

HWR-CHEMIE GmbH®

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CHEMISCH-TECHNISCHE SPEZIALPRODUKTE

Antimicrobial efficacy of SUN-DES (article no. 2730)

1 Bactericidal / Fungicidal performance

1.1 Tested according to DGHM now VAH (Association for Applied Hygiene)

Surface disinfection with mechanical action

Requirements and Methods for VAH Certification, 2015
Test strains: P.aeruginosa, S.aureus, E.hirae and C.albicans

Result: 1.0 % low organic load 5 min.

Certificate: Dr. Brill + Partner, Hamburg, 3rd September 2018
Prof. Dr. Werner, HygCen, Schwerin, 9th October 2018

1.2 Untreated Wood, DGHM Guidelines

Disinfection on untreated wood, contaminated with fungi

Results: 2.0 % 60 min.
1.5 % 240 min.

Certificate: Prof. Dr. R. Schubert, Frankfurt (M), 1991

1.3 Modified DGHM Guidelines

Disinfection of acrylic glass or similar surfaces

Results: 7.5 % 1 min.
5.0 % 5 min.

Certificate: Prof. Dr. R. Schubert, Frankfurt (M), 1990

1.4 Tested according to European Norms (EN)

EN 1276

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

Results: 1.0 % 0.3 g/l BSA 5 min.
3.0 % 10.0 g/l Skimmed milk 5 min.
0.5 % 10.0 g/l Sucrose 5 min.
1.0 % 10.0 g/l Yeast extract 5 min.

Certificate: Eurofins, 21 June 2011, Eurofins, 6 October 2016

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EN 1276

Bactericidal results (log 5), in presence of high organic load (Albumin)

Test strains: *Listeria monocytogenes* ATCC 15313 and *Salmonella typhimurium* ATCC 13311

Result: 0.5 % 0.3 g/l Albumin 5 min.

Certificate: Dr. Brill & Partner GmbH, 14 February 2017

EN 13697

Bactericidal result (log 4), in presence of low organic load (Albumin)

Test strains: *E. coli* ATCC 10536, *S. aureus* ATCC 6538, *E. hirae* ATCC 10541,
P. aeruginosa ATCC 15442

Result: 2.0 % 0.3 g/l Albumin 5 min.

Certificate: Eurofins, 30 September 2011

EN 13697

Bactericidal result (log 4), in presence of low organic load (Albumin)

Test strain: *Listeria monocytogenes* ATCC 15313

Result: 1.0 % 0.3 g/l Albumin 5 min.

Certificate: Dr. Brill + Partner GmbH, 14 February 2017

EN 13697

Bactericidal result (log 4), in presence of low organic load (Albumin)

Test strain: *Salmonella typhimurium* ATCC 13311

Result: 1.5 % 0.3 g/l Albumin 5 min.

Certificate: Dr. Brill + Partner GmbH, 14 February 2017

EN 13727

Bactericidal result (log 5), in presence of low organic load (Albumin)

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

Result: 1.0 % 0.3 g/l Albumin 5 min.

Certificate: Eurofins, 17 June 2011

EN 13697

Bactericidal result (log 4), in presence of low organic load (Albumin)

Test strains: *E. coli* ATCC 10536, *S. aureus* ATCC 6538, *E. hirae* ATCC 10541,
P. aeruginosa ATCC 15442

Result: 2.0 % 0.3 g/l Albumin 5 min.

Certificate: Eurofins, 30 September 2011

EN 14561

Bactericidal result (log 5), in presence of low organic load (Albumin)

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

Result: 2.0 % 0.3 g/l Albumin 15 min.

Certificate: Eurofins, 28 July 2011

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EN 1650

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

Result: 0.2 % 0.3 g/l Albumin 5 min.

Certificate: Eurofins, 17 June 2011

EN 13697

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

Result: 1.5 % 0.3 g/l Albumin 15 min.

Certificate: Eurofins, 30 September 2011

EN 13624

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

Result: 0.5% 0.3 g/l Albumin 5 min.

Certificate: Eurofins, 17 June 2011

EN 13697

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

Result: 1.5 % 0.3 g/l Albumin 15 min.

Certificate: Eurofins, 30 September 2011

EN 14562

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

Result: 1.5 % 0.3 g/l Albumin 15 min

Certificate: Eurofins, 28 July 2011

2 Virucidal performance

2.1 Tested according to European Norms (EN)

EN 14476 (Vaccinia Virus)

Virucidal result (log 4), in presence of low organic load (Albumin)
Test strain: Modified Vaccinia ankara

Result: 2.0 % 0.3 g/l Albumin 5 min

Certificate: Dr. Brill + Dr. Steinmann, 30 September 2015

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EN 14476 (Norovirus)

Virucidal result (log 4), in presence of low organic load (Albumin)
Test strain: Murine Norovirus strain S99 Berlin

Result: 4.0 % 0.3 g/l Albumin 60 min.

Certificate: Hyggen, 11 November 2015

Result: 6.0 % 0.3 g/l Albumin 30 min.

Certificate: Dr. J. Steinmann, MikroLab Bremen, 8 December 2008

EN 14476 (Influenza A Virus H1N1)

Virucidal result (log 4), in presence of low organic load (Albumin)
Test strain: Influenza A Virus H1N1 (swine)

Result: 0.5 % 0.3 g/l Albumin 5 min.

Certificate: Dr. Brill + Partner GmbH, 11 April 2017

2.2 Tested according to BGA (now RKI) / DVV

Hepatitis-B Virus and HIV

Results:	1.5 %	low organic load	30 min.
	1.5 %	high organic load	60 min.
	3.0 %	high organic load	30 min.
	5.0 %	high organic load	1 min.

Certificates: Prof. Dr. G. Frösner, München, 16 August 1987, 20 May 1996

Vaccinia Virus

Results:	1.0 %	without soil load	5 min
	3.0 %	with soil load	15 min.
	7.5 %	with soil load	1 min.

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

Rota Virus

Result: 0.25 % without soil load 1 min.

Certificate: Dr. J. Steinmann, Bremen, 24 November 1994

BVDV

Results:	0.5 %	with soil load	15 min.
	7.5 %	with soil load	1 min.

Certificate: Dr. J. Steinmann, Bremen, 10 September 2005

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After evaluation with Vaccinia virus and Bovine Viral Diarrhea virus (BVDV, surrogate of Hepatitis C virus) the surface disinfectant SUN-DES can be declared as having "limited virucidal" properties according to a recommendation of an expert committee of RKI (Bundesgesundheitsblatt 2004, 47: 62-66) and is thus able to inactivate all enveloped viruses.

Therefore, after successful experiments with the two above mentioned enveloped viruses the surface disinfectant SUN-DES is also effective against the so-called blood-borne viruses including HBV, HCV and HIV as well as against members of other virus families such as Orthomyxoviridae (incl. all human and animal influenza viruses like H5N1 and H1N1), Filoviridae including Ebola virus and Paramyxoviridae including Measles virus.

The following concentration and exposure time are necessary for inactivation of the two test viruses:

3.0 %	15 min.
7.5 %	1 min.

Statement: Dr. J. Steinmann, Mikrolab Bremen, 8 March 2015

3. **Materials Compatibility**

Suitable for hard washable surfaces. Usage of disinfectant in addition to common rinse procedures is advised.

Investigation on Formation of Cracks on Acrylic Glass

Use area: e.g. health clubs

Result: SUN-DES does not form cracks on acrylic glass

Certificate: Röhm GmbH, Darmstadt