



User Manual

Foster® First Defense 40-97 EU

Full Virucidal Disinfectant Cleaner

Benefits

- Aldehyde-free Disinfectant Cleaner
- Broad spectrum of efficacy; bacteria, yeast and enveloped & non-enveloped viruses
- Cleans and disinfects in the presence of dirt, blood and proteins
- DVG and VAH compliant
- Also registered for sale in the Netherlands

Technical User Information

Foster® First Defense 40-97 EU is an aldehyde-free, high performance disinfectant cleaner with broad spectrum activity against bacteria, yeast and viruses. Its efficacy against different types of viruses matches perfectly to the use of this formulation around hospitals, long term care facilities and institutions. It can also be used in restaurants, food processing plants and schools as well. H.B. Fuller intends to support Foster® First Defense 40-97 EU disinfectant cleaner through the product authorisation process of the Biocidal Product Regulation (EU 528/2012) for a defined list of EU Member States.

Ingredients

Actives

Didecyl dimethyl ammonium chloride (DDAC), [CAS No. 7173-51-5] approx. 6.9%

Inerts

Water, chelating agent, surfactant, formulation aid approx. 93.1%

Use Information

Direction of Use (Hard Surface only)

- 1. Remove heavy soil deposits from the surface.
- 2. Dilute according to application. Prepare a fresh solution just prior to

being used and replace if the solution becomes visibly dirty.

- 3. Apply to surface by mopping, trigger spray applicator, pouring and wiping. Use 30-50 mL/m2 to thoroughly wet and leave to act for 5-15 minutes (depending on claim). Surface must remain wet for the entire contact time.
- 4. Rinse or allow to air dry. Disinfected surfaces which may come into contact with food must be rinsed with potable water. Rinsing of floors is not necessary unless they are to be waxed or polished.
- 5. Product should not be used in combination with other biocides or cleaning products.
- 6. Check compatibility with surfaces by first testing on an inconspicuous area.

Please note the above are generic use directions and there may be additional country specific instructions, as applied by National Authorities. For more information, please request the product label from your H.B. Fuller contact for any countries of interest.

Detailed Efficacy Data

Introduction

In order to support a product through the Biocidal Product Regulation (BPR, EU (No) 528/2012), relevant European test data must be submitted as part of the dossier. The EN 14885 Standard (Chemical disinfectants and antiseptics-application of European Standard for chemical disinfectants and antiseptics) specifies the laboratory methods required to substantiate the claim set for the chemical disinfectant. European Normal (EN) Test Protocols and their associated pass criteria are outlined for different application areas e.g. "medical", "veterinary", "food", "industrial and institutional" and "domestic" areas.

Each EN test specifies a limited range of microbial species that must be used. These have been chosen as representative organisms to substantiate broader product claims (e.g. bactericide, yeasticide, fungicide, sporicide, virucide and mycobactericide) taking into account their practical relevance for each of the application areas. In addition, different soil (or interfering substances) are specified depending on the end application. This supports the efficacy claimed by the product and its suitability for the specific area of use.

All of the data presented for Foster® First Defense 40-97 EU has been generated using standard EN Test Norms. Not all claims are valid in all registered member states.

Antimicrobial Performance

Food, Industrial and Institutional Areas Tested According to European Norms (EN)

Activity Claim: Bactericidal

EN 1276

Bactericidal result (log 5), in presence of high organic load (BSA) Test strains: E. coli ATCC 10536, S. aureus ATCC 6538, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result	1,5%	3,0 g/I BSA	5 min
Result	1,5%	10,0 g/l Skimmed milk	5 min
Result	1,0%	10,0 g/l Sucrose	5 min
Result	1,5%	10,0 g/l Yeast extract	5 min

Certificate: Eurofins, 31 May 2016

EN 1276 (MRSA)

Bactericidal result (log 5), in presence of high organic load (BSA) Test strain: S. aureus MRSA ATCC 33592

Result 1,0% 3,0 g/l BSA 5 min Certificate: L + S AG, June 2010

EN 1276

Bactericial result (log 5), in presence of high organic load (BSA) Test strains: L. monocytogenes ATCC 15313, S. typhimurium ATCC 13311

Result 0,5% 3,0 g/l BSA 5 min Certificate: Dr. Brill + Partner GmbH, 24 February 2017

EN 13697

Bactericidal result (log 4), in presence of high organic load (BSA) Test strains: E. coli ATCC 10536, S. aureus ATCC 6538, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 2,5% 3,0 g/l BSA 5 min Certificate: Eurofins-Biolab Spa, 30 July 2007

EN 13697

Bactericidal result (log 4), in presence of high organic load (BSA) Test strain: L. monocytogenes ATCC 15313

Result 1,5% 3,0 g/I BSA 5 min

Test strain: S. typhimurium

Result 3,0% 3,0 g/I BSA 5 min

Certificate: Dr. Brill + Partner GmbH, 24 February 2017

EN 1276

Bactericidal result (log 5), in presence of low organic load (BSA) Test strains: S. aureus ATCC 6538, E. coli ATCC 10536, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 0,5% 3,0 g/l BSA 10 min 0,25% 3,0 g/l BSA 20 min

Certificate: Dr. Brill + Partner GmbH, 14 March 2018

EN 1276

Bactericidal result (log 4), in presence of low organic load (BSA) Test strain: L. interrogans (Weil's disease)

Result 1,0% 3,0 g/l BSA 5 min Certificate: Blue Scientific Test Data, August 2009

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EN 13697

Bactericidal result (log 4), in presence of low organic load (BSA) Test strains: S. aureus ATCC 6538, E. coli ATCC 10536, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 0,5% 3,0 g/I BSA 15 min

0,5% 3,0 g/l BSA + 8.5 g/l

skimmed milk for P. aeruginosa 10 min

Certificate: Dr. Brill + Partner GmbH, 14 March 2018

Activity Claim: Yeasticidal

EN 1650

Yeasticidal result (log 4), in presence of high organic load (BSA) Test strain: C. albicans ATCC 10231

Result 0,5% 3,0 g/l BSA 15 min Certificate: L + S AG, June 2010

EN 13697

Yeasticidal result (log 3), in presence of high organic load (BSA) Test strain: C. albicans ATCC 10231

Result 2,0% 3,0 g/l BSA 15 min Certificates: Eurofins, 31 May 2016

EN 16615

Yeasticidal results (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strains: C. albicans ATCC 10231

Result 4,0% 3,0 g/l BSA + 3.0g/l Erythrocytes 1 min Certificate: Dr. Brill + Partner GmbH, 28 July 2017

EN 1650

Yeasticidal result (log 4), in presence of low organic load (BSA) Test strain: C. albicans ATCC 10231

Result 0,25% 3,0 g/l BSA 10 min Certificate: Dr. Brill + Partner GmbH, 14 March 2018

EN 13697

Yeasticidal result (log 3), in presence of low organic load (BSA) Test strain: C. albicans ATCC 10231

Result 0,25% 3,0 g/l BSA 10 min Certificate: Dr. Brill + Partner GmbH, 14 March 2018

Activity Claim: Virucidal Against Bacteriophages

EN 13610

Virucidal activity against bacteriophages in presence organic load (1% skimmed milk)

Results

Lactococcus lactis subsp. lactis phage P001 3,0% 15 min Lactococcus lactis subsp. lactis phage P008 3,0% 15 min Certificate: Dr. Brill + Partner GmbH, 25 February 2014

Activity Claim: Limited Virucidal

EN 14476

Virucidal result (log 4), in presence of low organic load (BSA) and high medical organic load (BSA + Erythrocytes)

Test strain: Murine Norovirus strain S99 Berlin

 Result
 2,0%
 3,0 g/l BSA
 5 min

 Result
 2,0%
 3,0 g/l Erythrocytes
 15 min

Certificate: Dr. J. Steinmann, Mikrolab, 1 April 2014

EN 14476

Virucidal result (log 4), in presence of low organic load (BSA) and high medical organic load (BSA + Erythrocytes)

Test strain: Adenovirus Type 5 strain Adenoid 75

 Result
 2,0%
 0,3 g/l BSA
 5 min

 Result
 2,0%
 3.0 g/l BSA + 3.0 g/l Erythrocytes
 60 min

 Result
 4,0%
 3.0 g/l BSA + 3.0 g/l Erythrocytes
 15 min

Certificate: Dr. J. Steinmann, MikroLab, 27 July 2010

Activity Claim: Virucidal Against Enveloped Viruses

EN 14476:2013+A1:2015

Virucidal result (log 4), in presence of high medical organic load (BSA+ Erythrocytes)

Test strain: Modified Vaccinia Virus Ankara (MVA)

Result 1,0% 3.0 g/l BSA \pm 3.0 g/l Erythrocytes 5 min Certificate: Dr. J. Steinmann, Dr. Brill \pm Partner GmbH, Bremen, 7 February 2017

EN 14476

Virucidal result (log 4), in presence of high medical organic load (BSA+ Erythrocytes)

Test strain: Influenza A (H7N9) Virus

Result 0,5% 3.0 g/l BSA + 3.0 g/l Erythrocytes 5 min Certificate: Dr. J. Steinmann, Dr. Brill + Partner GmbH, Bremen, 8 February 2017

Veterinary Areas

Tested According to European Norms (EN)

Activity Claim: Bactericidal

EN 1656

Bactericidal result (log 5), in presence of high veterinary organic load (Yeast Extract + BSA) at 10° C

Test strains: P. aeruginosa ATCC 15442, S. aureus ATCC 6538, E. hirae ATCC 10541 and P. vulgaris ATCC 13315

Result 4.0% 10.0 g/l Yeast extract + 10.0g/l BSA 30 min

Certificate: Eurofins, 31 May 2016

EN 14349 (non-porous surfaces)

Bactericidal result (log 4), in presence of high veterinary organic load (Yeast Extract + BSA) at 10°C

Test strains: P. aeruginosa ATCC 15442, S. aureus ATCC 6538, E. hirae ATCC 10541 and P. vulgaris ATCC 13315

Result 6,0% 10,0 g/l Yeast extract + 10.0g/l BSA 30 min

Certificate: Eurofins, 31 May 2016

Activity Claim: Yeasticidal

EN 1657

Yeasticidal result (log 4), in presence of high veterinary organic load (Yeast Extract + BSA) at 10°C

Test strain: C. albicans ATCC 10231

Result 2,0% 10,0 g/l Yeast extract + 10.0g/l BSA 30 min

Certificate: Eurofins, 31 May 2016

EN 16438

Yeasticidal result (log 3), in presence of high veterinary organic load (Yeast Extract + BSA) at 10° C

Test strain: C. albicans ATCC 10231

Result 2,0% 10,0 g/l Yeast extract + 10.0g/l BSA 30 min

Result 1,0% 10,0 g/l Yeast extract + 10.0g/l BSA 60 min

Certificate: Dr. J. Steinmann, Mikrolab, 1 April 2014

Activity Claim: Virucidal

EN 14675

Virucidal result (log 4), in presence of high-level soiling (Yeast Extract + BSA) at 10°C

Test strain: Modified Vaccinia Virus Ankara (MVA)

Result 3,0% 10,0 g/l Yeast extract + 10.0g/l BSA 30 min Certificate: Dr. J. Steinmann, Dr. Brill + Partner GmbH, Bremen, 25 January 2017

Medical Areas

Tested According to European Norms (EN)

Activity Claim: Bactericidal

13727

Bactericidal result (log 5), in presence of high medical organic load (BSA + Erythrocytes)

Test strains: S. aureus ATCC 6538, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 2,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 5 min Result 1,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 60 min

Certificate: Eurofins, 17 June 2011

EN 13697

Bactericidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strains: S. aureus ATCC 6538, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 7,0% 3,0 g/l BSA + 3,0g/l Erythrocytes 5 min Result 1,0% 3,0 g/l BSA + 3,0g/l Erythrocytes 60 min Certificate: Eurofins, 6 June 2016

EN 14561

Bactericidal result (log 5), in presence of low organic load (BSA) Test strains: S. aureus ATCC 6538, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 2,5% 3,0 g/l BSA 15 min Certificate: Eurofins. 23 September 2011

EN 16615

Bactericidal results (log 5), in presence of high medical organic load (BSA + Erythrocytes)

Test strains: S. aureus ATCC 6538, E. hirae ATCC 10541, P. aeruginosa ATCC 15442

Result 6,0% 3,0g/l BSA + 3.0g/l Erythrocytes 5 min Certificate: Dr. Brill + Partner GmbH, 28 July 2017

Activity Claim: Yeasticidal

EN 13624

Yeasticidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: C. albicans ATCC 10231

Result 1,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 5 min
Result 0,25% 3,0 g/l BSA + 3,0 g/l Erythrocytes 60 min
Certificate: Dr. J. Steinmann. Mikrolab. 1 April 2014

EN 13697

Yeasticidal result (log 3), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: C. albicans ATCC 10231

Certificate: Eurofins, 6 June 2016

EN 14562

Yeasticidal result (log 4), in presence of low organic load (BSA) Test strain: C. albicans ATCC 10231

Result 3,0% 3,0 g/l BSA 15 min Certificate: Eurofins. 23 September 2011

EN 16615

Yeasticidal results (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strains: C. albicans ATCC 10231

Result 4,0% 3,0 g/I BSA + 3,0g/I Erythrocytes 1 min

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Certificate: Dr. Brill + Partner GmbH, 28 July 2017

Foster® First Defense 40-97 EU now has data to support a claim for cleaning with mechanical action, as it has passed EN 16615 for both bacteri-cidal and yeasticidal claims.

Activity Claim: Yeasticidal

EN 14476

Virucidal result (log 4), in presence of low organic load (BSA) and high medical organic load (BSA + Erythrocytes)

Test strain: Poliovirus Type 1 strain LSc-2ab

Result 4,0% 3,0 g/l BSA 30 min Result 5,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 60 min Certificates: Dr. J. Steinmann, MikroLab, 27 July 2010; Eurofins, 23 June 2017

EN 14476

Virucidal result (log 4), in presence of low organic load (BSA) and high medical organic load (BSA + Erythrocytes)

Test strain: Adenovirus Type 5 strain Adenoid 75

 Result
 2,0%
 3,0 g/l BSA
 15 min

 Result
 2,0%
 3,0 g/l BSA + 3,0 g/l Erythrocytes
 60 min

 Result
 4,0%
 3,0 g/l BSA + 3,0 g/l Erythrocytes
 15 min

Certificate: Dr. J. Steinmann, MikroLab, 27 July 2010

EN 14476

Virucidal result (log 4), in presence of low organic load (BSA) and high medical organic load (BSA + Erythrocytes)
Test strain: Murine Norovirus strain S99 Berlin

 Result
 2,0%
 3,0 g/l BSA
 5 min

 Result
 2,0%
 3,0 g/l BSA + 3,0 g/l Erythrocytes
 15 min

Certificate: Dr. J. Steinmann, MikroLab, 1 April 2014

prEN 16777

Virucidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: Adenovirus Type 5 strain Adenoid 75

Result 5,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 60 min

Certificate: Eurofins, 23 June 2017

Activity Claim: Virucidal Against Enveloped Viruses

EN 14476:2013+A1:2015

Virucidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: Adenovirus Type 5 strain Adenoid 75

Result 1,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 5 min Certificate: Dr. J. Steinmann, Dr. Brill + Partner GmbH, Bremen, 7 February 2017

FN 14476

Virucidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: Influenza A (H7N9) Virus

Result 0,5% 3,0 g/l BSA + 3,0 g/l Erythrocytes 5 min Certificate: Microbac Laboratory, Sterling VA20164 (USA), 13 September 2013

EN 14476:2013+A1:2015

Virucidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: Influenza A (H1N1) Virus

Result 0,5% 3,0 g/l BSA + 3,0 g/l Erythrocytes 5 min Certificate: Dr. J. Steinmann, Dr. Brill + Partner GmbH, Bremen, 8 February 2017

After evaluation with Poliovirus, Adenovirus and MNV (murine Norovirus) the surface disinfectant Foster® First Defense 40-97 EU can be declared as having "virucidal" properties according to EN 14476. Furthermore, Foster® First Defense 40-97 EU has passed prEN 16777, which is a viral surface test. prEN 16777, which was introducted in 2016, is based on similar methodology to EN 13697.

EN 14476

Virucidal result (log 4), in presence of high medical organic load (BSA + Erythrocytes)

Test strain: Duck Hepatitis B (as a surrogate for Hepatitis B (HBV)

Result 5,0% 3,0 g/l BSA + 3,0 g/l Erythrocytes 5 min

Certificate: Blu Test Laboratories Ltd., 27 July 2016

EN 14476

Virucidal result (log 4), in presence of low organic load (BSA) Test strain: Bovine Corona Virus (BCoV) (as a surrogate for other mem-bers of the Coronavirus family including MERS-CoV)

Result 1,0% 3,0 g/l BSA 1 min

Certificate: Dr. J. Steinmann, MikroLab, 25 May 2014

Virucidal Performance Tested According to BGA (now RKI) and DW

Equivalence expertise based on formulation Foster[®] First Defense 40-97 EU regarding virus inactivating properties of Foster[®] First Defense 40-97 EU.

Poliovirus

With soil load	5,0%	15 min
	4,0%	60 min

Certificate: Dr. J. Steinmann, Bremen, 15 February 2002

ECBO Virus

With soil load	5,0%	30 min
	3,0%	60 min

Certificate: Dr. J. Steinmann, Bremen, 21 August 2002

Adenovirus

With soil load 4,0% 30 min

Certificate: Dr. J. Steinmann, Bremen, 24 May 2005

Norovirus

Test strain: Feline calici virus (FCV)

With soil load 4,0% 30 min

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Certificate: Dr. J. Steinmann, Bremen, 25 May 2005

Rota Virus

Without soil load 3,0% 15 min Certificate: Dr. J. Steinmann, Bremen, 8 June 2005

Vaccinia Virus

With soil load 2,0% 5 min Certificate: Dr. J. Steinmann, Bremen, 30 July 2005

Polyoma Virus SV 40 (formerly Papova Virus)

With soil load 2,0% 30 min

Certificate: Dr. J. Steinmann, Bremen, 9 March 2006

Tested According to VAH

(Verbund für Angewandte Hygiene e.V.; The Association for Applied Hygiene)

Surface Disinfection with mechanical action (Requirements and Methods for VAH Certification, VIII 1a, concentrate to be diluted, 2015)

Test strains: Paeruginosa, Saureus, Ehirae and Calbicans

Result	6,0%	dirty conditions	5 min
Result	2,0%	dirty conditions	15 min
Result	1,0%	dirty conditions	30 min
Result	1,0%	dirty conditions	60 min

Certificates:

Dr. Brill + Partner, Hamburg, 9th Januray 2018; 25 June 2019 Prof. Dr. Werner, HygCen, Schwerin, 12th December 2017; 11 June 2019

Product Information

Material Compatibility

Suitable for hard washable surfaces. As surfaces vary in quality the product suitability should be checked by testing first on a small inconspicuous area. Aluminium, linoleum, acrylic glass or surfaces coated with polymers could be affected depending on the use concentration. Plasticized PVC could be discoloured. Usage of disinfectant followed by common rinse procedures is advised.

Compatibility Testing

Samples of typical materials used for medical devices which were tested for material compatibility:

- Anodixed aluminium
- Aluminium coated with powder technology
- Nickel plated mild steel
- Polished martensitic steel
- Stainless steel coated with gold
- Polyethylene
- Polymethacrylmethacrylate
- Composite material from tungsten carbide and nickel
- Polyvinylchloride flooring
- Flexible polyvinylchloride tube
- Two types of butyl rubber
- Optical glasses made from polycarbonate
- Optical glasses made from silicate

Product test concentration

3,0%

Test conditions: submersion of material samples at 20°C for up to 30 days.

Conclusions:

Foster® First Defense 40-97 EU is suitable for the disinfection of hard surfaces in hospitals, institutional applications and the food industry. Foster® First Defense 40-97 EU is compatible with ceramics, PVC and polyethylene.

Items containing high concentrations of plasticizers lost some of their properties and may be affected in their properties.

The disinfection of the following items is not advised:

Linoleum, flexible PVC-tubes, polymer coated surfaces and high quality butyl rubber.

The corrosive potential of Foster® First Defense 40-97 EU against anodized aluminium, tungsten carbide-nickel compounds limits its use for the disinfection of medical devices.

Certificate: Dr. Brill + Partner GmbH, Hamburg, 20 January 2011

Phys-Chem Properties

light yellow liquid Appearance Odour slightly saponaceous Density at 20°C 1.05 g/cm3 pH of concentrate approx. 12.9 pH of 1 % aqueous solution approx. 11.2 Surface tension, 1 % aqueous solution 29 mN/m 30 mPa-s (spindle 1, 10 rpm, Brookfield) Viscosity at 20°C Shelf life 3 years

Patents

Patented formulation.

Regulatory Status

Contact H.B. Fuller for details of the latest registration position.

Classification and Labelling, Safety, First Aid, and Storage and Disposal.

See Safety Datasheet

Use biocides safely. Always read the label before use.

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