



# Facts About Bleach

# Your defense against the toughest healthcare pathogens

## Bleach is recommended by CDC and APIC guidelines for the toughest pathogens and meets OSHA bloodborne pathogen standards

The CDC, APIC and OSHA guidelines recommend using bleach as a broad-spectrum germicide to disinfect surfaces contaminated by blood spills and hard-to-kill pathogens such as *C. difficile* spores and norovirus, both of which are quite resistant to disinfection by quaternary ammonium compounds (QACs). For resistant organisms and surfaces that are highly soiled, the CDC recommends a 1:10 dilution of 5.25% - 6.15% bleach (5250 ppm - 6150 ppm sodium hypochlorite solution).

Clorox® ready-to-use bleach products meet these guidelines for surface disinfection and are formulated at or above the recommended 1:10 concentration. To adhere to our high standards and yours, our proprietary purification processes maximize product shelf life, so you can trust Clorox® products to be effective.

Bleach is not only an effective disinfectant but it is also widely used. 8 out of 10 hospitals use bleach to kill pathogens of most concern in their facilities.

Clorox® bleach products are used by five of *U.S. News and World Report's* Top 10 Most Influential Hospitals.

## Bleach provides broad-spectrum microefficacy with fast results on tough pathogens, including *C. difficile* spores

Clorox® Germicidal Bleach and Dispatch® products are EPA-registered to be fast and effective against the following organisms, including the fastest kill time for *C. difficile* spores with Dispatch® products. You can count on Clorox® bleach-based products to deliver the results you need.

Effective against:	Contact Time		
	Clorox® Germicidal Wipes	Dispatch® Hospital Cleaner Disinfectant with Bleach	Dispatch® Hospital Cleaner Disinfectant Towels with Bleach
<i>Clostridium difficile</i> spores		5 minutes	5 minutes
Bacteria	30 seconds	1 minute	1 minute
Viruses	1 minute	1 minute	1 minute

## Bleach is more efficacious than quaternary ammonium compounds (QACs)


Sodium hypochlorite's mode of action differs from that of QACs. In general, it is effective against a broader range of microorganisms and has shorter contact times than many QACs.

Effective against:	Contact Time	
	Leading Ready-to-Use Quaternary Wipe	Leading Dilutable Quaternary Disinfectant
<i>Clostridium difficile</i> spores	None	None
Bacteria	3 minutes	10 minutes
Viruses	2-3 minutes	10 minutes


Bleach works by tearing apart the microbe's cell walls and deactivating proteins required for bacterial growth (by destroying the molecular structure). There is no evidence of bacteria or viruses developing resistance to the powerful oxidizing action of bleach when used as recommended.

By contrast, quaternary ammonium compounds must cross the microbe's cell membrane to render it inactive. The components of the cell membrane vary by organism type and can inhibit the effects of QACs. QACs take longer to affect the cell than bleach.

**Bleach tears apart cell walls**



**Quats must cross cell walls to act**



Depiction of bleach and quat-based disinfecting action.



# Addressing concerns about bleach

Clorox understands that there may be concerns about odor or surface compatibility with bleach. The following facts are meant to address these concerns and reassure your team that they can use bleach with confidence.

## Concern: My staff does not like using bleach due to concerns about the odor

**Fact:** Many of our bleach products are formulated with odor-masking agents for patient and staff comfort. There are several reasons your team can use bleach with confidence:

### 1) Multiple leading hospital studies noted that when patients and Environmental Services personnel were exposed to bleach, little or no concern about the odor of bleach was expressed:

- A 2010 **Mayo Clinic** (Rochester) study indicated that 94% of patients reported being very satisfied with how well their rooms were cleaned, and only 9% of patients noticed the smell of bleach when it was used in their room. None of these patients found the odor bothersome.<sup>1</sup>
- At **Barnes-Jewish Hospital** (St. Louis), an 18-month study was conducted demonstrating 1:10 bleach's efficacy against *C. difficile* spores. "During the study, patients, family and staff did not complain about the odor of bleach."<sup>2</sup>

### (2) Bleach's odor is caused by the chemical reaction that occurs when bleach begins to break down proteins, such as those that make up infection-causing pathogens.

(3) When bleach is used as directed, the chlorine species emitted are lower than the levels that cause respiratory irritation and below the EPA's occupation exposure limits for chlorine. When bleach is used as directed, perceivable sensory irritation occurs at 1.0 ppm in the air, which is 500 times the odor threshold during regular use.<sup>3</sup>

## Concern: Using bleach will damage equipment and surfaces

**Fact:** Bleach's effect on surfaces is caused by two factors:

- the oxidizing action of hypochlorite on these surfaces.
- the salt that is left behind after using bleach. Over time, the salt buildup can scratch and damage surfaces.

To minimize hypochlorite's impact on surfaces, Clorox® bleach products are specially formulated with anticorrosion agents. To ensure that salt buildup does not cause surface damage over time, wipe down these surfaces after disinfecting with a fresh, clean, damp cloth.

When used as directed, Clorox® bleach products are safe to use on a variety of hard, nonporous surfaces, including stainless steel, plastics, glazed ceramics, glass, porcelain and other materials. Use bleach with confidence to clean and disinfect many surfaces such as bedrails, tables, equipment surfaces, countertops, floors, toilets, sinks, trash cans, desktop keyboards, telephone receivers, light switches, desks and mobile devices such as IV stands, carts and glucometers. When **Cleveland Veterans Affairs Medical Centers** conducted a five-and-a-half-month study involving routine use of 1:10 bleach, "EVS reported no surface damage or complaints due to use of bleach."<sup>4</sup>

## Concern: All bleach is the same

**Fact:** Compare your current bleach to the Clorox® portfolio of bleach-based products.

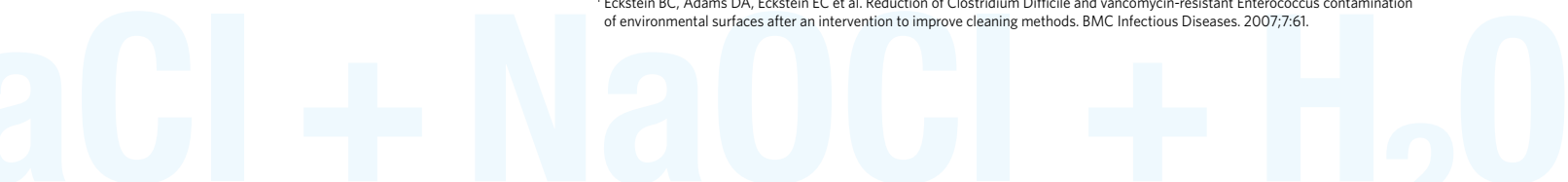
	Clorox® Germicidal Bleach 6.15% NaOCl	Clorox® Germicidal Wipes 0.55% NaOCl	Dispatch® Spray 0.65% NaOCl	Dispatch® Towels 0.65% NaOCl
Bleach formula at or above 1:10 concentration				
EPA-registered hospital disinfectant	✓	✓	✓	✓
Ready-to-use, one-step cleaner disinfectant		✓	✓	✓
Approved for instrument precleaning and disinfection of noncritical instruments	✓	✓	✓	✓
EPA-registered to kill <i>C. difficile</i> spores (at a 1:10 dilution)	✓		✓	✓
Ready-to-use formulation with similar 1:10 dilution recommended by CDC for use against <i>C. difficile</i> spores and other emerging pathogens		✓	✓	✓
Short contact times required to achieve broad-spectrum disinfection	✓	✓	✓	✓
Mercury-free manufacturing process	✓	✓	✓	✓
Proprietary formulation process to maximize shelf life	✓	✓	✓	✓

<sup>1</sup> Patient and Environmental Service employee satisfaction. Presentation by Kimberly Aronhalt, BSN, RN, Infection Preventionist, Mayo Clinic, Rochester, Minn., at APIC, New Orleans, July 13, 2010.

<sup>2</sup> Mayfield JL, Leet T, Miller J, Mundy LM. Environmental Control to Reduce Transmission of *Clostridium difficile*. *Clinical Infectious Diseases*. 2000;31:995-1000.

<sup>3</sup> Toxicological Profile of Chlorine, ATSDR, USDHHS, September 2007.

<sup>4</sup> Eckstein BC, Adams DA, Eckstein EC et al. Reduction of *Clostridium Difficile* and vancomycin-resistant *Enterococcus* contamination of environmental surfaces after an intervention to improve cleaning methods. *BMC Infectious Diseases*. 2007;7:61.



# Use these Clorox® bleach-based products to kill the toughest pathogens in your facility\*

Clorox® products are safe to use on a variety of hard, nonporous surfaces, including steel, plastic and other synthetic materials, when used as directed. Use these products to disinfect frequently touched surfaces such as countertops, light switches and bedrails.

**Bleach-Based**

Clorox® Commercial Solutions®  
**Clorox® Germicidal Wipes**  
 Multipurpose



**PRODUCT INFORMATION**  
 6.75" x 9" wipe size  
 Case UPC 35309 6/70 ct.

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Clorox® Commercial Solutions®  
**Clorox® Germicidal Wipes**  
 Terminal



**PRODUCT INFORMATION**  
 12" x 12" wipe size  
 Case UPC 30358 2/110 ct.  
 Case UPC 30359 2/110 ct. Refill

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Clorox® Commercial Solutions®  
**Clorox® Germicidal Wipes**  
 Clinical



**PRODUCT INFORMATION**  
 6" x 5" wipe size  
 Case UPC 30577 6/150 ct.

**Bleach-Based**


**Dispatch® Hospital Cleaner**  
**Disinfectant with Bleach**  
 Spray



**PRODUCT INFORMATION**  
 Case UPC 68970 6/32 oz.

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**Dispatch® Hospital Cleaner**  
**Disinfectant with Bleach**  
 Pull-top



**PRODUCT INFORMATION**  
 Case UPC 68832 6/32 oz.

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**Dispatch® Hospital Cleaner**  
**Disinfectant with Bleach**  
 Refill



**PRODUCT INFORMATION**  
 Case UPC 68978 4/128 oz.

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**Dispatch® Hospital Cleaner**  
**Disinfectant Towels**  
**with Bleach**



**PRODUCT INFORMATION**  
 6.75" x 8" wipe size  
 Case UPC 69150 8/150 ct.

\*Use as directed on hard, nonporous surfaces.



For more information, contact your Clorox sales representative or call **800-234-7700**.  
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