

Sustainable procurement quick guide

Safer surface disinfection

September 2021



SUSTAINABLE PROCUREMENT QUICK GUIDE » SURFACE DISINFECTION

Evaluate the need for surface disinfection

- For some surfaces, disinfection may not be necessary. An assessment should be conducted to determine the level of cleaning or disinfection required and the surface's material compatibility.
- Appropriate levels of disinfection should be described in the standard operating procedures for each surface.
- Surfaces must be clean in order for disinfection to be effective.

Disinfectants overuse promotes antimicrobial resistance (AMR)

- Antimicrobial resistance is a [global health threat](#).
- Scientists have recently observed that multi-drug-resistant pathogens [are growing resistant](#) to antimicrobial disinfectants commonly used to prevent them from spreading, in [particular triclosan and quaternary ammonium compounds](#).

Health Care Without Harm's target goal

Health Care Without Harm aims to phase out the use of disinfectants that are harmful to human health and the environment, particularly [glutaraldehyde](#), [formaldehyde](#), [polyhexamethylene biguanide hydrochloride \(PHMB\)](#), [phenol](#), amines, chlorine-releasing agents, and products containing **ingredients classified as category A in the [WIDES database](#)***.

Benefits of safer disinfection

Avoiding chemicals of concern reduces health hazards and protects water systems

- The most **common occupational health** impacts caused by disinfectants are [respiratory issues](#) (sensitization/asthma or irritation), [chronic obstructive pulmonary disease \(COPD\)](#), skin problems, [eye irritation](#), migraine, or other neurologic symptoms.
- Some ingredients are [allergenic](#) or have been identified as [CMR](#) (carcinogenic, mutagenic, and repro-toxic) or [endocrine disruptors](#). For example, [glutaraldehyde](#) can cause allergic skin reactions and asthma symptoms, and [formaldehyde](#) can cause cancer.
- Some disinfectants in wastewater from hospital discharges can disturb the wastewater treatment process and the [microbial ecology in surface waters](#) due to [high aquatic toxicity](#), bioaccumulation, or [low biodegradability](#). Surface disinfectant ingredients with these effects include [benzalkonium chloride](#), [peracetic acid](#), [glucoprotamin](#), and [didecyldimethylammonium chloride](#).

Health Care Without Harm's position statement

Health Care Without Harm recommends health care facilities avoid surface disinfectants containing ingredients that have sensitising, carcinogenic, mutagenic, repro-toxic, or chronic toxicity properties or that are toxic to aquatic organisms. Replace them with safer, effective alternatives.

Procurement criteria

Products shall not contain

- High-level disinfectants, such as [glutaraldehyde \(111-30-8\)](#) or [peracetic acid \(79-21-0\)](#)
- [Formaldehyde \(50-00-0\)](#)
- [Amines \(90640-43-0\)](#)
- Antiseptics, such as [chlorhexidine gluconate \(18472-51-0\)](#)
- [Polyhexamethylene biguanide hydrochloride \(PHMB\) \(32289-58-0\)](#)
- [Phenol \(108-95-2\)](#)
- Perfume/fragrances
- Ingredients classified as category A in the WIDES database.

Where possible

- Prefer **category C ingredients**, such as [hydrogen peroxide \(7722-84-1\)](#).
- Eliminate [quaternary ammonium compounds](#) such as [benzalkonium chloride \(68424-85-1\)](#) and [didecyl-dimethylammonium chloride \(7173-51-5\)](#) that are not readily biodegradable according to current [OECD guidelines 301 A-F or 310](#) or any other equivalent test method, and replace them with safer alternatives per the [EU Biocides Product Regulation \(BPR\)](#).

Case studies

- [St. Paul Hospital – Tuguegarao City](#)
- [Landspítali, The National University Hospital of Iceland \(p. 56\)](#)

Additional information

- World Health Organization: [Implementation manual to prevent and control the spread of carbapenem-resistant organisms at the national and health care facility level](#) (p.66)
- Health Care Without Harm Global: [Chemicals of concern to health and environment](#)
- Health Care Without Harm Europe: [SAICM 2.0](#)
- Health Care Without Harm Europe: [\(Man-made\) antimicrobial resistance in hospitals](#)
- Health Care Without Harm US: [10 Reasons to eliminate glutaraldehyde](#)
- Health Care Without Harm Latin America [ES]: [Guía para la sustitución de químicos peligrosos en el sector salud](#)
- US Centers for Disease Control and Prevention: [Best practices for environmental cleaning in health care facilities in resource-limited settings](#) (p.28-29)
- The [Swedish National Agency for Public Procurement](#) provides a basic list for sustainable procurement criteria.

* WIDES database and hazard classification

The [WIDES database](#) is the most comprehensive database to help procurers choose the most suitable disinfectant by comparing hazard profiles of frequently used disinfectants for specific applications.

ABC categorisation

ABC categorisation substantially uses the [globally harmonised system \(GHS\) for classification](#) and labeling of ingredient hazards, a globally accepted standard for describing the nature and severity of chemical hazards. ABC categorisation lists the hazards of biocidal substances and product ingredients according to presumed concern.

Category A: High concern due to proven mutagenic, carcinogenic, repro-toxic, chronically toxic, sensitising, or highly environmentally toxic properties. Such substances may harm humans or aquatic organisms even in low concentrations. The hazards are difficult to control and could be irreversible.

Category B: Significant adverse impact on health and the aquatic environment. Category B also includes data uncertainties about hazard potential (data gaps) in relation to certain endpoints.

Category C: Manageable hazard with low concern is assumed. This is only the case if accidents and improper treatments may be excluded.

Limitations of ABC categorisation

- Proper handling and disposal of disinfectants (such as adequate personal protective equipment use) is assumed.
- The effects of mixtures (product formulations) are not taken into account.
- Substance concentrations are not taken into account.