

Environmental Cleaning Standard Operating Procedures

Module 6

Module 6 Cleaning agents

It is a requirement under the Environmental Cleaning Policy that detergents and disinfectants used in environmental cleaning are listed on NSW State Contract.

Staff are to always handle, dilute, use, store and dispose of detergents and disinfectants in accordance with the manufacturer's instructions, current Australian Standards¹ and NSW Health policy².

Material safety data sheets for all cleaning chemicals and solutions must be readily accessible for all staff.

When selecting a cleaning agent (detergent, disinfectant or dual purpose cleaner/disinfectant) for a cleaning task, staff should consider³:

- a. Whether the cleaning agent is approved by TGA for use in that particular circumstance
- b. The intended purpose of the product as per the manufacturer's instructions
- c. The facility's capacity to comply with the manufacturer's instructions
- d. The suitability of the product to the surface or setting
- e. The practical application of using the product with available resources including trained staff
- f. The effectiveness of the cleaning agent against particular organisms including microbiological activity and contact time to kill microorganisms.
- g. The environmental sustainability credentials of the product.

6.1 Use of cleaning chemicals

Purpose:

To safely and effectively use chemicals to clean clinical and non-clinical areas.

Cleaning chemicals include:

- Neutral detergent
- Hospital grade disinfectant
- Bathroom/toilet cleaner
- Other chemicals as per local policy or advice of ICP.

Required standard:

- Chemicals are used to clean spills
- Chemicals are used to clean areas known to have been contaminated by bacteria or other pathogens.

Equipment requirements for using chemicals:

- Personal protective equipment (gloves, gown/apron, protective eyewear, mask and head cover) as required
- Safety Data Sheet (SDS)
- Cloth/disposable cloth/microfibre cloth (as per colour coding requirements)
- Mops (as per colour coding requirements)

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- Squeeze bottle or bucket (as per colour coding requirements)
- Chemicals as per dilution rate/dispensing unit.

Risks:

Hazard(s):	Control(s):
Contact Injury	<ul style="list-style-type: none"> • Wear personal protective equipment as required
Incorrect Chemical	<ul style="list-style-type: none"> • Check there is an SDS for each chemical • Check there is a label on the chemical containers • A chemical that is decanted and used completely and immediately does not require labelling - for example a chemical poured from its original container into a bucket with water for mopping; once the floor is mopped the contents of the bucket are immediately disposed of. • Read the SDS for the chemicals that are going to be used • Read the label on the container of the chemical that is used • Dilute chemicals as per the manufacturer's instructions • Ensure chemical dispensers are correctly calibrated for use • Do not use unlabelled chemicals • DO NOT mix chemicals • When a chemical is decanted and not used immediately the container is labelled with the product name and any risk and safety phrases and all the original information that the manufacturer had noted on the label of the original container • Never decant chemicals into food and drink containers • It is safer to purchase chemicals in appropriate sizes rather than decant them
If you cannot comply with the controls	<ul style="list-style-type: none"> • Do not proceed with task • Tag equipment 'Out of Order' and remove it from area if applicable • Immediately inform the supervisor of the problem

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Key Safety Rules:

- Operate equipment in accordance with the manufacturer's instructions and facility requirements. Install appropriate signage and barriers to maximise public safety during the cleaning operation
- Always adhere to Standard Precautions, and to Transmission-based Precautions if required/advised to do so
- Wear personal protective equipment (PPE) that is correct for the cleaning task, and discard or clean and store PPE afterwards as required
- Use the correct manual handling techniques for the task required
- Always ensure hand hygiene is performed after each clean and after removing gloves

Procedure:

Read the label

Step 1	When working with chemicals, read the label on the container to find out: <ul style="list-style-type: none"> • The trade name of the chemical • The proper chemical name and ingredients • About any possible harmful effects, and • How to use the chemical safely
Step 2	If there is no label or the label does not help you, ask your supervisor, safety officer or employer to get the information before you start to use the chemical.
Step 3	Under the <i>Work Health and Safety Regulation 2011</i> (WHS Regulation) ¹ containers of chemicals should have proper labels - vats and pipes should also have labels or signs to tell you what is in them
Step 4	Make sure you know how to do the job safely - ask for training in safe work procedures if you need it

Ask for the Safety Data Sheet (SDS)

Step 1	More information about a chemical can be found on the SDS, which gives more detail about chemicals than the product label and should tell you: <ul style="list-style-type: none"> • The chemical and trade names • How the chemical may be a danger to health • About using the chemical safely • About handling the chemical safely, and • About first aid in case of an accident
Step 2	Every chemical has an MSDS and under WHS regulation everyone in the workplace must be allowed to see the current MSDS for chemicals they use.
Step 3	Having an SDS does not mean a chemical is safe to use - always read the directions for safe use, and always choose the safest chemical for the job
Step 4	Chemicals can be relatively safe to use if used in accordance with the manufacturer's safe handling recommendations
Step 5	The hazards presented by chemicals fall into four broad groups which are: <ul style="list-style-type: none"> • Corrosive - causing chemical burns, e.g. acids or alkalines • Explosive - causing burns or fire, e.g. nitroglycerine • Irritant - causing allergic reactions, e.g. epoxy glues, powders, liquids, solvents • Toxic - causing poisoning, e.g. cyanide, carbon monoxide
Step 6	Containers of hazardous chemicals must provide warning labels and other chemical containers should provide warning labels which provide basic information and directions, including:

¹ Work Health and Safety Regulation 2011

<http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+674+2011+cd+0+N>
(accessed 12 June 2012)

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	<ul style="list-style-type: none"> • First Aid instructions that explain what to do if someone inhales fumes, comes in contact with the substance, is burned, etc • Precautions that may explain not to get the chemical in the eyes or to wash hands thoroughly or to keep away from sparks or open fire • Handling, storage and disposal which explain the required personal protective equipment, types of containers to be used and how to dispose of waste products • Procedures to follow, e.g. how to clean up a spill or what type of fire extinguisher to use
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READ ANY WARNING LABELS AND FOLLOW THESE RECOMMENDATIONS

Ask questions

Step 1	The more detailed the question, the more useful the answer will be to you
Step 2	<p>Before asking for advice about a chemical, find out:</p> <ul style="list-style-type: none"> • The correct name of the chemical, not just the trade name, from the label • If it has a 'dangerous goods' or 'poisons' label, or if the word 'hazardous' is on the label • The name of the manufacturer of the chemical • How you intend to use the chemical (e.g. spray it on an item or dip the item in it) • The situation in which the chemical is used (e.g. outdoors or in enclosed spaces) • The types of personal protective equipment that are to be worn when the chemical is used (e.g. the type of respirator)

Safe storage, handling and disposal of chemicals

Step 1	The SDS provides advice on storage and handling of each chemical, and it is important to check that the chemicals you use are handled and stored according to those instructions
Step 2	The SDS also contains information about disposal of chemicals, and it is important these are followed to ensure the safety of the user and others, and also to prevent possible damage to the environment
Step 3	When disposing of any chemical in bulk, inform your supervisor before doing so
Step 3	Chemicals identified as dangerous goods should be stored and handled in accordance with the <i>Code of practice for the storage and handling of dangerous goods</i> , ¹ and include signage that in the event of an emergency alerts emergency services such as the Fire Brigade to the hazards associated with the dangerous goods stored at the premises
Step 4	If in any doubt about the safe handling, storage and disposal of any chemical, ask your supervisor for guidance

Seeking first aid or medical attention

Step 1	If you feel unwell when working with a chemical, report immediately to your supervisor and / or the Emergency Department
Step 2	If you feel unwell outside working hours, see a doctor - describe what you have been working with if you think you may be unwell because of a chemical exposure

6.2 Cleaning Agents

Detergents

¹ WorkCover New South Wales, Code of practice for the storage and handling of dangerous goods, 2005
http://www.workcover.nsw.gov.au/formspublications/publications/Documents/storage_handling_dangerous_goods_code_of_practice_1354.pdf

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Detergents can be acidic, neutral or alkaline. For most general cleaning tasks neutral detergent solutions (pH between 6 and 8) should be used.

Commonly used detergents include:

- Bathroom/toilet cleaners; crème cleansers; bathroom cleaning solutions; toilet bowl cleaners; disposable detergent wipes
- Carpet shampoos/cleaners
- Floor strippers
- Floor polishers - for floor buffing
- Descaling chemicals - for descaling (removing lime from) dishwashers etc
- Air fresheners/deodorisers - to suppress unpleasant odours

Dual purpose cleaner/disinfectants⁴

Dual cleaner/disinfectants combine a detergent cleaning effect with a disinfecting biocide. Dual purpose cleaner/disinfectants are designed to eliminate the need for separate cleaning and disinfection processes by combining them into a single process. The most common use is for terminal cleans. It is also frequently used, for a short defined period, for all routine cleaning in a ward or area where there is an outbreak of infection and for routine cleaning in Extreme Risk areas on frequently touched surfaces and items.

Disinfectants used in environmental cleaning

In acute care setting where there is uncertainty about the nature of soiling on the surface (blood or body fluids versus routine dust and dirt) or the presence of MROs or other infectious agents requiring Transmission Based Precautions is known or suspected or frequently touched surfaces and items in Extreme Risk areas, surfaces should be physically cleaned with a detergent solutions followed or combined with a TGA registered disinfectant with label claims specifying its effectiveness against specific infectious organisms. This process must involve either;

- A physical clean using detergent followed by a chemical disinfectant (2 step clean).
- A physical cleaning using a combined detergent and chemical disinfectant (2 in 1 clean).

Physical cleaning is the most important step in cleaning. Sole reliance on a disinfectant without mechanical/manual cleaning is not recommended.

The use of routine disinfectants as part of cleaning is only recommended in Extreme Risk areas, as part of Outbreak management and for terminal cleaning following an MRO/Infectious Disease, for the use of a disinfectant in other areas of a healthcare facility staff must contact the Infection Control Professional for advice and approval for use, based on the risk of contamination to the patient and others.

Commonly used disinfectants include⁵:

Alcohol

- Wipes impregnated with 70-90% alcohol (ethyl alcohol or isopropyl alcohol) are used to clean/disinfect small surfaces.
- Staff should be aware that alcohol can lead to deterioration of various materials, evaporates quickly, and is flammable.

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Chlorine and chlorine compounds

- Hypochlorites are the salts of hypochlorous acid. Common examples include sodium hypochlorite (household bleach), sodium dichloroisocyanurate (NaDCC) and calcium hypochlorite (bleaching powder).
- Sodium hypochlorite is widely used in healthcare facilities in a variety of settings, including for spot disinfection of floors and counter tops and disinfection of areas and rooms of patients with an infectious disease (see Module 4).
- Staff should not use sodium hypochlorite on its own for combined cleaning and disinfection.

Hydrogen peroxide

- Hydrogen peroxide is a binary compound of hydrogen and oxygen (H₂O₂).
- Hydrogen peroxide is a stable and effective disinfectant on inanimate surfaces, and is also effective in spot disinfecting fabrics.
- Hydrogen peroxide vapourised via a special generator at a safe and concentration can destroy micro-organisms in rooms.
- A hydrogen peroxide concentration of 3% at a minimum is required to be effective against organisms such as *Clostridium difficile*.
- Staff should not use hydrogen peroxide on its own for combined cleaning and disinfection.

Quarternary ammonium compounds

- Quarternary ammonium compounds are derived from ammonium with hydrogen atoms replaced by organic groups. Each of these compounds exhibits its own antimicrobial characteristics.
- Quarternary ammonium compounds are widely used for general environmental cleaning/decontamination of non-critical surfaces such as floors, walls and furniture.

Phenolic Disinfectants

- Phenolic disinfectants are highly effective against vegetative organisms and many viruses and is effective at cell lysis.
- Phenolic compounds are noted as effective surface disinfectants for gram negative rods and mycobacteria species.

¹ Standards Australia/Standards New Zealand, AS/NZS 4187:2003 - *Cleaning, Disinfecting and Sterilizing Reusable Medical and Surgical Instruments and Equipment, and Maintenance of Associated Environments in Health Care Facilities*.

² *Hazardous Substances and Dangerous Goods in NSW Health - Guidelines for Safe Use* GL2006_010. http://www.health.nsw.gov.au/policies/gl/2006/GL2006_010.html

³ NHMRC (2010) *Australian Guidelines for the Prevention and Control of Infection in Healthcare*. Commonwealth of Australia. http://www.nhmrc.gov.au/_files_nhmrc/file/publications/synopses/CD33_InfectionControlGuidelines2010.pdf

⁴ National Patient Safety Agency (2009) *The Revised Healthcare Cleaning Manual*. <http://www.nrls.npsa.nhs.uk/resources/patient-safety-topics/environment/?entryid45=61830>

⁵ CDC and the Healthcare Infection Control Practices Advisory Committee (2008) *Guideline for Disinfection and Sterilization in Healthcare Facilities*, 2008. http://www.cdc.gov/hicpac/Disinfection_Sterilization/toc.html