

VAH List of Disinfectants

A list of procedures for prophylactic disinfection and hygienic handwash issued by the Disinfectants Commission in the Association for Applied Hygiene (VAH) in collaboration with DGHM, DGKH, GfV, GHUP and BVÖGD, tested and deemed to be effective according to the Requirements and Methods for VAH-Certification of Chemical Disinfection Procedures

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Introduction

This List is an inventory of all procedures which had a valid certificate as of 1 September 2023. The exact validity dates can be directly requested from the manufacturer. The current status of certificates by VAH is also available online <https://vah-liste.mhp-verlag.de/en/> (<https://vah-online.de/en/for-users>)

Issuance of certificates and listing of disinfection procedures were carried out by the Disinfectants Commission in the Association for Applied Hygiene (Verbund für Angewandte Hygiene e. V. (VAH) (Prof. em. M. Exner, M. D., Chairman; Institute of Hygiene and Public Health, Bonn University Hospital, Venusberg-Campus 1, 53127 Bonn, Germany). The List is compiled by the Association for Applied Hygiene in collaboration with the following scientific societies and professional associations: German Society for Hygiene and Microbiology (DGHM), German Society for Hospital Hygiene (DGKH), German Society of Hygiene, German Society for Virology (GfV), Environmental and Public Health Sciences (GHUP), and the German Federal Association of Physicians in Public Health (BVÖGD). In addition, the Disinfectant Commission cooperates with the Federal Union of German Associations of Pharmacists (ABDA), Bundeswehr (German Armed Forces), the Federal Institute for Occupational Safety and Health (BAuA), the Federal Institute for Drugs and Medical Devices (BfArM), the German Veterinary Society (DVG), the German Association for Controlling Viral Diseases (DVV), the Robert Koch-Institut (RKI), and the German Federation of Infection Control Nurses (VHD).

The certificates were issued on the basis of two independent expert opinions that provided proof of the disinfectant action of the preparation in the specified concentrations and for the contact times given for the respective application. These expert opinions were reviewed by the Commission and accepted if they met the provisions of the “Requirements and Methods for VAH Certification of Chemical Disinfection Procedures” by the Disinfectants Commission [1], and pertinent communications on test requirements published in the journal “Hygiene & Medizin”.

The “Requirements and Methods for VAH Certification of Chemical Disinfection Procedures” [1] and all subsequent amendments were published reflecting the stock of knowledge valid at that time and the methods based on European standardization endeavours and extended by the principle of

efficacy limit value ascertainment. Hence, VAH-certified disinfectants always also fulfill the requirements made by current European standards.

The products are listed solely on the basis of the criteria specified above. Registration and licensing procedures, such as those stipulated by the German Medicinal Products Act (AMG), the Biocidal Product Regulation, or the Medical Device Law Implementation Act (MPDG), are not assessed.

The manufacturers or distributors have issued binding statements that the preparations are marketed only in the formulations in which they were tested for acceptance in the List.

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This List of Disinfectants serves as the basis for selection of appropriate disinfection procedures for routine and prophylactic disinfection to prevent infections in hospitals, medical and dental surgeries, (medical) laboratories, public institutions (children's daycare centres, schools, sporting establishments, etc.) and other areas in which the transmission of infections must be prevented. By using VAH listed products, establishments meet the quality assurance requirements stipulated by German infection control regulations at state (Länder) level.

For statutorily mandated disinfection procedures in Germany, please consult the Infection Control Act (IfSG) [2] (with amendments/updates) and the List of Disinfectants of the Robert Koch Institute (RKI) (www.rki.de) [3].

The VAH List takes account only of the disinfectant ingredients as declared by the manufacturer. To facilitate orientation, the products are classified according to the following active substance groups: aldehydes, aldehyde releasing agents, alcohols, alkylamines and/or alkylamine derivatives, amphoterics, compounds releasing chlorine, bromine or iodine, chloramines, glycol derivatives, guanidines or guanidine derivatives, bases, peroxide acids, peroxide compounds, phenol derivatives, phenol ethers, pyridine derivatives, quaternary compounds, inorganic acids, organic acids, oxidizing agents or heavy metal compounds. The active ingredients and the trademark symbols® are listed according to the specifications of the manufacturers and distributors. The annex to this List provides information on the spectrum of action of the active substances as well as on the nomenclature.

The manufacturers or distributors are required to declare the quantity of each active ingredient on the product packaging.

The listing of a preparation applies only to the specified application process. Any change of the formulation of a listed product must be reported to the head office of the Disinfectants Commission. In such cases the Commission will decide whether, and to what extent, new tests are required.

The Disinfectants Commission reserves the right to undertake further tests if new developments in the testing methodology or regarding the efficacy of particular products come to light. Moreover, it reserves the right to withdraw the corresponding certificate in the event of evidence of no, or insufficient, efficacy.

When their products are certified and listed, the manufacturers and distributors are required to state the certified disinfection parameters on the label, in the instructions for use, and in advertising prospectuses when they make reference to testing according to the "VAH Requirements and Methods" ("tested and found effective") and to the VAH Disinfectants List. Reference may be made to the "VAH Requirements and Methods" only if the thus specified concentration/contact-time relationships are in agreement with the "Requirements and Methods for VAH Certification of Chemical Disinfection Procedure" [1] and the respective amendments.

Testing of the listed products refers only to the effectiveness of the disinfectant. No statements are made about other characteristics of the products, such as skin compatibility, corrosive or cleansing effects.

The disinfectant action of many preparations is impaired in the presence of organic material (e.g., blood, wound secretions, mucus). Therefore the recommendations given here for the respective applications must not be unconditionally applied to other procedures, such as mucous membranes and wound antisepsis or irrigation of body cavities.

As a general rule, freshly prepared working solutions must be used, if the products are not available as 'ready-to-use products'. This rule must always be observed for disinfectants based on peroxide compounds and for chlorine releasing agents since these are not stable (follow instructions given by the manufacturer).

If chlorine-releasing solutions are produced by means of membrane cell electrolysis at the site of use, the manufacturer has to ensure that the product will correspond to the same quality which formed the basis for the two test reports and whose efficacy has been confirmed by both reviewing experts.

The concentrations specified in the Disinfectants List must be exactly observed. Under no circumstances should what is known as a 'shot method' be used. Nor should users add a detergent, e. g. soap or wash-active substances, to the disinfectant at their own discretion ("soap effects").

All products published in the VAH List are yeasticidal and bactericidal, and, hence, also effective against methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), or multiresistant Gram-negative rods. Although the underlying resistance mechanisms do have an impact on the efficacy of antibiotics, they do not influence the activity of disinfectants which are used in microbicidal concentrations [4]. Consequently, VAH-certified concentration/contact time ratios are effective when used as prescribed. In certain situations (e.g. in the event of the cumulated incidence of infections by specific pathogens) the Disinfectants Commission will conduct tests with these bacteria as test organisms in order to ensure that the concentration/contact time ratios listed are also effective in these instances.

Handwash and Disinfection Procedures

The List contains products for the following fields of application:

– Hygienic Handwash

Disinfection products and procedures:

– Hand disinfection

– Skin antisepsis

– Surface disinfection

– Instrument disinfection

– Textile disinfection

More detailed information on the test criteria for the individual procedures is given in the respective sections of the Chapter "Basic Requirements And Test Methods for VAH-certified products".

Certification of Virucidal Properties in the VAH List of Disinfectants

On a national and European level great efforts have been made in order to advance and standardize methods for evaluating disinfectants by means of quantitative suspension tests as well as with tests simulating practical conditions. The VAH requirements for certification of antiviral activity were updated on 1 September 2023 [5]. When more simulated-use test methods are published or if the existing test methods are altered, requirements will be modified correspondingly.

Disinfectants can be certified and listed with the following activity claims: active against enveloped viruses, limited spectrum of virucidal activity, i.e., enveloped viruses plus the lipophilic viruses adeno-, noro-, and rotavirus and/or virucidal activity, i.e., active against enveloped and non-enveloped lipophilic viruses as well as other, selected non-enveloped viruses and – for surface disinfectants – the new claim “virucidal PLUS” [5]. The activity spectra, the required test viruses and the viruses covered by these claims (activity spectra) are all listed in **Table 1**. The test methods are derived from the requirements and methods for VAH certification of chemical disinfection procedures [1]. The chapter “Basic requirements and test methods for VAH-certified products” in the appendix of this VAH list provides an orientation to these methods. Since 1 January 2022, two expert opinions and associated test reports are required for certification of antiviral claims. If an application for antiviral claims is submitted by the manufacturer, the test reports and expert opinions of the products to be listed are reviewed by independent experts from the Disinfectants Commission within the framework of a conformity assessment procedure and a certificate is issued.

The concentration-contact time ratios for all activity claims are listed in separate lines each for the pertinent product entry. Irrespective of the concentration-contact time ratios shown in the expert reports on antiviral efficacy, the values listed for bactericidal and yeasticidal activity are to be considered as minimum requirement for actual use. Therefore, the antiviral activity values stated in the VAH List are never below the ones for bactericidal/yeasticidal activity.

References

1. Desinfektionsmittel-Kommission im VAH (Hrsg.). Anforderungen und Methoden zur VAH-Zertifizierung chemischer Desinfektionsverfahren. Ergänzungen mit Stand: 1.9.2023. [Online im Internet]: <https://vah-online.de/de/fuer-laboratorien>. English translations of methods and requirements with amendments available from <https://vah-online.de/en/expertise>, <https://vah-online.de/en/for-laboratories>.
2. Gesetz zur Verhütung und Bekämpfung von Infektionskrankheiten beim Menschen (Infektionsschutzgesetz IfSG) vom 20. 7. 2000 (BGBl. I S. 1045), das zuletzt durch Artikel 2 des Gesetzes vom 17. Juli 2023 (BGBl. 2023 I Nr. 190) geändert worden ist. Accessed 1 September 2023 from www.gesetze-im-internet.de
3. RKI. Liste der vom Robert Koch-Institut geprüften und anerkannten Desinfektionsmittel und -verfahren. Bundesgesundheitsbl 2017;60:1274–1297. Last update: 25.03.2022, Bundesgesundheitsbl 2022;65:730-735.
4. Meyer B, Cookson B. Does microbial resistance or adaptation to biocides create a hazard in infection prevention and control? J Hosp Inf 2010;76:200–205.
5. Desinfektionsmittel-Kommission im VAH, Kommission Virusdesinfektion von DVW und GfV. Harmonisierung der Anforderungen an die viruzide Wirksamkeit von chemischen Flächendesinfektionsverfahren im praxisnahen Test. HygMed 2023;48 (4):69-72. [English translation available from <https://vah-online.de/en/expertise>]

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Desinfektionsmittel-Kommission im VAH (Ed.). Desinfektionsmittel-Liste des VAH. Stand 1.9.2023. Wiesbaden: mhp Verlag, 2023.

Note:

VAH publications in English are available from:

<https://vah-online.de/en/expertise>

Table 1: Test viruses for efficacy testing of disinfectants and selected viruses covered by these test viruses.

Activity spectrum	Test viruses	Viruses covered by the activity spectrum (examples)
<p>Active against enveloped viruses</p>	<p>Vaccinia virus (strain Elstree and/or MVA)</p> <p>BVDV* (Bovine Viral Diarrhea Virus)</p> <p>*Surrogate virus for Hepatitis C Virus, only used for oxidative disinfectants</p>	<p>Bloodborne viruses</p> <ul style="list-style-type: none"> - Hepatitis B Virus (HBV) - Hepatitis C Virus (HCV) - Human Immunodeficiency Virus (HIV) <p>Viruses causing respiratory infections</p> <ul style="list-style-type: none"> - Human coronavirus (HCoV) 229E, HKU1, NL63 und OC43, SARS-CoV-2, MERS-CoV - Influenza virus A (e.g. H1N1, H3N2) and B - Metapneumovirus - Respiratory syncytial virus (RSV) <p>Viruses with other transmission routes</p> <ul style="list-style-type: none"> - Ebola virus, hantavirus, Lassa virus, Marburg virus - Rabies virus <p>Herpesviridae</p> <ul style="list-style-type: none"> - Cytomegalovirus (CMV) - Epstein Barr virus (EBV) - Herpes simplex viruses type 1 and 2 (HSV-1, HSV-2) - Varizella Zoster Virus (VZV) <p>Orthopoxviridae</p> <ul style="list-style-type: none"> - mpox virus <p>Other viruses causing vaccine-preventable diseases</p> <ul style="list-style-type: none"> - Measles virus - Mumps virus - Rubella viruses <p>Vector-borne viruses</p> <ul style="list-style-type: none"> - Bunyavirus - Crimean-Congo haemorrhagic fever (CCHF) virus - Dengue virus - Tickborne encephalitis virus - West Nile virus - Yellow fever virus
<p>Limited spectrum of virucidal activity (i.e. active against enveloped viruses and the lipophilic non-enveloped viruses adenoviruses, noroviruses and rotaviruses)</p>	<p>Adenovirus (type 5, Adenoid 75 strain), Murine norovirus (MNV, S99 Berlin strain)</p>	<p>Enveloped viruses and additionally lipophilic non-enveloped viruses:</p> <p>Viruses causing gastrointestinal infections</p> <ul style="list-style-type: none"> - Adenovirus serotypes 40 and 41 - Norovirus - Rotavirus <p>Viruses causing respiratory infections</p> <ul style="list-style-type: none"> - Adenovirus serotype 7 <p>Viruses causing keratoconjunctivitis</p> <ul style="list-style-type: none"> - Adenovirus serotypes 8, 19 and 37
<p>Virucidal activity (i.e. active against enveloped and non-enveloped viruses except parvoviridae such as AAV, HAV, HEV)</p>	<p>Adenovirus (type 5, Adenoid 75 strain), Poliovirus (type 1, strain LSc-2ab), Polyomavirus SV40 (simianvirus 40, strain 777), Murine norovirus (MNV, strain S99 Berlin)</p> <p>Only applicable for chemothermal disinfection procedures: >30 °C (textiles) and/or >40 °C (instruments): Murine parvovirus (Minute Virus of Mice (MVM), rodent protoparvovirus 1)</p>	<p>Viruses covered by limited spectrum of virucidal activity and additionally:</p> <p>Papillomaviridae</p> <p>Picornaviridae</p> <ul style="list-style-type: none"> - Enteroviruses: Coxsackie, Echo, Poliovirus, Rhinoviruses, EV 71 - Parechoviruses: Echovirus 11, 22 and 23 <p>When using chemothermal disinfection procedures (textiles >30 °C and/or instruments >40 °C), the following viruses are also covered by „virucidal“:</p> <p>Parvoviridae</p> <ul style="list-style-type: none"> - Adeno-associated viruses (AAV) - Bocavirus - Parvovirus B19
<p>Virucidal activity PLUS <i>This activity spectrum can only be claimed for surface disinfection</i></p>	<p>Murine parvovirus (Minute Virus of Mice (MVM), rodent protoparvovirus 1)</p>	<p>Viruses covered by virucidal activity spectrum and additionally:</p> <p>Hepatitis A Virus</p> <p>Hepatitis E Virus</p> <p>Parvoviridae</p> <ul style="list-style-type: none"> - Adeno-associated viruses (AAV) - Bocavirus - Parvovirus B19