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GB 27953-2020

Replacing GB 27953-2011

General Requirements on Disinfectant for Infectious Focus

疫源地消毒剂通用要求

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Standardization Administration of PRC.

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Foreword

All the technical contents in this Standard are mandatory.

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaced GB 27953-2011 *Hygienic Requirements of Disinfectant for Infectious Focus*. Compared with GB 29753-2011, this Standard has the major technical changes as follows:

--- Add the normative references (see Clause 2 of this Edition);

--- Add terms and definitions of “concurrent disinfection”, “terminal disinfection” (see Clause 3 of this Edition);

--- Add requirements of raw materials (see Clause 4 of this Edition);

--- Add the range of killing pathogenic microorganisms (see 7.1.1.1, 7.1.1.3, 7.1.1.4, 7.1.1.5, 7.1.1.6 of this Edition);

--- Add the selection requirements for disinfectants for contaminants of pathogens of blood-borne infectious disease and special infectious disease (7.1.1.5, 7.1.1.6 of this Edition);

--- Include the label instruction manual requirements and precautions into Clause 8; modify the precautions (see 8.1, 8.2 of this Edition);

--- Delete Appendix A; modify the dosage of the disinfectant; after adding the treatment method of the prion contaminant, include it into the text (see 7.2 of this Edition; Appendix A of 2011 Edition);

--- Delete the disinfection contents of drinking water, fruits and vegetables, hands and skin (see 5.2.3, 5.2.4, 5.2.6 of 2011 Edition).

This Standard was proposed by and under the jurisdiction of National Health Commission of PRC.

Drafting organizations of this Standard: Hebei Provincial Center for Disease Control and Prevention; National Institute of Environmental Health, China CDC; the PLA Center for Disease Control and Prevention; Jiangsu Provincial Health Supervision Institute; Shandong Center for Disease Control and Prevention; Shanghai Municipal Center for Disease Control & Prevention; and Zhejiang Provincial Center for Disease Control and Prevention.

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The historical edition replaced by this Standard is as follows:

--- GB 17953-2011.

General Requirements on Disinfectant for Infectious Focus

1 Scope

This Standard specifies the raw material requirements, technical requirements, inspection methods, use methods, labels and instruction manual for disinfectants used for disinfection of epidemic disease of infectious focus.

This Standard applies to disinfectants that disinfect the epidemic source of infectious diseases or the environment contaminated by infectious pathogens.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB 19193 General Principle on Disinfection for Infectious Focus

WS/T 367 Regulation of Disinfection Technique in Healthcare Settings

Technical Standard for Disinfection (2002 Edition) [Ministry of Health (WFJF [2002] No.282)]

Hygienic Standard for Factories Producing Disinfectants (2009 Edition) [Ministry of Health (WJDF [2009] No.53)]

3 Terms and Definitions

For the purpose of this Document, the following terms and definitions apply.

3.1 Infectious focus

The place where the source of infection exists or existed; or the scope of the source of infection may spread the pathogen.

3.2 Disinfection for infectious focus

Disinfection (2002 Edition), national standards and related regulations. After taking effective protective measures, it shall not cause harm to users' health.

6 Inspection Methods

6.1 Physical and chemical indicators

It shall be tested according to the method specified in *Technical Standard for Disinfection* (2002 Edition) and/or relevant standard.

6.2 Killing microorganism effect

It shall be tested according to the method specified in *Technical Standard for Disinfection* (2002 Edition) and/or relevant standard. The test methods for the target microorganism of the infectious disease can refer to the relevant standards or test technical specifications.

6.3 Toxicology test

It shall be tested according to the method specified in *Technical Standard for Disinfection* (2002 Edition) and/or relevant standard.

7 Use Methods

7.1 Selection of commonly-used disinfectant

7.1.1 Determine the commonly used disinfectants according to the types and resistance of contaminated pathogens

7.1.1.1 Prion contaminants: select chlorine disinfectant or sodium hydroxide, combined with pressure steam for sterilization method.

7.1.1.2 Spore contaminants (such as Bacillus anthracis, Clostridium tetani, etc.): Select disinfectants containing chlorine, peroxides, bromine and formaldehyde, etc.

7.1.1.3 Mycobacteria (such as Mycobacterium tuberculosis, Mycobacterium leprae), hydrophilic viruses (such as poliovirus, norovirus, adenovirus, rotavirus, hepatitis A virus, hepatitis E virus and pathogens that cause hand, foot and mouth disease), mycoplasma, chlamydia, rickettsiae and other pathogen contaminants: Select disinfectants containing chlorine, bromine, peroxides, aldehydes and iodine, etc.

7.1.1.4 Bacterial propagules (such as Vibrio cholerae, Shigella shigae, Corynebacterium diphtheriae, Salmonella typhi and Paratyphoid, Brucella, Neisseria gonorrhoeae, etc.), Nonlipid-coated viruses (such as influenza virus, measles virus,

Hantavirus, etc.) and the contaminants of pathogens such as spirochetes: select disinfectants containing chlorine, bromine, peroxides, aldehydes, iodine, alcohols, guanidines, quaternary ammonium salts, etc.

7.1.1.5 For contaminants of pathogens (such as hepatitis B virus, hepatitis C virus, hepatitis D virus, human immunodeficiency virus, etc.) that are susceptible to organic matter and cause serious diseases, high-level disinfectants shall be used, such as disinfectants containing chlorine, bromine and peroxide, etc.

7.1.1.6 For contaminants of pathogens of special infectious diseases (such as SARS-Coronavirus, MERS-Coronavirus, Ebola virus, highly pathogenic avian influenza virus, H7N9 avian influenza virus, Yersinia pestis and rabies virus), it shall be carried out according to the relevant guideline formulated by the country.

7.1.1.7 For contaminants of unidentified pathogens, determine the applicable disinfectant according to 7.1.1.2.

7.1.2 Commonly-used disinfectants determined according to the disinfection objects contaminated by pathogens

7.1.2.1 Commonly-used surface disinfectants: chlorine-containing, bromine-containing and peroxide disinfectants, etc.

7.1.2.2 Commonly-used air disinfectants: peroxide disinfectants (such as peracetic acid, chlorine dioxide, hydrogen peroxide, ozone, etc.).

7.1.2.3 Commonly-used sewage disinfectants: chlorine-containing, bromine-containing and peroxide disinfectants, etc.

7.1.2.4 Commonly-used disinfectants for tableware: chlorine-containing, bromine-containing and peroxide disinfectants, etc.

7.1.2.5 Commonly-used disinfectants for excreta, secretions and corpse: chlorine-containing and peroxide disinfectants.

7.1.3 Commonly-used disinfectants determined according to environmental protection requirements

In the case of ensuring the disinfection effect, it is recommended to select peroxide disinfectants (such as hydrogen peroxide, peroxyacetic acid, chlorine dioxide), quaternary ammonium salt disinfectants and other disinfection products with less impact on the environment.

7.2 Use methods of commonly-used disinfectants

7.2.1 Disinfection methods used by prion disinfectants

Table 1 -- Applicable Objects, Dosage and Use Method of Chlorine-Containing Disinfectants

Disinfection objects	Spore contaminants		Mycobacterium and hydrophilic virus contaminants		Contaminants of bacterial propagules and nonlipid-coated virus	
	Use method	Dosage	Use method	Dosage	Use method	Dosage
Environment surface	Rubbing, immersing, spraying	10000mg/L~15000mg/L available chlorine; acting for 2h; dosage of 100mL/m^2 ~ 300mL/m^2	Rubbing, immersing, spraying	1000mg/L~2000mg/L available chlorine; acting for 1h; dosage of 100mL/m^2~300mL/m^2	Rubbing, immersing, spraying	500mg/L~1000mg/L available chlorine; acting for 1h; dosage of 100mL/m^2~300mL/m^2
Tableware	Immersing	5000mg/L~10000mg/L available chlorine acts for 1h	Immersing	1000mg/L~2000mg/L available chlorine acts for 0.5h	immersing	250mg/L~500mg/L available chlorine acts for 0.5h
Excreta, secretions	Immersing	Thin excreta and vomit: 1L of thin excreta and vomit is added with 50g of bleaching powder or 2L of 20000mg/L available chlorine disinfectant solution; stir evenly, and stand for 6h Formed feces: add 2 portions of 50000mg/L available chlorine disinfectant solution into 1 portion of feces; mix evenly, act for 6h Urine: every 1L of urine is added with 5g of bleaching power or 1.5g of calcium hypochlorite or	immersing	Thin excreta and vomit: 1L of thin excreta and vomit is added with 50g of bleaching powder or 2L of chlorine-containing disinfectant solution with 20000mg/L available chlorine; stir evenly, and stand for 2h Formed feces: add 2 portions of 50000mg/L available chlorine disinfectant solution into 1 portion of feces; mix evenly, act for 2h Urine: every 1L of urine is added with 5g of bleaching power or 1.5g of calcium hypochlorite or	Immersing	Thin excreta and vomit: 2L of thin excreta and vomit is added with 50g of bleaching powder or 2L of chlorine-containing disinfectant solution with 20000mg/L available chlorine; stir evenly, and stand for 2h Formed feces: add 2 portions of 50000mg/L available chlorine disinfectant solution into 1 portion of feces; mix evenly, act for 2h Urine: every 2L of urine is added with 5g of bleaching power or 1.5g of calcium hypochlorite or 100mL

Table 2 -- Applicable Objects, Dosage and Use Method of Peroxide Disinfectants

Disinfection objects	Spore contaminants		Mycobacterium and hydrophilic virus contaminants		Contaminants of bacterial propagules and nonlipid-coated virus	
	Use method	Dosage	Use method	Dosage	Use method	Dosage
Environment surface	Rubbing, immersing, spraying	10000mg/L peracetic acid acts for 2h; and the dosage is 100mL/m^2 ~ 300mL/m^2. Or 60,000mg/L hydrogen peroxide acts for 2h. Or 2000mg/L chlorine dioxide acts for 2h	Rubbing, immersing, spraying	5000mg/L peracetic acid acts for 1h; and the dosage is 100mL/m^2 ~ 300mL/m^2. Or 30,000mg/L hydrogen peroxide acts for 1h. Or 500mg/L~1000mg/L chlorine dioxide acts for 1h	Rubbing, immersing, spraying	Use 5000mg/L peracetic acid for the wall surface of mud floor; and spray 2000mg/L peracetic acid for the non-mud floor surface; the dosage is 100mL/m^2 ~ 300mL/m^2. Rub, immerse and disinfect for 1h. Or 30000mg/L hydrogen peroxide acts for 1h. Or 500mg/L chlorine dioxide acts for 0.5h
	Aerosol spray	20000mg/L peracetic acid acts for 1h ~ 2h, dosage 8mL/m^3	Aerosol spray	20000mg/L peracetic acid acts for 1h, dosage 8mL/m^3	Aerosol spray	20000mg/L peracetic acid acts for 1h, dosage 8mL/m^3
	Fumigation	150000mg/L peracetic acid is heated and evaporated; the dosage is calculated by 20 mL/m^3 (3g/m^3); fumigate for 1h ~ 2h	Fumigation	150000mg/L peracetic acid is heated and evaporated; the dosage is calculated by 7mL/m^3 (1g/m^3); fumigate for 1h ~ 2h	Fumigation	150000mg/L peracetic acid is heated and evaporated; the dosage is calculated by 7mL/m^3 (1g/m^3); fumigate for 1h ~ 2h
Air	Fumigation	150000mg/L peracetic acid is heated and evaporated; the dosage is calculated by 20 mL/m^3 (3g/m^3); fumigate for 2h	Fumigation	150000mg/L peracetic acid is heated and evaporated; the dosage is calculated by 7mL/m^3 (1g/m^3); fumigate for 1h ~ 2h	Fumigation	150000mg/L peracetic acid is heated and evaporated; the dosage is calculated by 7mL/m^3 (1g/m^3); fumigate for 1h
	Aerosol	5000 mg/L peracetic acid acts	Aerosol	5000 mg/L peracetic acid acts for	Aerosol	5000 mg/L peracetic acid acts for

7.2.5 Use methods of quaternary ammonium disinfectants

The quaternary ammonium disinfectants may be used to disinfect the surface of objects contaminated by bacterial propagules.

The dosage for rubbing, immersing and washing is 400mg/L~1200mg/L; act for 5min~20min; the dosage for spraying is 1000mg/L~2000mg/L; act for 10min~20min.

7.2.6 Use methods of guanidine disinfectants

The guanidine disinfectants may be used to disinfect the surface of objects contaminated by bacterial propagules.

The dosage of rubbing and immersing disinfection is 2000mg/L~ 45000mg/L; and the action time shall be greater than or equal to 10min.

7.2.7 Use methods of formaldehyde fumigation

7.2.7.1 Overview

The formaldehyde fumigation disinfection method may be used for disinfection of contaminated facilities and large equipment.

7.2.7.2 Heating fumigation

7.2.7.2.1 The fumigation and disinfection suitable for contaminants of bacterial spores, mycobacteria and hydrophilic virus: under the closed conditions at temperature ≥18°C, relative humidity ≥70%; the dosage is 25mL/m^3 ~ 50 mL/m^3 formaldehyde; conduct heating fumigation for 12h~24h.

7.2.7.2.2 The fumigation and disinfection suitable for contaminants of propagules and nonlipid-coated virus: under the conditions at temperature ≥18°C and relative humidity ≥70%; the dosage is 12.5 mL/m^3~25 mL/m^3 formaldehyde; conduct heating fumigation for 12h~24h.

7.2.7.3 Chemical fumigation

The fumigation and disinfection suitable for contaminants of bacterial spores, mycobacteria and hydrophilic virus, propagules and nonlipid-coated virus: under closed conditions at temperature ≥18°C, relative humidity ≥70%, mix 40mL/m^3 formaldehyde and 30g/m^3 potassium permanganate; conduct fumigation for 12h~24h.

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