



Australian Environmental Pest Managers Association Industry Guideline for Disinfection

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Championing Industry Professionalism and Innovation

As the Professional Pest Management industry's peak national body, the Australian Environmental Pest Managers' Association ('AEPMA') is committed to promoting a culture of professionalism and innovation, not only in pest management but also in allied and associated industries. This Guideline has been prepared, in large part, to help promote increased professionalism and innovation at all levels, across all industries and to recognise and embrace all stakeholders involved in the delivery of disinfection programs.

Importantly, to become more professional and innovative, industry stakeholders need to re-examine how they do things and find new and better ways of achieving superior results. They need also to embrace and commit to continuous improvement in all aspects of enterprise development and planning; business practice; financial management; project management; workforce management; and use of technology.

AEPMA believes technology, particularly information technology, has the potential to be a major driver of change in the pest management industry. Already, we are seeing major growth in, for instance: electronic tendering and documentation; job costing, job tracking and personnel; vehicle and equipment tasking; data communication; virtual design; project data and database sharing across and between disciplines; and energy management. All these innovative technologies are having, and will continue to have, significant impacts on industry practices.

We believe those enterprises and individuals which embrace new technologies into their businesses will become increasingly competitive.

For its part, AEPMA will continue to actively support and promote industry-wide professionalism, ethics-driven innovation, and ever higher standards of performance and behaviour through initiatives such as:

- a 'gold standard' Code of Ethics; and
- professional accreditation through PestCert; and
- improved standards of training and education for industry practitioners; and
- the development of 'National Competency Standards'; and
- developing, preparing and actively promoting industry 'Codes of Best Practice'; and
- ever increasing investment in cost-effective communication within the industry and between the industry and its stakeholders.

AEPMA Codes of Practice and Guidelines

AEPMA is committed to developing, preparing and promoting definitive 'Codes of Practice' and 'Guidelines' describing and providing expert guidance on best practice across an increasing range of key pest management areas.

Codes of Practice which have already been published and which, as 'living documents', are continually being reviewed and updated include:

- Code of Practice – Prior to purchase Timber Inspections
- Code of Practice – Pest Management in the Food Industry
- Code of Best Practice – for Termite Management
- Code of Best Practice – for Rodent Management
- Code of Best Practice – for Termite Management During Construction
- Code of Practice for the Control of Bed Bug Infestations in Australia

Other Codes under development include:

- AEPMA's Code of Practice for Training in the Pest Management Industry.

Version currency

Codes of Practice and Guidelines are *living documents* and it is therefore important that the latest version is read and relied on. If in doubt, check with AEPMA to ascertain if a Code of Practice or Guideline is the latest version.

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Document Administration, Consultation, and Review

This *Industry Guideline for Disinfection* (elsewhere referred to as 'this Guideline') was initiated on behalf of the professional pest management industry by the Australian Environmental Pest Managers' Association (AEPMA), the peak professional association for pest management in Australia.

To develop and prepare the Guideline, AEPMA appointed a working party comprising:

- Leading Professional Pest Managers; and
- Representatives of companies responsible for the production and/or distribution of disinfection products; and
- Other relevant stakeholders.

The working party is responsible for developing, administering, and the ongoing review of this Guideline in accordance with guidelines agreed by the AEPMA National Board.

The ACCC has provided guidelines for developing effective industry Guidelines of conduct to improve industry compliance with the Trade Practices Act and to promote self-regulated best practice market behaviour. This Guideline has been developed using the ACCC's guideline framework.

Please note: this Guideline is not intended to contradict any legislated requirements and cannot be read as opposing any such requirements.

Ethical Considerations

The AEPMA **Code of Ethics** underpins and provides an ethos for all aspects of professional pest management. In particular, the AEPMA Code of Ethics:

- Underpins best practice by pest management professionals and pest management industry ('industry') stakeholders; and
- Obliges all industry stakeholders to oppose and call out unethical behaviour by others in the industry; and
- Requires all industry stakeholders operating at all levels to adopt ethical principles and practices consistent with the industry's Codes of Practice, Guidelines and Australian Standards; and
- Requires all industry stakeholders who adopt this Guideline for Disinfection to deal only with industry parties whose standards of performance and behaviour conform to those expected by this Guideline.

The AEPMA Code of *Ethics* can be viewed in full on the AEPMA website:

www.aepma.com.au.

1 Introduction

The onset of the global COVID-19 pandemic, caused by the SARS-CoV-2 virus, created an unprecedented global demand for disinfection treatments of residential, commercial and government properties. This demand was evident in Australia too. Professional pest managers are ideally equipped to support this Australia-wide health effort due to their training, their use and knowledge of application equipment and techniques, their skills in the safe-handling and application of chemicals and their understanding and knowledge in the use of personal protective equipment (PPE).

It is expected that this important hygiene service will remain common practice for many years to come due to the persistence of the SARS-CoV-2 virus and concerns about future disease pandemics. There is widespread community concern regarding disease transmission, and it is expected that disinfection treatments will remain an ongoing integral part of the professional pest management service offering.

Therefore there is an obvious need to define best practice disinfection procedures.

2 Aims

The overriding aim of this Guideline is to provide a document that benchmarks and describes 'best practice' for disinfection programs to surfaces. In developing and documenting best practice, consideration has been given to both current and future challenges that the professional pest management industry may face when implementing disinfection programs. More specific aims for this Guideline are to:

- Improve disinfection practices throughout Australia for the benefit of public health, food security, and the protection of the environment; and
- Develop responsible practices for the use of disinfectants.

3 Key Stakeholders and Scope of the Guideline

3.1 Key Stakeholders

For this Guideline, key stakeholders include:

- Professional Pest Managers; and
- Commercial and Environmental Health Officers; and
- Regulators – TGA & other Government agencies; and
- Food safety auditors; and
- Consumers of disinfection services.

3.2 Scope of this Guideline

Professional management of disinfection treatments to surfaces in and around buildings and structures by professional pest management companies.

4 The Regulatory Environment

Disinfectants are regulated in Australia by the Australian Government's Department of Health, Therapeutic Goods Administration (TGA).

Governments or industry bodies may endorse Codes of Practice, Standard Operating Procedures, and Guidelines as a provision for communicating specific aspects of disinfection.

Methods used to disinfect premises must comply with relevant State or Territory legislation.

5 Requirements for Professional Pest Management Companies

To comply with this Guideline, Professional Pest Management Companies are required to:

- Comply with all relevant Commonwealth, State, Territory and Local government regulations that apply to disinfection treatments; and
- Apply disinfectants in accordance with the product label directions and Government or industry approvals and permits; and
- Keep records of disinfectants applied in accordance with relevant State, Territory or Local government requirements; and
- Carry appropriate insurance cover with an endorsement for disinfection treatments.

6 The Client

In the context of this Guideline, clients are considered to be anyone engaging a Professional Pest Management Company to carry out disinfection work on premises under their control. This includes residential clients, commercial clients, and Government bodies requiring disinfection.

For disinfection at food management sites please also refer to AEPMA's Code of Best Practice for Pest Management in the Food Industry in Australia and New Zealand.

7 Relationship Between Professional Pest Management Company and the Client

The establishment of an effective Client-Professional Pest Management Company relationship is critical to the success of any disinfection program. The client is integral to the development of the program as they will often have first-hand knowledge of the current situation. Integrated Management principles also support the need for the client to play an active role in the management program through implementing cultural control methods e.g. cleaning and physical control methods together with personal hygiene systems aimed at limiting the spread of micro-organisms.

This Client-Professional Pest Management Company relationship begins with the first contact and continues until completion of the disinfection program. At the first meeting, the Professional Pest Management Company should:

- Clarify with the client their perception of the current situation. This information will help to initiate the development of a disinfection plan; and
- Establish what the client's expectations are in relation to the management process. If this is not done, then it may be impossible to ever meet their expectations.

Throughout the management process, it is essential to maintain clear, open lines of communication and documentation ensuring that the disinfection program runs smoothly. Ongoing client feedback will assist the Professional Pest Management Company to make any adjustments to the program if required. At the completion, the Professional Pest Management Company should document and explain to the client the results of the program and of the need for ongoing programs.

8 Risk Management Plan

A Risk Management Plan is a fundamental part of an effective disinfection program. The elimination of hazards where possible, and the evaluation of Safety, Health and Environment (SHE) risks is the basis of proactive management and effective incident prevention.

8.1 Risk Assessment

A Risk Assessment involves considering what could happen if a person is exposed to a hazard and the likelihood of it happening. A Risk Assessment can help determine:

- The severity of a risk; and
- Whether any existing control measures are effective; and
- What action you should take to manage the risk; and
- How urgently the action needs to be taken.

A Risk Assessment should be completed for:

- A new piece of equipment; or
- A new management method; or
- Use of a new disinfectant; or
- A task – routine and non-routine work activities carried out at a client's premises.

8.2 Site Specific Risk Assessment

Risk Assessments that are specific to the site in which work is to be carried out are designed to ensure a safe working environment for disinfectant applicators and members of the general public that may come into contact with the disinfectant applicator during the course of the disinfection program, and because each individual site may have risks unique to that site.

8.3 Work Instructions

A *Safe Work Method Statement (SWMS)* must be prepared for any activity identified in the site-specific risk assessment. It should be as detailed as is necessary to describe the activity to be carried out and the method of controlling the risk. Generally, the higher the risk the more detail that will be required. Work instructions based on the findings of the risk assessments must be:

- Communicated to employees and other interested parties, as required; and
- Communicated in a language that can be understood by each interested party; and
- Documented in writing.

Examples of SWMS can be viewed at: <https://aepma.com.au/Codes-of-Practice>.

9 Required Disinfection Documentation

9.1 Scope of Works

The Scope of Works should include, but not be limited to, the following:

- Inspection of the premises; and
- Disinfection strategy; and
- Scope of treatment (e.g. viricidal, bacterial, fungal or if a specific micro-organism is requested to be treated); and
- Recommended (or if different, agreed) frequency of service; and

- Areas of service; and
- Times of service; and
- Method(s) of treatment; and
- Regulatory compliant products to be applied; and
- Agreed response times; and
- External notification of treatments (if required).

9.2 Service Reports

Service reports dealing with disinfection should include the following:

- Regulatory compliant products applied; and
- Recommendations to the client for cleaning or building modification specific to ensuring good sanitation; and
- Any changes recommended to the Disinfection Strategy.

All service reports should be supplied to the client within 24 hours.

10 Disinfectants

Disinfectants are a distinct class of goods, that are referenced in the Australian legal framework as *Therapeutic Goods*. Disinfectants are regulated by the Australian Government's Department of Health, Therapeutic Goods Administration (TGA) to confirm their performance and safety with due regard to the intended use of a product, as discerned from the claims made in the instructions for use, labelling and promotional material.

There are two classes of disinfectants defined by the TGA, *Exempt Disinfectants* and *Listed Disinfectants* (<https://www.tga.gov.au/disinfectants-sterilants-and-sanitary-products>). The choice of which class of disinfectant is appropriate for a particular treatment is dependent upon the disinfection requirements of the client and the premises to be treated. Use of unapproved products brings a high-risk of statutory non-compliance orders including possible fines. Applicators must always refer to the TGA regulatory compliant product labels for full directions of use and precautions.

Exempt disinfectants

Hospital grade or household/ commercial grade disinfectants are liquids, sprays, wipes, sponges and aerosols that do not make any specific control claims. These products should only be used where non-specific bactericidal disinfections are required. These products are not required to be listed in the Australian Register of Therapeutic Goods in order to be supplied to the market, but they must still meet all regulatory requirements as set out in the relevant legislation and guidance. This includes product labelling requirements.

Listed disinfectants

These are hospital grade or household/commercial grade disinfectant liquids, sprays, wipes, sponges and aerosols that make specific claims with respect to their being viricidal, sporicidal, tuberculocidal, fungicidal or biocidal against any other specific organism. These products are required to be listed in the Australian Register of Therapeutic Goods before they are supplied to the market and must meet all regulatory requirements as set out in the relevant legislation and guidance.

Disinfectants that make specific claims, including claims for SARS-CoV-2 and other coronaviruses, are Listed Disinfectants, and must be listed with the Therapeutic Goods Administration (TGA).

The supplier should be able to provide the Australian Register of Therapeutic Goods Certificate for the product, together with its Australian Register for Therapeutic Goods (ARTG) number, to confirm that it is approved for the claimed uses. The product should also be able to be independently found by searching the Australian Register of Therapeutic Goods using the TGA issued ARTG number.

The TGA is currently publishing a list of registered products, with approved label claims including 'Kills SARS-CoV-2 (COVID-19)', that are available in Australia and New Zealand at <https://www.tga.gov.au/disinfectants-use-against-covid-19-artg-legal-supply-australia>.

10.1 Selecting a Disinfectant

There are many factors that should be taken into consideration when choosing which disinfectant to use on any particular site or location. The most important is the legal requirement to follow legislation as designated by Commonwealth, State, Territory and Local regulators.

When selecting a disinfectant for use in and around buildings, several criteria should be considered:

- Which micro-organisms are likely to be present and which micro-organisms are considered to be of concern (e.g. viruses, bacteria and/or fungal spores)?
- What are the potential hazards and risk factors? Do fire systems need to be isolated?

Applicators must consider the potential environmental, health and safety (applicator and occupant) and site related risks associated with disinfection treatments. The hazards associated with disinfectants (e.g. flammability, corrosiveness, skin irritation and toxicity) vary significantly, depending on the disinfectant type and the surface being treated. Improper use and/or poor product selection may result in adverse outcomes. Applicators must be familiar with product SDS and Labels, and thoroughly assess the potential hazards and associated risks prior to commencing any application. Concealed area testing may be required prior to commencing a complete site application.

- Are there any concealed areas that may harbour micro-organism? (e.g. air-conditioning ducts).
- Are there foodstuffs stored or manufactured nearby?

- Are immune-compromised persons or children at risk?
- What is the relative toxicity of disinfection options?
- Are there any Federal, State or local legislative requirements that may affect the treatment?

These criteria should be dealt with during the initial inspection and discussion with the client.

10.2 Types of Disinfectants

Sourced from the US Centers for Disease Control, Ref:

<https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html>

Many disinfectants are used alone or in combinations. These include alcohols, chlorine and chlorine compounds, formaldehyde, glutaraldehyde, ortho-phenylphenol, hydrogen peroxide, iodophors, peracetic acid, phenolics, and quaternary ammonium compounds. Commercial formulations based on these chemicals are considered unique products and must be registered with the TGA and/or comply with TGA regulations. In most instances, a product is designed for a specific purpose and used in a certain manner. Users must read labels carefully to ensure the correct product is selected for the intended use and applied efficiently.

Disinfectants are not interchangeable. Occupational diseases among cleaning personnel have been associated with use of several disinfectants (e.g. formaldehyde, glutaraldehyde, and chlorine), precautions (e.g. gloves and proper ventilation) should be used to minimise exposure. Asthma and reactive airway disease can occur in sensitised persons exposed to any airborne chemical, including germicides. Clinically important asthma can occur at levels below ceiling levels. The preferred method of control is elimination of the chemical (through engineering controls or substitution) or relocation of the worker.

Alcohol

In healthcare, 'alcohol' refers to two water-soluble chemical compounds, ethyl alcohol and isopropyl alcohol, that have generally underrated germicidal characteristics. These alcohols are bactericidal, tuberculocidal, fungicidal and viricidal, but they do not destroy bacterial spores.

Ethyl alcohol, at concentrations of 60 % – 80 %, is a potent viricidal agent inactivating all lipophilic viruses (e.g. herpes, influenza virus and SARS-CoV-2) and many hydrophilic viruses (e.g. adenovirus, enterovirus, rhinovirus, and rotaviruses but not hepatitis A virus (HAV) or poliovirus).

Isopropyl alcohol is not active against nonlipid enteroviruses but is active against lipid enveloped viruses.

Alcohols are not recommended for sterilizing medical and surgical materials because they are not sporicidal and cannot penetrate protein-rich materials. Alcohols are flammable and must be stored in a cool, well-ventilated area. They also evaporate rapidly, making extended exposure time difficult to achieve unless the items are immersed.

Chlorine and Chlorine Compounds

Hypochlorites, the most widely used of the chlorine disinfectants, are available as liquids (e.g. sodium hypochlorite) or solids (e.g. calcium hypochlorite). The most common chlorine products are household bleach, aqueous solutions of 5.25 % – 6.15 % sodium hypochlorite. They have a broad spectrum of antimicrobial activity, do not leave toxic residues, are unaffected by water hardness, are inexpensive and fast acting, remove dried or fixed organisms and biofilms from surfaces and have a low incidence of serious toxicity.

Sodium hypochlorite at the concentration used in household bleach can cause irritancy, corrosiveness to metals in high concentrations (>500 ppm), can be inactivated by organic matter, cause discolouring or bleaching of fabrics and release of toxic chlorine gas when mixed with ammonia or acids (e.g. household cleaning agents).

Hypochlorites are widely used in healthcare facilities. Inorganic chlorine solution is used for spot-disinfection of countertops and floors. A 1:100 dilution of household bleach is recommended for decontaminating drops of blood on noncritical surfaces and cleaning, followed by application of a 1:10 solution of household bleach for large spills.

Formaldehyde

Formaldehyde is used as a disinfectant and sterilant in both liquid and gaseous states. Formaldehyde is used principally as formalin, a 37 % water-based solution of formaldehyde. The aqueous solution is a bactericide, tuberculocidal, fungicide, viricide and sporicidal.

Formaldehyde should be handled in the workplace as a potential carcinogen. Ingestion of formaldehyde can be fatal and long-term exposure to low levels in the air or on the skin can cause asthma-like respiratory problems and skin irritation, such as dermatitis and itching and it has irritating fumes and a pungent odour even at very low levels. These effects limit its role in sterilisation and disinfection.

Glutaraldehyde

Glutaraldehyde is a high-level disinfectant and chemical sterilant. Aqueous solutions of glutaraldehyde are acidic and not sporicidal. Neutral or alkaline glutaraldehydes have microbicidal and anticorrosion properties superior to those of acidic glutaraldehydes. Glutaraldehyde should not be used for cleaning noncritical surfaces because it is too toxic and expensive.

Hydrogen Peroxide

Hydrogen peroxide has good germicidal activity including bactericidal, viricidal, sporicidal and fungicidal properties. Hydrogen peroxide at a 3 % concentration is a stable and effective disinfectant when used on inanimate surfaces.

Iodophors

An iodophor is a combination of iodine and a solubilising agent or carrier. Iodine solutions or tinctures are used by health professionals primarily as antiseptics on skin or tissue. Iodophors are used as antiseptics and disinfectants. Iodophors formulated as antiseptics contain less free iodine than those formulated as disinfectants, so antiseptic iodophors are not suitable for use as hard-surface disinfectants. The US Food and Drug Administration (FDA) has not cleared any liquid chemical sterilant or high-level disinfectants with iodophors as the main active ingredient.

Ortho-phthalaldehyde (OPA)

Ortho-phthalaldehyde is a high-level disinfectant containing 0.55 % 1,2-benzenedicarboxaldehyde. Ortho-phthalaldehyde has several potential advantages over glutaraldehyde. It has excellent stability over a wide pH range (pH 3 – 9), is not a known irritant to the eyes and nasal passages, does not require exposure monitoring and has a barely perceptible odour. Ortho-phthalaldehyde, like glutaraldehyde, has excellent material compatibility. A potential disadvantage of ortho-phthalaldehyde is that it stains proteins grey (including unprotected skin) and must be handled with caution.

Peracetic Acid

Peracetic, or peroxyacetic, acid has a rapid action against all microorganisms. It lacks harmful decomposition products, enhances removal of organic material and leaves no residue. It remains effective in the presence of organic matter and is sporicidal even at low temperatures. Peracetic acid can corrode copper, brass, bronze, plain steel, and galvanised iron but these effects can be reduced by additives and pH modifications. It is considered unstable, especially when diluted.

Automated machines using peracetic acid are used to chemically sterilise medical, surgical and dental instruments in the United States.

Peracetic Acid and Hydrogen Peroxide

A combination of peracetic acid and hydrogen peroxide inactivates all microorganisms except bacterial spores within 20-minutes. It has been used for disinfecting hemodialyzers used in dialysis machines.

Phenolics

Phenols have been used in hospital disinfection for decades. Two phenol derivatives commonly found as constituents of hospital disinfectants are ortho-phenylphenol and ortho-benzyl-para-chlorophenol. The antimicrobial properties of the phenol derivatives are much improved over those of phenol. They have bactericidal, fungicidal, viricidal and tuberculocidal, but not sporicidal action.

Many phenolic germicides are used on environmental surfaces (e.g. bedside tables, bedrails, and laboratory surfaces) and noncritical medical devices. Phenolics are not US FDA-cleared as high-level disinfectants for use with semi-critical items but can be used to preclean or decontaminate critical and semi-critical devices before terminal sterilisation or high-level disinfection.

Use of phenolics in nurseries has been linked to hyperbilirubinemia in infants placed in bassinets where phenolics were used. If phenolics are used to terminally clean infant bassinets and incubators, the surfaces should be rinsed thoroughly with water and dried before reuse.

Quaternary Ammonium Compounds

Quaternary ammonium compounds are widely used as disinfectants. Some of the chemical names of quaternary ammonium compounds used in healthcare include alkyl dimethyl benzyl ammonium chloride, alkyl didecyl dimethyl ammonium chloride and dialkyl dimethyl ammonium chloride. The newer quaternary ammonium compounds (fourth generation) referred to as twin-chain or dialkyl quaternaries (e.g. didecyl dimethyl ammonium bromide

and dioctyl dimethyl ammonium bromide), remain active in hard water and are tolerant of anionic residues. Each compound exhibits its own antimicrobial characteristics.

Quaternaries used as hospital disinfectants are generally fungicidal, bactericidal and viricidal against lipophilic (enveloped) viruses; they are not sporicidal and generally not tuberculocidal or viricidal against hydrophilic (nonenveloped) viruses. The quaternaries are commonly used in environmental sanitation of noncritical surfaces, such as floors, furniture and walls. In the USA, EPA-registered quaternary ammonium compounds are used for disinfecting medical equipment that contacts intact skin (e.g. blood pressure cuffs).

Nitrogen based compounds

Other nitrogen-based compounds such as alkyl amides and alkyl amines are becoming more prevalent as disinfectants in both the healthcare and commercial sectors. These include alkyl polyguanides and biguanides; and alkyl amines such as laurylamine dipropylenediamine. These products offer advantages in that they remain active in hard water, can be used over a wide pH range, have generally low irritancy and are tolerant of anionic residues. Each compound exhibits its own antimicrobial characteristics. Depending upon the structure and dose, these disinfectants are generally fungicidal, bactericidal and viricidal against both lipophilic (enveloped) and hydrophilic (non-enveloped) viruses.

Other products

There are other technologies and chemicals that may, under certain circumstances, be applicable and suitable for disinfection, for example, hypochlorous acid-based liquids, UV-C light or heat transfer devices. In each case the manufacturer or supplier must be able to provide all regulatory clearances and approvals, and assurances for health, safety, compatibility, efficacy and suitability of the product to the application.

11 Disinfection Strategies

Viruses and bacteria are transferred through various modes, including via animal or insect vectors, direct (person to person) transmission, or indirect direct (surface to person) transmission. For both direct and indirect transmission personal hygiene measures and/or social distancing are the first step to avoid infection and preventing the spread of infection.

Surface disinfection is a critical step in managing viruses and bacteria which are transmitted via indirect (surface to person) pathways. This is particularly important on high contact and thus high risk of contamination surfaces, such as window and door handles, keyboards, touchscreens. After that, other surfaces with a lower risk of contamination can be disinfected as well. Each site is different and will require a different set of measures. A considered management measure, e.g. cold aerosol fogging, may present a low risk at one site, but a higher risk at another. Therefore, an important procedure in a disinfection program is the development of this Disinfection Strategy and ensuring the methodology follows the manufacturer's product label requirements for treatment.

The surfaces have to be completely covered with disinfectant to achieve an effective disinfection. The disinfectant can only be effective where there is direct contact with the target microorganism.

Alcohol-based disinfectants are only effective for as long as the surface is wet. The surfaces (or hands) have to remain wet to reach the contact time needed.

Other disinfectants may still remain effective even when they are dry (refer to approved TGA label of the disinfectant). It is still necessary to cover the surface completely with disinfectant, but it does not need to remain wet.

Is it not sufficient to simply clean surfaces; but visible dirt or contaminations must be cleaned off surfaces before disinfection to ensure optimal effects.

Never use flammable disinfectants near an ignition source, such as a burning candle or a switched-on electrical device. Do not use flammable disinfectants for larger surfaces, because the fumes may cause a fire risk and employees may be exposed to the fumes.

11.1 Personal Protective Equipment (PPE) - Disinfection Service

The recommended Personal Protective Equipment (PPE) for disinfection services are:

- Safety Footwear; and
- Disposable Boot covers; and
- Disposable overalls hooded / cotton overalls; and
- Disposable Latex gloves / Chemical impervious gloves; and
- Full Face / half face respirator (misting/fogging service) or minimum P2 face mask (wipe down service); and
- Chemical resistant goggles; and
- Earth Leakage Circuit Breaker (ELCB)/ Residual Current Device (RCD) for Electrical Safety; and
- Sanitising Wipes / Fit-for-purpose Hand Sanitiser.

The final choice of PPE should be based on the site risk assessment, product label(s), Safety Data Sheet(s) (SDS) and company guidelines. All persons conducting disinfection services must have been instructed in the correct use of PPE.

Always ensure all PPE is in good working order and is used throughout the treatment

Hands must always be cleaned with a fit-for-purpose hand sanitiser prior to putting on and after removing gloves.

11.1.1 Set up of Decontamination Area – Mandatory for confirmed infectious sites

- Set up a decontamination area away from the area to be disinfected, preferably undercover with biohazard bags ready.
- This area will be used for dressing up in, and removal of Personal Protective Equipment (PPE) in the recommended order.

- The preferred method is to have a plastic sheet taped on the ground (hard surface).
- Any consumable materials used within the service and the biohazard bags should be placed within this decontamination zone until site clean-up.
- Ensure reusable PPE is wiped down with sanitation wipes and good personal hygiene after service.
- Upon completion of service all non-reusable PPE and drop sheets must be placed into biohazard bags.
- Biohazard bags must be disposed of in biohazard bins (as per local regulations).

11.1.2 PPE Dress up process – Mandatory for confirmed infectious sites

Follow this order for dress up with PPE:

- Place disposable boot covers over boots.
- Step into disposable overalls and zip up.
- Secure respirator / P2 mask.
- Put on safety goggles.
- Put on disposable gloves and ensure the overalls' arms are over the wrist and forehand of the gloves.
- Pull overalls' hood over the head.

11.1.3 PPE Removal process – Mandatory for confirmed infectious sites

Follow this order for removal of PPE:

- Half unzip overalls.
- Roll hood back over back of neck.
- Unzip the rest of the overalls.
- Remove your arms from overalls and pull your arms out of sleeves.
- Continue to roll off the overalls inside out until they are around your ankles.
- Remove your feet from the overalls and step back onto the overalls so you are standing on the inside of the overalls.
- Remove boot covers.
- Roll your overalls and boot covers into a ball and place into a biohazard bag.

- Remove gloves by carefully grasping palms with opposite hand fingers and pull off, turn inside out and place into the biohazard bag.
- Wipe hands with sanitiser wipes and place wipe(s) into the biohazard bag.
- Remove goggles and wipe over with sanitiser wipe(s) and place wipes in biohazard bag.
- Remove respirator, if disposable, place into the biohazard bag; if reusable, wipe with sanitiser wipe(s) and place wipes into biohazard bag.
- Fold drop sheet (if used) and place into the biohazard bag.
- Ensure you seal the biohazard bag, then double bag the biohazard and seal the outer bag.
- Wash hands thoroughly as soon as possible and finish by applying a fit-for-purpose hand disinfectant.

11.2 Hand Sanitation

For these types of applications, a fit-for-purpose hand sanitiser should be used. Hand sanitisers usually contain special additives which protect the skin from drying out. Ensure the directions on the product label are strictly followed.

11.3 Disinfection of Small Surfaces

It is recommended that dirt on surfaces should be cleaned off before disinfection so that viruses cannot protect themselves from the disinfectant.

It is particularly important to treat high contact surfaces which are, as a consequence, at high-risk of contamination, e.g. telephones, computer keyboards, window and door handles, chairs, table surfaces, coffee machines and implements that are touched or handled regularly. These surfaces should be prioritised for disinfection. Other surfaces with a lower risk of contamination should still be disinfected as well.

For this type of application small hand trigger pack sprayers with an adjustable nozzle may be most suitable. It is recommended that the sprayed surface is wiped after spraying, with a clean cloth, to ensure complete coverage.

Computer keyboards

70 % isopropyl alcohol, phenolics, quaternary ammonium compounds and a chlorine-containing wipe [80 ppm] effectively (>95 % chlorine) remove and/or inactivate contaminants (i.e. multidrug-resistant *S. aureus*, vancomycin-resistant *Enterococcus*, *P. aeruginosa*) from computer keyboards with a 5-second application time. No functional damage or cosmetic changes occurred to the computer keyboards after 300 applications of the disinfectants.

11.4 Disinfection of larger surfaces

It is again recommended that dirt on surfaces is cleaned off before disinfection to ensure that viruses cannot protect themselves from the disinfectant.

For disinfecting larger surfaces, there are disinfectant concentrates, which require dilution with water, and ready-to-use disinfectants which are applied neat. All disinfectants need a minimum contact time and must evenly coat the entire surface. Many disinfectants are only effective while wet. Refer to the Manufacturer's label and technical data sheet for contact times and performance requirements. It is recommended that where there is any concern of staining or corrosion occurring, e.g. on furnishings, fittings, or plastics, that a small, inconspicuous area is first treated and allowed to dry to test for colourfastness.

There are some disinfectants that may remain effective after they have dried, in which case the surface does not need to remain wet. Completely covering the surface is still essential. Follow the instructions of the manufacturer when using the disinfectant.

For the application on these surfaces, hand-held compression sprayers with fan-jet nozzles, back-pack sprayers with fan-jet nozzles, or cold foggers are most suitable. Equipment needs to produce droplets in the range of 5 – 150 microns, with a suitable throughput to ensure an even coverage of the surfaces to be treated, without soaking them. Disinfectants should not be applied beyond the point-of-run-off. The surfaces can be used again after a short time.

Power sprayers and foggers facilitate good coverage from a distance and are able to reach areas that are difficult to access (e.g. luggage racks, areas under seats, etc.).

Do not use flammable disinfectants for larger areas, because the fumes may cause a fire risk, and the employees may be exposed to the alcohol fumes.

11.5 Disinfection Methods

11.5.1 Disinfectant fogging

Disinfectant fogging does not replace cleaning. Surfaces should be cleaned prior to the application of the disinfectant.

Ultra-Low Volume (ULV) fogging or misting creates droplets that can be dispersed into the air space. ULV fogging machines generate a fog or mist formed of ULV droplets between 5 - 50 microns in diameter which can float in the air for up to 10 minutes after application. The dispersal of these small micron droplets enables the disinfectant to evenly and thoroughly coat surfaces over large areas. Fogging treatments can also treat any airborne pathogens present at the time of disinfection.

ULV fogging equipment is used mainly for the application of disinfectants, biocides, fungicides and pesticides. Studies have shown that droplets of this size are ideal to tackle pathogens, vector carriers and other pests. Disinfectants that are corrosive, irritating or hazardous are not recommended for application by fogging. It is advised to always consult the manufacturer of both the equipment and chemicals to ensure compatibility with the equipment, user, surfaces and client expectations.

Pathogenic micro-organisms such as viruses, fungal spores and bacteria are the main cause of airborne or direct contact diseases affecting animals and humans.

Cold fogging

Thermal foggers use heat as part of the delivery system, they are NOT recommended for disinfection treatments. Cold foggers use air flow to create the aerosol particles. They do

not warm the liquid. Cold foggers are available in a range of sizes from handheld through to backpack units, barrow mounted units and even truck mounted units.

A cold fogger is an air blower run by a motor designed to disperse small droplets in a large volume of air. The air flow used to disperse the product collects the liquid by either

- a venturi system drawing the chemical into the air flow and through nozzle(s); or
- pressurising the tank and forcing the chemical into the air flow and through the nozzle(s).

A special cyclonic type nozzle shears the liquid as it enters the air stream turning the mixed solution into a fine mist.

Cold foggers can dispense either oil-based or water-based solutions, some can dispense both.

ULV cold foggers can produce droplet sizes between 5 – 50 microns. This allows choice of droplet size for different areas with larger droplets preferred for surface treatments and smaller particles for airborne micro-organisms and pests and hard to reach spaces.

11.5.2 Power Spray Application

These sprayers when equipped with fan-jet nozzles are useful for external areas, porous surfaces and areas such as walls and floors. Their larger particle size allows applicators to avoid the spray drift and evaporation associated with ULV particles.

For disinfection of such surfaces the use of spray systems that provide droplets sizes of 60 microns to 150 microns should be considered. Good surface coverage is needed to ensure effective disinfection. Power sprayers equipped with fanjet nozzles can provide good coverage of droplets in the above range and allow optimal surface coverage.

11.6 Food Safety – Sanitation and Disinfection

Where a site is governed by a food safety management system (e.g. HACCP and/or regulatory import/export requirements), strategies must adhere to these requirements and the contractual arrangements of the client's business.

Disinfectants must not be applied in a manner where they may come into contact with or contaminate food. Where disinfectants are required to be applied to or come into contact with food preparation surfaces, only those products classified as either food-grade or food-safe should be used. Refer to product labels for any post disinfection clean-down requirements.

Please also refer to the AEPMA Code of Best Practice for Pest Management in the Food Industry in Australia and New Zealand, or the AEPMA website for further details.

11.7 Pest Control Services & Disinfection

Professional Pest Management Companies are often required to provide pest management services at the same premises at which they provide disinfection services.

Disinfectants will typically kill viruses and bacteria within ten minutes of application, however the label for each product must be consulted as these times can often vary. Any residual activity of the disinfectant is likely to be short lived. Residual disinfection claims must be verified by referring to the approved TGA registration and label for the individual product.

Products used for the control of rodent and insect pests will typically have much longer residual performance and, in the case of residual insecticide deposits, require longer exposure periods.

11.7.1 Applying Insecticides

DO NOT TANK MIX Pesticides and disinfectants must NEVER be tank mixed together. They must ALWAYS be applied separately. Tank mixing a pesticide with a disinfectant may significantly reduce the efficacy of the disinfectant. Similarly, disinfectants may adversely affect the performance of the insecticide, especially when using non-repellent insecticides.

Ensure any equipment that has been previously used with a pesticide has been thoroughly flushed with fresh water / tank rinse (triple rinse) prior to disinfection. Similarly, ensure any equipment that has been previously used with a disinfectant has been thoroughly flushed with fresh water / tank rinse (triple rinse) prior to pesticide application.

Since disinfectants work best as wet deposits, with the kill effect occurring within a short period of application; it is recommended that the disinfectant is applied first in areas where an insecticide will also be applied. Applying the insecticide after the disinfectant will also allow the pest to make more direct contact with the treatment and provide for better control.

The recommended procedure is to treat as follows when the disinfectant treatment and insecticide treatment need to be applied during the same visit to the site.

The insecticide may be applied first if the applicator(s) can ensure there will be no cross contamination of surfaces.

Normally:

1. Treat roof voids, subfloor and similar dirty areas that will not be disinfected first in order to minimise contamination of areas to be disinfected.
2. Apply the disinfectant(s) according to the label directions and allow to dry.
3. While the disinfectant is being allowed to dry, apply the insecticide according to the label directions to all areas where no disinfectant treatment was performed, e.g. external surrounds of the building.
4. Apply the insecticide into areas that have been disinfected once the disinfectant has dried.
5. Insecticidal baits must always be applied after the disinfectant to avoid the bait being contaminated.

ALWAYS refer to the individual product labels and manufacturers' advice.

It is recommended that where there is any concern of staining or corrosion occurring, e.g. on furnishings, fittings, or plastics, that a small, inconspicuous area is first treated and allowed to dry to test for colourfastness.

11.7.2 Applying Rodenticide Baits

Disinfectants can be applied either before or after the placement of the rodenticide in bait stations. Rodenticides are placed in bait stations where the disinfectant spray should not contact the bait. Bait stations must NOT be sprayed with the disinfectant as this may cause the bait to become contaminated and reduce its palatability.

The application of disinfectants may affect rodent behaviour due to the smell of the disinfectant and because it will likely mask any existing rodent scent trails. Rodents in the urban environment are known to quickly adapt to change, so any reluctance to feed at a bait station should be transient.

12 Glossary

This Guideline is written in plain English. The meaning of any words not included in this glossary can be found in any standard Australian dictionary.

APVMA	<u>Australian Pesticides and Veterinary Medicines Authority.</u>
TGA	<u>Department of Health, Therapeutic Goods Administration</u>
AEPMA	The Australian Environmental Pest Managers' Association Limited. AEPMA is the national peak body for Professional Pest Managers.
Cleaning	Cleaning refers to the removal of dirt and impurities, including germs, from surfaces. Cleaning alone does not kill germs. But by removing the germs, it decreases their number and therefore the risk of spreading infection.
Disinfectant	A substance that is compliant with the Therapeutic Goods Administration (TGA) requirements for use according to label directions.
Sanitiser	A substance that is represented to be suitable for use on surfaces with which food for human consumption may come in contact, for the purposes of reducing pathogenic or food-spoilage micro-organisms to a sanitary level on such a surface.
Pesticide, insecticide, rodenticide	Any substance, or mixture of substances intended for preventing, destroying or controlling any pest, including unwanted species of plants or animals and required to be registered by the Australian Pesticides and Veterinary Medicines Authority.
Client	A person or entity that engages and pays for a service provided by a Professional Pest Manager.
Guideline (Pest Management Industry)	Document commissioned by AEPMA for and on behalf of the Australian professional pest management industry setting out prescriptive requirements for best practice and guidelines for how best practice should be achieved and delivered.
Compliance (with Guideline)	A signed agreement to abide by all the Guideline's requirements and stipulations and a recorded proof of actually observing and adhering to the Guideline's requirements and stipulations.

Appropriate Insurance Cover	Professional Pest Management Companies are required under this Guideline to acquire sufficient insurance cover to protect both themselves and their clients in the event of misadventure, mishap, or underperformance. All AEPMA members are required to carry adequate professional indemnity and public liability insurance.
Manufacturers' Guidelines	Installation, use, monitoring and maintenance guidelines and instructions provided by product or system manufacturers.
Pest Management Industry ('Industry')	All facets, including people and businesses, of professional pest management including Professional Pest Managers (individuals, and professional pest management companies and partnerships); manufacturers, retailers and distributors of pest management materials and technologies; and specialist consultants, researchers, and advisors.
Professional Pest Manager(s)	Professional Pest Managers are persons who are trained, experienced and qualified to carry out a range of pest management services for home, building and property owners (private and public).
Professional Pest Management Company(ies)	Professional Pest Management Companies are commercial entities that employ trained, suitably experienced and qualified personnel to carry out a range of pest management services for home, building and property owners (private and public) on a fee-for-service basis. Professional Pest Management Companies who are members of AEPMA maintain public liability and professional indemnity insurance cover and are bound by AEPMA's Code of Ethics.
Regulatory Bodies/Regulators	Government (Federal, State and Local) agencies and their employees/officers responsible for developing, communicating and enforcing rules, regulations, and both mandatory and non-mandatory standards, processes and procedures.
SDS	Safety Data Sheet (previously Material Safety Data Sheet).
Working Party(ies)	Group(s) of individuals from, attached to, or affiliated with, the Australian professional pest management industry, who have volunteered to develop, design and write pest management industry Guidelines.

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