herpes simplex type 1 viruses.

4.3 TABLE 3 Activity of DODGE Disinfectant Against Rotavirus (2)

DODGE DISINFECTANT Dilution Rate	Log 10 Decrease in Viral Titre at 5 Minutes Contact Time
30:1	4.0
75:1	3.7
150:1	4.0
Control	0

Quantitative suspension test method based on EN1276. Test conditions; product diluted in sterile distilled water, clean conditions (0.03% BSA), inoculum = rotavirus cultured in MA-104 cells, measurement of cytopathic effects - microscopy, confirmation of cytopathic effects = stained with FITC conjugated rotavirus type 1 monoclonal antibody. The data shows 100:1 dilution of **DODGE DISINFECTANT** to be active against Rotavirus.

4.4 TABLE 4 DODGE Disinfectant Against Avian Infectious Laryngotracheitis Virus (ILT) (Herpesviridae) (3)

DODGE DISINFECTANT Dilution Rate	TCID50 from Reed-Muench Test at Contact Time (Min)					
	0	5	15	30	60	120
1500:1	10 ³	10 ^{0.5}	<10	<10	<10	<10
3000:1 3	10 ³	10 ¹	10 ^{0.5}	10 ^{0.5}	10 ^{0.3}	<10
6000:1 3	10 ³	10 ^{1.5}	10 ¹	10 ^{0.5}	10 ^{0.5}	10 ^{0.5}
Control	10 ³	10 ³	10 ³	10 ^{0.7}	10 ^{2.7}	10 ^{2.5}

TCID50 = Tissue Culture Infecting Dose for 50% inoculated tubes. Inoculated 0.2ml of ILT virus into 2ml of PHMB diluted with phosphoric acid buffer solution, after various contact times samples were added to chicken renal cells, incubated at 37°C for 4 days and cytopathic effects observed. Data above shows TCID50 from Reed-Muench method. The data shows 1500:1 dilution of **DODGE Disinfectant** to be active against Avian Infectious Laryngotracheitis virus.

4.5 TABLE 5

DODGE Disinfectant against Avian Herpes Virus

Time	DODGE DISINFECTANT					
(min)		Dilution Rate				
		750:1	1500:1	3000:1	6000:1	Control
15	TCID50	<1	<1	10 ^{0.6}	10 ^{2.3}	10 ²
	Decrease %	>99.9	>99.9	99.2	74.9	-
60	TCID50	1	1	10 ^{0.6}	10 ^{1.6}	10 ^{2.7}
	Decrease %	>99.8	>99.8	99.2	92.1	-

Diluted with phosphoric acid buffer solution. Inoculated into chicken embryonic fibrocyte, incubated at 37°C for 4 days and cytopathic effect observed. Data above shows TCID50 from Reed-Muench method. The data shows 1500:1 dilution of DODGE Disinfectant to be active against Avian herpes virus.

4.6 TABLE 6 DODGE Disinfecta (Coronaviridae) (3	nt Against Transmissib	le Gastroenteritis of Sv	vine Virus
Decrease in Viability (%)		DODGE DISINFECTANT Dilution Rate	
	375:1	150:1	Control
Cytopathic effect (+,-)	-	-	+

Inoculated 0.2ml of TGE virus KBE strain into 2ml of PHMB diluted with phosphoric acid buffer solution, left for 3 hours incubation at 20oC and then inoculated into pig renal tissue cells. After incubation at 37oC for 4 days, cytopathic effects observed. The data shows 375:1 dilution of **DODGE Disinfectant** to be active against Transmissible Gastroenteritis of Swine Virus.

4.7 TABLE 6 DODGE Disinfectant Against Fowl pox Virus (Poxviridae) (3)			
Decrease in Viability (%)	DODGE DISINFECTANT Dilution Rate		
	375:1	Control	
Cytopathic effect (+,-)	-	- +	

Inoculated 0.2 ml of Fowl pox virus Nakano KIII strain into 2ml of **DODGE Disinfectant** Diluted with distilled water. Following 15 mins at 20°C samples were removed, serially diluted and added to chicken germinal fibrocyte, incubated at 37°C for 6 days and cytopathic effects observed.

The data shows 375:1 dilution of **DODGE Disinfectant** to be active against Fowl pox Virus.

4.8 TABLE 8 DODGE Disinfectant Against	Foot and Mouth Disease Vir	us (4)
DODGE DISINFECTANT Dilution Rate	Log Reduction in TCID50 at 30 Mins. Contact Time	Result
150:1	0.82	Fail
60:1	2.05	Fail
30:1	3.6	Fail
15:1	5.12	Pass
7.5:1	7.42	Pass

Test conditions; FMDV strain OBFS 1850, contact time = 30 minutes, temperature = 4°C, diluent = WHO hard water, organic loading = 1% Foetal calf serum. Pass criteria = a disinfectant dilution which reduces the virus titre by at least 10^4 median tissue culture infective doses (TCID₅₀) compared to the untreated Control virus mixture passes the test.

The data shows 15:1 dilution of **DODGE Disinfectant** to be active against Foot and Mouth Disease Virus.

4.9 TABLE 9 DODGE Disinfectant Against Feline Coronavirus (5)

DODGE DISINFECTANT					
Dilution Rate					
	0	300:1	150:1	75:1	30:1
FC_0V	10 ⁵	10 ³	10	0	nt
Toxicity to FeA cells	-	-	-	+	+++

Test conditions = Various levels of **DODGE Disinfectant** were mixed with Feline Coronavirus (FCoV Wellcome strain) at a titre of 10⁵ and left for 2 hours. Dilutions were then added to pre-plated feline embryo cells (FeA) and absorbed for 4 hours. The inoculum was then removed and cell growth media (DFC10) added. Cytopathic effects were then measured after 48 hours incubation. The data shows 75:1 **DODGE Disinfectant** to be active against Feline Coronavirus.

4.10 TABLE 10 DODGE Disinfectant against	Feline Calicivir	us [Norovirus s	surrogate] (6)	
DODGE DISINFECTANT Dilution Rate	Log Red	uction in TDIC50 at	t Contact Time (Mi	ns)
	1	5	15	30
150:1	2.2	>3.8	5.2	5.6
75:1	1.9	>3.8	5.6	5.6
30:1	3.0	>3.8	5.6	5.6
15:1	3.4	>3.8	nt	nt

Test conditions; **DODGE Disinfectant**, Feline Calicivirus, temperature = 20°C, diluent = hard water, test surface = polystyrene, organic loading = 0.06% foetal bovine serum. The data shows 150:1 **DODGE Disinfectant** to be active against Feline Calicivirus at a contact time of 5 minutes.

4.11 TABLE 11

Activity of DODGE Disinfectant Against Canine Parvovirus (7

DODGE DISINFECTANT Dilution Rate	Log Reduction in Viral Viability at Contact Time (Min)		
	5	15	
75:1	1.0	4.2	
30:1	3.5	4.8	
15:1	5.5	4.2	

Test conditions; **DODGE Disinfectant** Canine Parvovirus, temperature = 20°C, diluent = hard water, organic loading = 0.06% foetal bovine serum. The data shows 75:1 **DODGE Disinfectant** to be active against Canine Parvovirus at a contact time of 15 minutes.

4.12 TABLE 12

Activity of DODGE Disinfectant Against Avian Influenza virus

DODGE DISINFECTANT Dilution Rate	Log Reduction in Viral Viability (with various soiling conditions)		
	No Organic Soil	0.3% BA	1% BA + 1% YE
300:1	2.1	1.0	0.2
150:1	2.4	1.8	1.3
75:1	>4.5	>4.5	2.4
50:1	nt	>4.5	4.5

Test conditions; **DODGE Disinfectant**, Avian Influenza Virus (A/carduelis/Germany/72. H7N1), contact time = 30 minutes, temperature = 10°C, diluent = hard water, organic loading = 0.3% bovine albumin and 1%yeast extract plus 1% bovine albumin. The data shows 75:1 **DODGE Disinfectant** to be active against Avian Influenza Virus at a contact time of 30 minutes under conditions of no and low soiling and at 50:1 under conditions of high soiling.

4.13 TABLE 13 Activity of DODGE Disinfecta	ant Against Avian Influenza V	irus H5N1 (9)
DODGE DISINFECTANT Dilution Rate	Log Viral Titre (EID50)	Percentage Reduction In Viral Viability
Control	4.5	-
20:1	3.4	>99.97
50:1	2.5	>99.95
100:1	2.0	>99.90

Test conditions; **DODGE Disinfectant**, Highly Pathogenic Avian Influenza Virus (A/Cygnus olor/Croatia/ 1/2005 H5N1), surface test, contact time = 10 minutes, temperature = RT, diluent = hard water, organic loading = 5% specific pathogen free chicken serum. The data shows 100:1 **DODGE Disinfectant** to be active against Avian Influenza Virus at a contact time of 1 & 5 minutes under conditions of high soiling.

4.14 TABLE 14

Activity of DODGE Disinfectant against Bovine Viral Diarrhoea Virus (Human Hepatitis C surrogate) (10)

DODGE DISINFECTANT Dilution Rate	Log Viral Titre (EID₅₀)
20:1	<4.1
100:1	<3.1
200:1	<3.1

Under the conditions of this investigation and in the presence of 5% horse serum organic soil load,3 concentrations of **DODGE Disinfectant** (0.5. 1.0 and 2.0% demonstrated complete inactivation of Bovine Viral Diarrhoea Virus following a one minute exposure time at room temperature (20.0° C).

From the laboratory data above for virucidal activity the recommended usage rate of DODGE Disinfectant is 100:1. If specialist disinfection is required then please refer to the data above. This level also ensures high performance cleaning for all surfaces whilst ensuring that the actives control the bacteria.



- 1. ICI Virology Unit Test Report: The Antiviral Activity of DODGE Disinfectant.
- 2. Quantitative Suspension Test for the Evaluation of Two Antimicrobial Substances against Rotavirus. The Freeman Hospital.
- 3. Ueno Pharmaceuticals Co. Ltd. Research Labs.
- **4.** Efficacy of DODGE Disinfectant against Foot and Mouth Disease Virus. Disinfectants Laboratory, Institute for Animal Health, Pirbright Laboratory.
- **5.** Efficacy of DODGE Disinfectant against Feline Coronavirus. Institute of Comparative Medicine, University of Glasgow.
- **6.** Surface Virucidal Activity of DODGE Disinfectant Against Feline Calicivirus (Human Norovirus surrogate). BluScientific Test Data, Glasgow Caledonian University.
- **7.** Virucidal activity of DODGE Disinfectant against Canine Parvovirus. BluScientific Test Data, Glasgow Caledonian University.
- **8.** Determination of the Virucidal Activity against Avian Influenza Virus according to prEN14675. Laboratory of Virology, Justus Liebig University, Giessen.
- **9.** Virucidal Efficacy of PHMB20 for H5N1 Highly Pathogenic Avian Influenza Virus, Croatian Veterinary Institute, Zagreb, Croatia, 10th January 2007.
- **10.** Viral efficiency of a disinfectant for use on inanimate environmental surfaces utilizing Bovine Viral Diarrhoea Virus as a surrogate for Human Hepatitis C Virus. ATS Laboratories, Project Number: AO7595.

4.16 The Activity of DODGE Disinfectant Against Legionella Pneumophila

Legionella pneumophila is ubiquitous in aquatic environments and may serve as a source of human infection when found in association with air conditioning machinery, cooling towers, and water systems in large buildings.

Rigorous regimes of temperature control and chemical treatment of cooling towers are generally employed to combat the presence of micro-organisms, but have failed to totally eradicate *Legionella spp*. from such plants.

One identified cause of Sick Building Syndrome (SBS), and other Building Related Illnesses (BRI), is the spread of infectious diseases from and through aquatic cooling systems. One common building related disease is Legionnaire's disease (or Legionellosis), caused by

Legionella pneumophila. Legionellosis is a potentially fatal bacterial pneumonia that may involve the gastrointestinal tract, kidneys, and central nervous system. Further symptoms of Legionellosis may involve chills, fever, headache and muscle pain. In many cases of outbreak of Legionellosis, the bacteria have been traced to aerosols generated from cooling towers, evaporative condensers and air conditioning systems.

Biocides are commonly used to prevent and control such bacteria. However, given that bacterial contamination is often related to aqueous aerosol generation, the following cautionary statements should be borne in mind when considering any biocide based remedial treatment;

4.16 The Activity of DODGE Disinfectant Against Legionella Pneumophila Cont.

1. The European Community in its report "Sick Building Syndrome" is quite emphatic when it states that biocides currently used in most cold water spray humidifiers to control microbial growth are highly irritating in concentrated form and may cause mucous membrane irritation when dispersed in indoor air at low concentrations, especially in susceptible individuals.

2. The American Conference of Governmental Industrial Hygienists (H. A. Burge et al., 1989) states "the aerosolization of anti-microbial chemicals into the occupied space must be avoided".

Independent bodies, as summarised below, have determined the activity of **DODGE Disinfectant: Regional Public Health Laboratory, East Birmingham Hospital, Birmingham, UK**

Primary conclusions were:

- The study showed the active ingredient in **DODGE Disinfectant** to be a potential biocide for effective water treatment, with useful activities against *Legionella spp*. in all physiological states.
- **DODGE Disinfectant** has significant activity against both the host amoeba and the amoeba-grown *Legionella pneumophila*
- The activity of DODGE Disinfectant was significantly greater than Isothiazolinones CMIT also studied
- The concentration used for treatment for CMIT was 16µg/ml, higher than the concentration generally used in water treatment (ca. 10µg/ml); the treatment concentration for **DODGE Disinfectant** was 15µg/ml
- The Minimum Inhibitory Concentration (MIC) of DODGE DISINFECTANT against Legionella pneumophila released from a bio-film consisting of Acanthamoeba polyphaga, after 5 days exposure, was shown to be 4.2µg/ml.

Public Health Laboratory, Royal United Hospital, Bath, UK

- Study showed NUEVO Disinfectant to be effective at 1400ppm product against the following range of Legionella strains: *L. pneumophila, L. micdadei, and L. gornmanii*.
- DODGE Disinfectant was effective at 3500ppm product against *L. bozemanii*.
- A further study, using the same experimental approach adopted for **DODGE Disinfectant**, gave MIC values for a cationic polyquaternary ammonium compound of between 400ppm and 800ppm.

Guide to DODGE Disinfectant Treatment Level

Available data demonstrates that **DODGE Disinfectant** is effective against *Legionella pneumophila*, even in a bio-film consisting of *Acanthamoeba polyphaga*, at 1400ppm product (280ppm actives).

The recommended treatment concentration for **DODGE Disinfectant** (as product) is:

- => 175-350 ppm maintenance dose
- => 1050-1400 ppm shock dose

The above information and guide treatment concentration provide an indication of the intrinsic biocidal activity of **DODGE Disinfectant**. However, it is recommended that tests under practical

conditions be undertaken to determine the most cost-effective dose for your application.

No statement herein is intended as a representation or warranty regarding DODGE or any other product of The Dodge Company Limited.

Test data is carried out by our manufacturers and Independent BS EN accredited testing facilities in UK and Europe.



Performance Highlights:

- All antimicrobal products have No alcohol
- Not Tested on animals
- Non-corrosive
- Non-fragrance and fragranced
- 500ml Hand and body wash and Hand rub have antiseptic properties



Dodge Crystal Clear Concentrate Liquid: Anti-microbal and cleansing. This product can be applied to hard and soft surfaces and equipment to be cleaned and disinfected. Dilute at a ratio of 100:1 with water and spray or wipe onto the surface. **Ordering Data:**

Dodge Crystal Clear Concentrate Liquid Catalogue No: 777002 (Citrus) 777000 (Cherry) 777001 Non Fragranced



Dodge Crystal Clear Multi Surface Wipes: Clean and disinfect with these simple to use all purpose wipes. Use on all hard and soft surfaces as well as the skin. Especially useful for cleaning removal equipment after making transfers or Coroner's Removals. 225 wipe tub

(order No: 777012)



Dodge Hand and Body Wash: For disinfecting and decontaminating hands and skin. This 3 in 1 lathering hand and body wash leaves hands and skin clean with a fresh fragrance and provides protection against infection. 500ml pump bottle **(Order No: 777007)** 5 litre refill **(Order No: 777008)**



Dodge Crystal HD Cleaner: This excellent cleaning product for use on everything from vehicles to the most stubborn of stains in the embalming room prior to disinfection. Use on all hard and soft surfaces. 750ml Trigger Spray (Order No: 777017) 5 Litre refill (Order No: 777018)



Dodge Crystal Clear Hand Sanitiser:

Keep in your coat pocket or purse to disinfect your hands when soap and water are not available. Comes with a loop and clip so you can place it on your belt or scrubs. 50mml squeeze bottle (Order No: 777003)



Dodge Crystal Clear Hand Sanitiser:

Pump decontaminating foam directly on to hands, rub together and get the benefit of disinfected and visibly clean hands. 500ml Pump bottle (Order No: 777010) 5 litre refill (Order No: 777011)



Dodge Crystal Clear Surface Sanitiser Ordering Data: b. Dodge Crystal Clear Surface Sanitiser 750ml Spray Catalogue No: 777009 c. Dodge Crystal Clear Surface Sanitiser 5 Litres Catalogue No: 777006

Non-Fragranced 750ml Catalogue No: 777004



Dodge Crystal Clear Sanitising Mist Ordering Data: d. Dodge Crystal Clear Sanitising Mist 5 Litres Catalogue No: 777015

This innovative product allows the user to disinfect and sterilise embalming rooms, autopsy rooms, dissection rooms, cold rooms, refrigerators and even ventilation systems and ducts. Application of this chemical is achieved using a fogging machine. The fogging machine creates a super fine mist which is able to diffuse into areas that can not be reached by traditional cleaning methods. This product is particularly effective at removing unpleasant odours and ensuring the highest levels of hygiene especially after treatment of infectious or high risk cases.



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