

# Klntensiv<sup>®</sup>



## PROFESSIONAL DISINFECTANTS

Trusted by medical professionals. Proven in clinical environments.  
Ready for your healthcare facility.



HOSPITALS

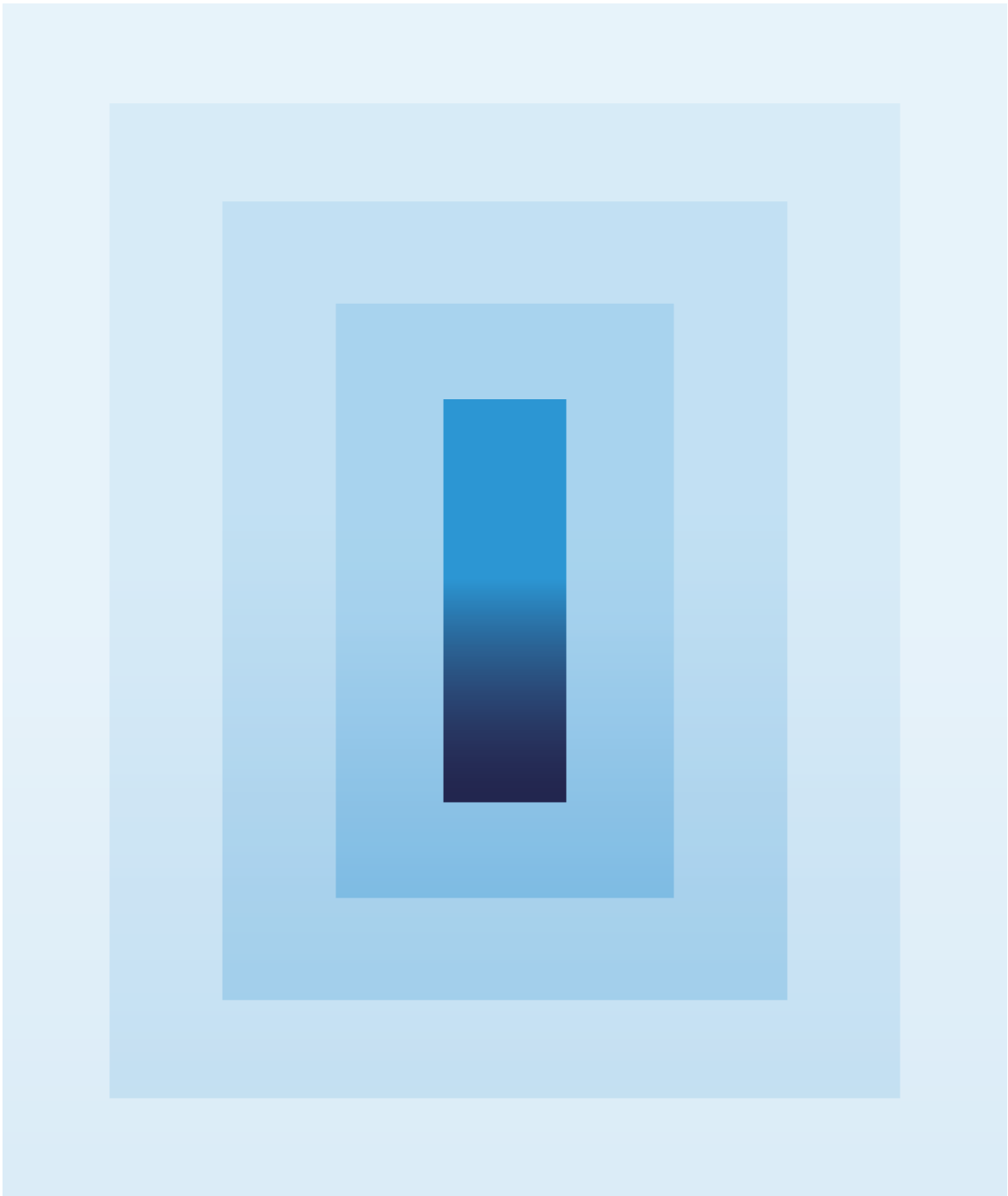


CLINICS



MEDICAL CABINETS

\*Klntensiv<sup>®</sup> is the No. 1 choice of disinfectants in private medical clinics in Romania, having the highest assisted notoriety among the brands in the field and representing the first brand that purchasing managers think of, according to the MKOR study conducted using the CATI method in October 2023.



**Prevention is the key to sustainable health.**

## A few words from the **CEO**

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### **Cristian Stanciu**

CEO Klintensiv



***Because in healthcare, every decision matters. That's why our products are more than effective they are a critical part of risk prevention and health protection. Each bottle, each formula, reflects our expertise and our drive to help you create safe, high-performing environments.***

At Klintensiv, we focus on one mission: to be your trusted partner for uncompromising safety and excellence. This catalog is more than a list of products it's a clear expression of our commitment to solving real-world hygiene and safety challenges.

Today, more than ever, success means being prepared. Prepared to face change, meet stricter regulations, and protect both your team and those you serve. Klintensiv supports you at every step with certified products, continuous innovation, and a deep commitment to quality.

### **Together, for a safer future.**

This catalog is not just a portfolio it's an invitation to collaborate. Discover our solutions and let's build a cleaner, safer, and more resilient future together.

Our team is ready to provide tailored support, helping you make decisions that truly make a difference.

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# Our company

Klintensiv - Professional disinfectants, manufactured in Europe with care and responsibility



## Safety and quality

Hygiene, disinfection, and infection control are essential priorities in the medical field. Inadequate microbial control can lead to serious risks for both patients and medical staff.



## Professional products

In just 14 years, Klintensiv® has developed a wide range of professional solutions for hygiene and disinfection in healthcare environments. We are a trusted manufacturing partner for medical institutions and professionals — with a strong foundation in the Romanian market and growing international presence.



## Complete solutions

We offer a comprehensive portfolio of biocidal products for healthcare, covering hand and skin disinfection, surface disinfection, as well as disinfection and chemical cold sterilization of instruments and sensitive medical devices.



Our portfolio covers a complete range of solutions for personal care, cleaning, disinfection, and sterilization.



**8.000 m<sup>2</sup>**  
of production space



In-house research, development, and innovation department



ISO and biocide compliance certifications



Biocidal products approved by the Ministry of Health

# More than a Manufacturer A Trusted Partner



We build lasting partnerships founded on trust. With over 10 years of experience in manufacturing professional disinfectants, we understand the specific hygiene and disinfection needs of different industries, as well as applicable regulations.

Our sales and technical teams are equipped to help customers identify the right solutions for their specific needs offering both product guidance and personalized support.

At Klintensiv®, our partners are at the center of our business model. We work closely with each client to understand and anticipate their needs, continuously improving our products, logistics, and service models to exceed expectations.

Our team includes biologists, pharmacists, and chemical engineers, alongside certified specialists in quality management, environmental safety, regulatory compliance, and research.

With an extensive distribution network, we go beyond traditional sales building long-term relationships by truly understanding local market dynamics and offering professional, reliable support at every step.

## Product portfolio for excellence in disinfection

We use a broad spectrum of active ingredients including alcohols, phenols, aldehydes, peroxides, biguanides, chlorine-based compounds, iodine, and quaternary ammonium compounds to develop effective formulas in the form of gels, soaps, disinfectant detergents, wipes and tablets, as concentrates and ready-to-use solutions.

All biocidal products are tested in accredited European laboratories and comply with EU regulations for product approval and safety. Our portfolio includes:

- » Biocidal products for human hygiene
- » Disinfectants and algacides not intended for direct human use
- » Disinfectants for food industry use
- » Personal care products
- » Device and equipment care products
- » Professional supplies

# European Certifications

## A Guarantee of Quality

At Klintensiv®, we are committed to the highest standards of quality, safety, and accountability for every product we manufacture.

Our production processes are built on certified systems and cutting-edge technologies that ensure consistent quality — from formulation to final packaging.

The production facility is certified in accordance with European standards, guaranteeing reliable product performance and full compliance with regulatory requirements. Klintensiv® is also the only company in Romania to hold a certified Quality Management System that covers the entire manufacturing and control process.

### Uncompromising Quality in Our Manufacturing Process

- » Over 8,000 m<sup>2</sup> of production space
- » Advanced technological equipment enabling high-volume daily output
  - » 25 tons/hour of aqueous liquid products (over 70% water)
  - » 4 tons/3 hours of hydroalcoholic viscous products (over 70% ethanol)
  - » Packaging capacity of 6750 units of 1 L/hour, 1750 5 L units/hour, 7500 500 ml units/hour, 3300 packages of disinfectant wipes (80 pcs/package)/hour and 540 tubes of disinfectant wipes (120 pcs/tube)/hour.
  - » Total storage capacity: over 700 pallets
- » Strict physical and functional zoning to prevent cross-contamination at all stages: manufacturing, storage, processing, and packaging
- » Color-coded storage system for raw materials, packaging, and finished goods to ensure full compliance
- » Full traceability for all batches of raw materials and final products, backed by a robust documentation system
- » Quality control performed on every single batch
- » Active ingredient concentration is verified by the ICECHIM Control Laboratory for Biocidal Products, which is RENAR-accredited for both testing and analytical methods.

#### Certifications:



ISO 13485:2016 ISO 9001:2015  
ISO 14001:2015

Klintensiv is the only Romanian manufacturer of products for surface disinfection in cleanliness class A, respectively in major burn wards, products sterilized by 0.2 micron filtration and Gamma irradiation.

# Out of concern for the environment and for people

We are committed to reducing environmental impact through responsible production methods.

To support a sustainable future, we prioritize:

- Ecological packaging materials
- Manufacturing practices with minimal environmental footprint
- Responsible sourcing and energy efficiency

We believe that protecting health also means protecting the environment.



## Caring for health begins with caring for the environment

# Research and development

**Innovation drives everything we do enabling the creation of high-performance, next-generation solutions.**

At Klintensiv®, our research and development team continuously adapts to meet the evolving demands in medical and laboratory technology, professional kitchens, pharmaceuticals, cosmetics, and the food industry.

We focus not only on disinfection efficacy, but also on material compatibility, product stability, and safe preservation techniques.

- » Minimizing potential health and environmental risks
- » Increasing the use of sustainable and ecological raw materials
- » Dedicated department for microbiology and hygiene research
- » Next-generation laboratories for product formulation and improvement

User safety is at the core of every Klintensiv® innovation this is what defines our leadership in biocidal product development.

# KLINTENSIV® CLIENT BENEFITS

At Klintensiv®, we understand how critical uncompromising quality is when it comes to cleaning and disinfection in the medical field.

That's why hospitals, clinics, and healthcare professionals who choose Klintensiv® benefit from:

## Guaranteed compliance and rigorous product testing

Klintensiv® is one of the few manufacturers in the region that ensures independent testing of every disinfectant batch at the National Institute for Research and Development in Chemistry and Petrochemistry in the home country.

All our products are approved by the Ministry of Health. When used according to official product protocols, they help minimize infection transmission risks even in high-traffic medical facilities exposed to large volumes of pathogens.



## ■ Access to a Complete Range of Certified Products

At Klintensiv<sup>®</sup>, we offer a comprehensive portfolio of over 35 certified products, specifically developed for the needs of hospitals, clinics, and healthcare professionals. Each solution is designed to meet the highest standards of safety and performance, covering the full range of biocidal product categories. Our product lines address all key areas of professional hygiene and disinfection:

- » Hands and skin
- » Surfaces and floors
- » Medical instruments and devices
- » Nebulization
- » Food service area
- » Textiles

## ■ The guarantee of a trusted partner

At Klintensiv<sup>®</sup>, our commitment goes beyond production and product development.

Our field representatives and dedicated support teams are here to assist with concrete solutions, expert advice, and full access to professional-use documentation.



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**We use our experience to consistently deliver high-quality innovations — at fair and transparent prices.**

# OUR CATALOGUE AT A GLANCE

<b>HANDS AND SKIN</b> 12-21	<b>GELS AND SOLUTIONS</b>	KLINTENSIV DISINFECTANT GEL ALCHOSEPT KLINTENSIV SANITARY ALCOHOL 70% DEZIDIOL SPRAY BETAKLIN	
	<b>DISINFECTANT WIPES</b>	KLINTENSIV HAND DISINFECTANT WIPES 85% ALCOHOL DEZIDIOL WIPES KLINTENSIV HAND DISINFECTANT WIPES	
	<b>DISINFECTANT LIQUID SOAPS</b>	KLINTENSIV DAVERA SOAP CHDG SOAP KLINTENSIV PVP IODINE SOAP KLINODERM ANTIMICROBIAL SOAP QUAT SOAP	
	<b>NON-DISINFECTANT LIQUID SOAPS</b>	KLINSAFE ALOE VERA LIQUID SOAP COFFEE LIQUID SOAP LILAC LIQUID SOAP HONEY LIQUID SOAP PEONY AND FREESIA LIQUID SOAP JASMINE LIQUID SOAP VERBENA LIQUID SOAP	
	<b>SURFACES AND FLOORS</b> 22-33	<b>CONCENTRATES</b>	DEZICON DEZIAMINO NOZOKLIN 4.5 OXOKLIN OXOKLIN POWDER FIZZY TABLET
		<b>RTU</b>	SURFACE DISINFECTANT RTU NOZOKLIN RTU KLINOSEPT KLINTENSIV ALCHOSAFE PEROKLIN DISINFECTANT&ODORIZER HOSPITAL LEVEL DISINFECTANT WET WIPES KLINOMED WIPES DEZIDIOL WIPES PEROKLIN WIPES
<b>MEDICAL INSTRUMENTS AND DEVICES</b> 34-43	<b>CONCENTRATES</b>	DEZICON DEZIAMINO CONCENTRATED ENZYMATIC DISINFECTANT DETERGENT OXOKLIN OXOKLIN POWDER FIZZY TABLET	
	<b>RTU</b>	STERISOL KLINOSEPT PEROKLIN KLINTENSIV PURE HYPOCHLOUROUS 4MEDICAL DISINFECTANT WET WIPES KLINOMED WIPES PEROKLIN WIPES	
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	<b>AIRBORNE</b> 44-47	RTU	DESOGEN AERO KLINTENSIV PURE HYPOCHLOUROUS FOR AIR
<b>TEXTILES</b> 48-51	CONCENTRATES	OXOKLIN OXOKLIN POWDER FIZZY TABLET	
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	RTU	KLINOPRO KLINOSEPT 4IND ET F&B ET F&B WIPES	



Use disinfectants safely. Always read the label and product information before use.

# PRODUCTS FOR HANDS AND SKIN



**Hands are the main route of transmission of pathogens, therefore, their hygiene is the foundation of the process of preventing healthcare-associated infections (HAI), the so-called nosocomial infections.**

Preventing and minimizing HAIs has always been the major objective of medicine, being the best way to ensure the safety and quality of medical care.

Applying certain simple prophylaxis procedures increases the quality of medical care, decreasing the risk of HAI, thus reducing morbidity and mortality due to these causes. It also reduces the length of hospitalization and additional costs.

The effectiveness of disinfection depends primarily on its correct performance, but also on the quality of the water, soap, and disinfectants used.

Recommendations for preventing contamination: nails should be cut as short as possible and clean, without polish, rings, bracelets, watches should be removed and appropriate protective equipment should be worn.



» Constant protection  
The first step towards safety



» Details make the difference  
Efficiency in every drop



» Together for protection  
Safety starts with you



## May 5 – World Hand Hygiene Day

Launched by the World Health Organization (WHO) in 2009, the “SAVE LIVES: Clean Your Hands” campaign is a global call to action, highlighting the essential role of hand hygiene in protecting patients and healthcare workers alike. Romania joined the campaign from its early years and Klintensiv® proudly supports its message today.

The “Five Moments for Hand Hygiene” model developed by Professor Didier Pittet and the WHO team defines the most critical times when medical staff must disinfect their hands to prevent infections and improve care outcomes.



**Proper hand hygiene saves between 5 and 8 million lives each year.**

### 5 Moments for Hand Hygiene:

- 1 **Before touching a patient:** To protect the patient against harmful germs carried on your hands
- 2 **Before clean/aseptic procedure:** To protect the patient against harmful germs, including the patient's own, from entering his/her body
- 3 **After body fluids exposure risk :** To protect yourself and the health-care environment from harmful patient germs.
- 4 **After touching a patient:** To protect yourself and the health-care environment from harmful patient germs.
- 5 **After touching patient surroundings:** To protect yourself and the health-care environment from harmful patient germs.

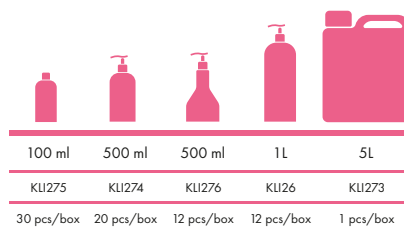
## KLINTENSIV HAND DISINFECTANT GEL

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in 30 seconds (EN 1500) and surgical hand disinfection in 90 seconds.



### Indications:

For hygienic and surgical hand disinfection by rubbing.

### Active substance:

Etanol 85% v/v

Biocidal efficacy	According to standards
Bactericidal	EN 1500, EN 13727, EN 13727 (MRSA + K. pneumoniae), EN 12791
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 13624 (C. auris)
Fungicidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

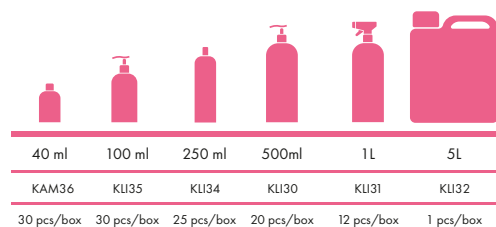
## ALCHOSEPT

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in 30 seconds (EN 1500) and surgical hand disinfection in 90 seconds.



### Indications:

For hygienic and surgical hand disinfection by rubbing

### Active substance:

Ethanol 85% v/v

Biocidal efficacy	According to standards
Bactericidal	EN 1500, EN 13727, EN 13727 (MRSA + K. pneumoniae), EN 12791
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 13624 (C. auris)
Fungicidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## KLINTENSIV SANITARY ALCOHOL 70%

- Ensures hygienic hand disinfection in one minute (EN 1500), while also offering excellent cleaning and degreasing performance.



### Indications:

For hygienic hand disinfection by rubbing.

### Active substance:

Alcohol 70% w/w

### Biocidal efficacy

According to standards

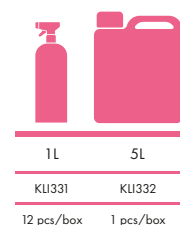
Bactericidal	EN 1500, EN 13727
Yeasticidal	EN 13624
Fungicidal	EN 13624

## DEZIDIOL SPRAY

Dermatologically tested



- Ensures hygienic disinfection in one minute (EN 1500).
- Low alcohol content.
- Does not dry the skin



### Indications:

For hygienic hand disinfection by rubbing.

### Active substances:

Ethanol 36% w/w, Isopropanol 24% w/w, Chlorhexidine digluconate 0.5% w/w

### Biocidal efficacy

According to standards

Bactericidal	EN 13727, EN 13727 (MRSA), EN 1500
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)



## BETAKLIN

Dermatologically tested

- Ensures hygienic hand disinfection in one minute (EN1500) and surgical hand disinfection in 5 minutes, with a prolonged effect lasting at least 3 hours (EN 12791).

Broad-spectrum bactericidal action, effective against MDRO.



### Indications:

For hygienic and surgical disinfection of hands and skin by rubbing. Used for preoperative disinfection and skin decolonization.

### Active substances:

Povidone iodine 7.5% w/w, Ethanol 1.5% w/w

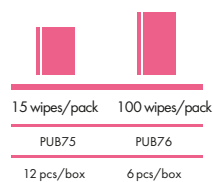
Biocidal efficacy	According to standards
Bactericidal	EN 1500, EN 12791, EN 13727 EN 13727 (MRSA + E.faecium + K. pneumoniae + S. epidermitis + A. baumannii)
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 13624 (C. auris)
Virucidal	EN 14476

## KLINTENSIV HAND DISINFECTANT WIPES 85% ALCOHOL

Protects and moisturizes the skin Dermatologically tested



- Ensures hygienic hand disinfection in 30 seconds (EN1500) and surgical hand disinfection in 90 seconds, with a prolonged effect lasting at least 3 hours.



### Indications:

For hygienic and surgical hand disinfection by wiping.

### Active substance:

Ethanol 85% v/v

Biocidal efficacy	According to standards
Bactericidal	EN 1500, EN 13727, EN 13727 (MRSA+ K. pneumoniae), EN 12791
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 13624 (C. auris)
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## DEZIDIOL WIPES

Dermatologically tested



- Ensures hygienic hand disinfection in one minute (EN 1500).
- Low alcohol content. Does not dry out the skin.



### Indications:

For hygienic hand disinfection by wiping

### Active substances:

Ethanol 36% w/w, Isopropanol 24% w/w, Chlorhexidine digluconate 0.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA), EN 1500
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## HAND DISINFECTANT WIPES

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in one minute (EN 1500).



### Indications:

For hygienic hand disinfection by wiping

### Sunstanțe active:

Compuși cuaternari de amoniu clorurați 1% m/m, CHDG (2:1) 0,2% m/m

Biocidal efficacy	According to standards
Bactericidal	EN 1500, EN 1499, EN 13727
Yeasticidal	EN 13624

## KLINTENSIV DAVERA SOAP

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in one minute (EN 1499), and rapid biocidal action (max. 2 minutes).

Suitable for repeated use.

500 ml	1L	5L
KL141	KL142	KL143
20 pcs/box	12 pcs/box	1 pcs/box

### Indications:

For hygienic hand disinfection by washing

### Active substance:

Chlorhexidine digluconate 2% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 1499, EN 13727, EN 13727 (MRSA)
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624
Virucidal against enveloped viruses	EN 14476

## CHDG SOAP

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in one minute (EN 1499) and surgical hand disinfection in 4 minutes, with a prolonged effect lasting at least 3 hours (EN 12791).

Suitable for repeated use and for cleansing superficial wounds at the stratum corneum level.

500 ml	1L	5L
KL1421	KL1423	KL1423
20 pcs/box	12 pcs/box	1 pcs/box

### Indications:

For hygienic and surgical disinfection of hands and skin by washing. Used for preoperative disinfection and skin decolonization through antiseptic showering.

### Active substances:

Chlorhexidine digluconate 4% w/w and Benzalkonium chloride (C12–C18 alkyl dimethyl ammonium chlorides) 0.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 1499, EN 12791, EN 13727, EN 13727 (MRSA + K. pneumoniae + S. epidermitis + A. baumannii + E. faecium)
Yeasticidal	EN 13624
Virucidal against enveloped viruses	EN 14476 (MVA)




## KLINTENSIV PVP IODINE SOAP

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in 1 minute (EN 1499) and surgical hand disinfection in 4 minutes, with a prolonged effect lasting at least 3 hours (EN 12791).

		
500 ml	1L	5L
KLI101	KLI111	KLI121
20 pcs/box	12 pcs/box	1 pcs/box

### Indications:

For hygienic and surgical hands disinfection by washing.  
Used for preoperative disinfection and skin decolonization through antiseptic showering.

### Active substances:

Povidone iodine 7.5% w/w, Ethanol 1.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 1499, EN 13727, EN 12791
Yeasticidal	EN 13624, EN 13624 (C. auris)
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## KLINODERM ANTIMICROBIAL SOAP


Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in one minute (EN 1499) and surgical hand disinfection in 4 minutes, with a prolonged effect lasting at least 3 hours (EN 12791).

Suitable for repeated use

		
500 ml	1L	5L
KLI434	KLI435	KLI436
20 pcs/box	12 pcs/box	1 pcs/box

### Indications:

For hygienic and surgical disinfection of hands by washing.  
Used for preoperative disinfection and skin decolonization through antiseptic showering.

### Active substances:

Bisphenol-2-ol 1.5% w/w and 2-Phenoxyethanol 1% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 1499, EN 12791, EN 13727, EN 13727 (MRSA + K. pneumoniae + S. epidermitis + A. baumannii + E. faecium)
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624
Limited virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## QUAT SOAP

Protects and moisturizes the skin

Dermatologically tested



- Ensures hygienic hand disinfection in one minute (EN 1499) and surgical hand disinfection in 4 minutes, with a prolonged effect lasting at least 3 hours (EN 12791).

1L	5L
KLI461	KLI462
12 pcs/box	1 pc/box

### Indications:

For hygienic and surgical disinfection of hands and skin by washing. Used for preoperative disinfection and skin decolonization through antiseptic showering.

### Active substances:

C12-18 Alkyldimethylbenzyl ammonium chloride 0.1% w/w,  
Didecyldimethylammonium chloride 0.7% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 1499, EN 12791, EN 13727 EN 13727 (MRSA + E.faecium)
Yeasticidal	EN 13624
Limited virucidal	EN 14476

## KLINSAFE

Sulfate-free

Dermatologically tested



- A gentle soap, specially formulated for sensitive skin. Helps protect and maintain the skin's natural pH balance.

500 ml	1L
KLI452	KLI453
20 pcs/box	12 pcs/box

### Indications:

Recommended for handwashing and general skin care, including for newborns.

## ALOE VERA LIQUID SOAP

Protects and moisturizes the skin

Dermatologically tested



- Gently cleanses, hydrates, and softens the skin. Light fragrance. Free from parabens, silicones, and alcohol.

5L
KOS148
1 pc/box

Also available versions:	Code
COFFEE LIQUID SOAP	KOS145
LILAC LIQUID SOAP	KOS146
HONEY LIQUID SOAP	KOS147
PEONY AND FREESIA LIQUID SOAP	KOS142
JASMINE LIQUID SOAP	KOS143
VERBENA LIQUID SOAP	KOS144

### Indications:

Suitable for daily use and general hygiene purposes.



Product	Application				Efficacy							
	Cleansing	Disinfection			Bactericida	Yeasticidal	Fungicidal	Tuberculocidal	Mycobactericidal	Virucidal against enveloped viruses	Limited virucidal	General virucidal
		Hygienic by rubbing	Hygienic by washing	Surgical by rubbing or washing								
Klintensiv Hand Disinfectant Gel		•		•	•	•	•	•	•	•		•
Alchosept		•		•	•	•	•	•	•	•		•
Klintensiv 70% sanitary alcohol		•			•	•						
Dezidol Spray		•			•	•		•	•		•	•
Betaklin		•		•	•	•		•	•			•
Klintensiv hand disinfectant wipes 85% alcohol		•		•	•	•		•	•	•		•
Dezidol wipes		•			•	•		•	•		•	•
Hand disinfectant wipes		•			•	•						
Klintensiv Davera Soap	•		•		•	•		•	•	•		
CHDG Soap	•		•	•	•	•				•		
Klintensiv PVP Iodine soap	•		•	•	•	•				•		•
Klinoderm antimicrobial soap	•		•	•	•	•		•	•	•	•	
Quat soap	•		•	•	•	•					•	
Klinsafe	•											
Aloe Vera liquid soap	•											



# PRODUCTS FOR **SURFACES AND FLOORS**

Surface disinfection is a critical measure against healthcare-associated infections (HAIs), especially in high-touch areas close to patients:

such as door handles, medical equipment, liquid soap dispensers, sink taps, and dusty surfaces where microbes can multiply.



Most pathogens can persist on inert surfaces for weeks or even months. Environmental factors like temperature and humidity influence this persistence: Low temperatures (4°C or 6°C); High humidity (>70%) are both associated with extended survival of bacteria, fungi, and viruses.

“

**Proper surface disinfection is essential for a safe environment, and it relies on every detail of the process.**





# Phase Tests

## Phase 1 Tests

These are suspension-based quantitative tests, required to determine whether the active substances have bactericidal, fungicidal, or sporicidal efficacy, depending on the specific application areas.

**Phase 1 tests alone cannot be used to support any product claims.**

## Phase 2 Tests

**These consist of two steps:**

**Step 1:** Suspension-based quantitative tests that verify the bactericidal, fungicidal, yeasticidal, mycobactericidal, sporicidal, and virucidal activity of a product in simulated practical conditions, using test organisms relevant to its intended use.

**Step 2:** Laboratory-based tests conducted on specific surfaces or materials, aiming to confirm the product's effectiveness under simulated real-use conditions for bactericidal, fungicidal, yeasticidal, mycobactericidal, sporicidal, and virucidal activity.

## Phase 3 Tests

**These are field tests, conducted in practical conditions.**

The methodology for Phase 3 testing is not yet standardized, but it is currently under development and regulation by ECHA.

# Pathogen Survival Times

Frequently touched surfaces are often contaminated with pathogens and can act as vectors for cross-contamination. The most frequently transmitted microorganisms include: *Escherichia coli* (100%), *Salmonella* spp. (100%), *Staphylococcus aureus* (100%), *Candida albicans* (90%), Rhinovirus (61%), HAV (22%–33%), and Rotavirus (16%).

PATHOGEN	SURVIVAL TIME ON SURFACES
Adenovirus	7 days - 3 months
Astrovirus	7 - 90 days
Coronavirus	3 hours
SARS virus	72 - 96 hours
HAV	2 hours - 60 days
HBV	> 1 week
HIV	> 7 days
Influenza virus	1 - 2 days
Norovirus	8 hours - 7 days
Parovirus B19	> 1 year
Poliovirus type 1	4 hours - < 8 days
Rotavirus	6 - 60 days
Vaccinia virus	3 weeks - > 20 weeks
<i>Escherichia coli</i>	1.5 hours - 16 months
<i>Enterococcus</i> spp. incl. VRE, VSE	5 days - 4 months
<i>Mycobacterium tuberculosis</i>	1 day - 4 months
<i>Pseudomonas aeruginosa</i>	6 hours – 16 months, 5 weeks (on dry pavement)
<i>Staphylococcus aureus</i> , including MRSA	7 days - 7 months
<i>Candida albicans</i>	1 - 120 days
<i>Clostridium difficile</i> (spores)	5 months

## DEZICON

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Acts through a cell toxicity mechanism
- Good cleaning performance.
- Low-foaming formula.
- The product prepared as a 2% ready-to-use solution is non-corrosive and does not oxidize



Intermediate-level  
disinfection

High-level  
disinfection

60 minutes

### Indications:

For disinfecting surfaces by spraying and wiping

### Active substances:

Didecyltrimethylammonium chloride 17% w/w,  
Quaternary ammonium compounds,  
benzyl-C12-18-alkyldimethyl, chlorides 4.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624 (C. auris), EN 13624, EN 17387
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476 (MVA)

## DEZIAMINO

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance.
- Low-foaming formula.
- The product prepared as a ready-to-use solution is non-corrosive and does not oxidize



Intermediate-level  
disinfection

60 minutes

### Indications:

For disinfecting surfaces by spraying and wiping

### Active substances:

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine  
5.1% w/w

Didecyltrimethylammonium chloride 2.5% m/m

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA), EN 16615, EN 17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 16615, EN 17387
Fungicidal	EN 13624
Virucidal against enveloped viruses	EN 14476 (MVA)

## NOZOKLIN 4,5

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance. Low-foaming formula.



1L	5L
KLI105	KLI106
12 pcs/box	1 pc/box

LOW- LEVEL disinfection

15 minutes

### Indications:

For disinfecting surfaces by spraying and wiping

### Active substance:

Didecyltrimethylammonium chloride  
4.5% m/m

Biocidal efficacy	According to standards
Bactericidal	EN 13727
Yeasticidal	EN 13624
Fungicidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MSA)

## OXOKLIN

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Acts through a cellular oxidation mechanism, effective even at low temperatures. After use, it breaks down into acetic acid, water and oxygen.



1L	5L
KLI520	KLI521
12 pcs/box	1 pc/box

INTERMEDIATE- LEVEL disinfection

5 minutes

HIGH- LEVEL disinfection

15 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substances:

Peracetic acid 5% w/w,  
Hydrogen peroxide 11% w/w,  
Ethanol 1.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 17387, EN 16615
Fungicidal	EN 13624, EN 17387
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777

## OXOKLIN POWDER

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Acts by cellular oxidation, effective even at low temperatures.



INTERMEDIATE-LEVEL  
disinfection

HIGH-LEVEL  
disinfection

30 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substances:

Peracetic acid generated in situ (1.5% TAED and 40% sodium percarbonate) 14% w/w, Quaternary ammonium compounds, benzyl-C12-C14-alkyldimethyl – 2.4% w/w

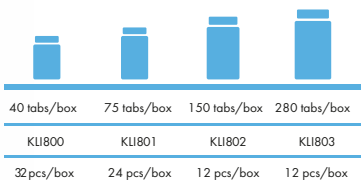
Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA) EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476 (MVA)

## FIZZY TABLET

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Easy dosing in effervescent tablet form.
- Effective cleaning and degreasing through oxidative action.



INTERMEDIATE-LEVEL disinfection

HIGH-LEVEL disinfection

60 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substance:

80% w/w (one tablet releases 1.5 g active chlorine)

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (E. faecium) EN 16615, EN 17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624
Fungicidal	EN 13624, EN 17387
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777

## SURFACE DISINFECTANT RTU

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance.  
Low-foaming formula.  
Does not contribute to fixing dirt on surfaces.

500 ml	1 L	5 L
KU20	KU22	KU23
20 pcs/box	12 pcs/box	1 pc/box

INTERMEDIATE-LEVEL disinfection

HIGH-LEVEL disinfection

60 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substances:

Didecyltrimethylammonium chloride 0.34% w/w and Quaternary ammonium compounds, benzyl-C12-18-alkyldimethyl, chlorides 0.09% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624, EN 13624 (C. auris), EN 17387
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476

## NOZOKLIN RTU

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance.  
Low-foaming formula.

1 L	5 L
KU318	KU319
12 pcs/box	1 pc/box

LOW-LEVEL  
disinfection

15 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substance:

Didecyltrimethylammonium chloride 0.3% w/w




Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 16615
Yeasticidal	EN 13624, EN 16615
Fungicidal	EN 13624
Virucidal against enveloped viruses	EN 14476 (MVA)

## KLINOSEPT

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance.  
Does not foam.

		
500 ml	1 L	5 L
KLU310	KLU311	KLU312
20 pcs/box	12 pcs/box	1 pc/box

INTERMEDIATE  
LEVEL disinfection

2 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substance:

Ethanol 85% v/v



Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 17387, EN 13624, EN 13624 (C. auris), EN 16615
Fungicidal	EN 17387, EN 13624
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476 (MVA)

## KLINTENSIV ALCHOSAFE

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance.  
Does not foam.  
Low alcohol content.

	
1 L	5 L
KLU318	KLU319
12 pcs/box	1 pc/box

INTERMEDIATE-LEVEL disinfection

3 minutes\*

\*Time required for disinfection through mechanical action (wiping)

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substances:

Ethanol 36% w/w, Isopropanol 24% w/w, Chlorhexidine digluconate 0.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA) EN 16615
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 16615
Fungicidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## PEROKLIN

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance. Does not foam. Neutralizes unpleasant odors

1L	5L
KLU510	KLU511
12 pcs/box	1 pc/box

INTERMEDIATE-LEVEL disinfection	40 minutes
HIGH-LEVEL disinfection	60 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substances:

Hydrogen peroxide 6% w/w and Didecylidimethyl ammonium chloride 0.35% w/w

Biocidal efficacy	Conform standardelor
Bactericidal	EN 13727, EN 13727 (MRSA + A. baumannii + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624, EN 13624 (C. auris), EN 17387
Fungicidal	EN 16615, EN 13624, EN 17387
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476 (MVA)

## KLINTENSIV DISINFECTANT & ODORIZER HOSPITAL LEVEL

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Oxidation mechanism. Decomposes after use.

500 ml	1L	5L
KLU151	KLU152	KLU153
20 pcs/box	12 pcs/box	1 pc/box

MEDIUM LEVEL disinfection	30 minutes
HIGH LEVEL disinfection	60 minutes

### Indications:

For disinfecting surfaces by spraying and wiping.

### Active substances:

(0.0310-0.0340)% w/w active chlorine released from hypochlorous acid (hypochlorous acid is produced by electrolysis of a dilute aqueous solution of sodium chloride)

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 16615
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 16615
Fungicidal	EN 13624
Sporicidal	EN 17126
Virucidal against enveloped viruses	EN 14476

## SURFACE DISINFECTANT WET WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance.  
Low-foaming formula.



80 wipes/pack	120 wipes/pack
KLI70	KLI79
18 packs/box	6 tubes/box

INTERMEDIATE  
LEVEL disinfection

HIGH LEVEL  
disinfection

60 minutes

### Indications:

For disinfecting surfaces by wiping.

### Active substances:

Didecyltrimethylammonium chloride 0.34% w/w and Quaternary ammonium compounds, benzyl-C12-18-alkyldimethyl, chlorides 0.09% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624, EN 13624 (C. auris), EN 17387
Fungicidal	EN 16615, EN 13624, EN 17387
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476

## KLINOMED™ WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance.

Does not foam.



120 wipes/tube
KLI75
6 tubes/box

MEDIUM  
LEVEL disinfection

2 minutes

### Indications:

For disinfecting surfaces by wiping.

### Active substance:

Ethanol 85% v/v

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624, EN 13624 (C. auris) EN 17387
Fungicidal	EN 13624, EN 17387
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476 (MVA)

## DEZIDIOL WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance.  
Low-foaming formula.



INTERMEDIATE-LEVEL  
disinfection

2 minutes

### Indications:

For disinfecting surfaces by wiping

### Substance active:

Ethanol 36% w/w, Isopropanol 24% w/w,  
Chlorhexidine digluconate 0.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA) EN 16615
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624
Fungicidal	EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## PEROKLIN WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance.  
Does not foam.  
Neutralizes unpleasant odors



INTERMEDIATE-LEVEL  
disinfection

40 minutes

HIGH-LEVEL  
disinfection

60 minutes

### Indications:

For disinfecting surfaces by wiping.

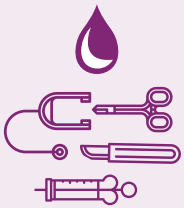
### Active substances:

Hydrogen peroxide 6% w/w  
Didecylmethylammonium chloride 0.35% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + A. baumannii + K. pneumoniae), EN 16615, EN17387
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16615, EN 13624, EN 13624 (C. auris), EN 17387
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 16777
Virucidal against enveloped viruses	EN 14476 (MVA)

Product	Application		Product type		Mechanical action	Efficacy								
	Cleaning	Disinfection	Ready to use	Concentrated	With	Bactericidal	Yeasticidal	Fungicidal	Tuberculocidal	Mycobactericidal	Virucidal against enveloped viruses	General virucidal	Sporicidal against C. difficile	Sporicidal
Dezicon	•	•		•	•	•	•	•	•	•	•	•	•	•
Deziamino	•	•		•		•	•	•	•	•	•			
Nozoklin 4,5	•	•		•	•	•	•	•			•	•		
Oxoklin		•		•	•	•	•	•	•	•		•	•	•
Oxoklin powder	•	•		•	•	•	•	•	•	•	•	•	•	•
Fizzy tablet		•		•	•	•	•	•	•	•		•	•	•
Surface Disinfectant RTU	•	•	•		•	•	•	•	•	•	•	•	•	•
Nozoklin RTU	•	•	•		•	•	•	•			•			
Klinosept		•	•		•	•	•	•	•	•	•	•		
Klintensiv Alchosafe		•	•		•	•	•	•	•	•	•	•		
Peroklin	•	•	•		•	•	•	•	•	•	•	•	•	•
Klintensiv Disinfectant & odorizer hospital level		•	•		•	•	•	•	•	•		•		•
Surface disinfectant wet wipes	•	•	•		•	•	•	•	•	•	•	•	•	•
Klinomed wipes		•	•		•	•	•	•	•	•	•	•		
Dezidol wipes		•	•		•	•	•	•	•	•	•	•		
Peroklin wipes	•	•	•		•	•	•	•	•	•	•	•	•	•

# PRODUCTS FOR INSTRUMENTS AND MEDICAL DEVICES



The appropriate disinfection method and product selection for medical instruments and devices depends on their classification: critical, semi-critical, or non-critical.

For reusable devices that cannot be autoclaved, the disinfection process typically follows these steps:

- » Cleaning with a surfactant-based detergent
- » High-level disinfection by immersion
- » Final drying before reuse
- » Cleaning by mechanical action
- » Rinsing using filtered

“

Proper disinfection of medical instruments is not just a responsibility it is a critical priority for protecting every patient's health and safety.





# Classification

Cleaning, disinfection, and sterilization of medical instruments and devices are essential for preventing the spread of infection.

Based on the level of contact with patient tissues and mucous membranes, instruments are classified into three categories:

## Critical

Devices that come into contact with human tissues or that penetrate sterile areas of the body, including the vascular system. These devices are considered normally sterile and must be subject to sterilization before use.

**Examples:** surgical instruments, implants, drain tubes, cardiac and urinary catheters, needles and syringes, endoscopes, intravascular devices.

## Semi-critical

Devices that come into contact with intact mucous membranes and do not penetrate the skin barrier, except in cases involving periodontal mucosa or skin with continuity lesions. These devices require at least intermediate-level disinfection.

**Examples:** laryngoscopes, imaging endoscopes, anesthesia equipment, ear syringe tips, thermometers, vaginal or nasal speculums.

## Noncritical

Devices that do not come into frequent contact with the patient, or that only touch intact skin. These devices must be thoroughly cleaned, followed by low-level disinfection.

**Examples:** stethoscopes, blood pressure cuffs, ear speculums.

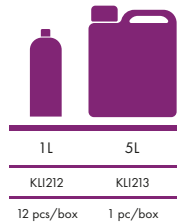


## DEZICON

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Acts through a cellular toxicity mechanism  
Good cleaning performance.  
Low-foaming formula.
- Stable in disinfection tank – up to 15 full sets of instruments or 48 hours after preparation



INTERMEDIATE-LEVEL  
disinfection

HIGH -LEVEL  
disinfection

60 minutes

### Indications:

For disinfecting medical instruments and devices by immersion, spraying and wiping.

### Active substances:

Didecyltrimethylammonium chloride 17% w/w,  
Quaternary ammonium compounds,  
C12–C18-alkyldimethyl benzyl chlorides 4.5% w/w

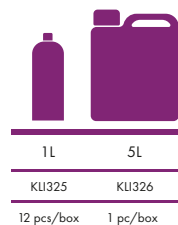
Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA+ E. faecium + K. pneumoniae), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 14562, EN 13624, EN 13624 (C. auris)
Fungicidal	EN 14562, EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476 (MVA)

## DEZIAMINO

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance.  
Low-foaming formula.
- Stable in disinfection tanks: up to 15 full sets of instruments or within 48 hours of preparation



INTERMEDIATE  
LEVEL disinfection

60 minutes

### Indications:

For disinfecting medical instruments and devices by immersion.

### Active substances

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine 5.1% w/w  
Didecyltrimethylammonium chloride 2.5% w/w

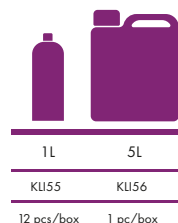
Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624
Fungicidal	EN 13624, EN 14562
Virucidal against enveloped viruses	EN 14476 (MVA)

## CONCENTRATED ENZYMATIC DISINFECTANT DETERGENT

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Good cleaning performance  
Low-foaming formula
- Stable in disinfection tanks: up to 12 full sets of instruments or within 24 hours of preparation



INTERMEDIATE  
LEVEL disinfection

60 minutes

### Indications:

For cleaning and disinfecting medical instruments and devices by immersion

### Active substances

N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine (Diamine) 15.3% w/w.  
Reaction mass of N,  
N-didecyl-N-(2-hydroxyethyl)-N-methylammonium propionate, N, N didecyl-N-(2-(2-hydroxyethoxy)ethyl)-N-methylammonium propionate and N,  
N-didecyl-N-(2-(2-(2-hydroxyethoxy)ethoxy)ethyl)-N-methylammonium propionate ("DMAP") 14% w/w.

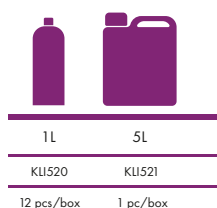
Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624, EN 14562
Fungicidal	EN 13624, EN 14562
Limited virucidal	EN 14476

## OXOKLIN

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Acts through a cellular oxidation mechanism, effective even at low temperatures  
After use, it decomposes into acetic acid, water, and oxygen
- Stable in disinfection tanks for up to 20 complete sets of instruments



INTERMEDIATE-LEVEL disinfection

HIGH-LEVEL disinfection

15 minutes

### Indications:

For disinfecting medical instruments and devices by immersion/filling, spraying, and wiping.

### Active substances:

Peracetic acid 5% w/w,  
Hydrogen peroxide 11% w/w,  
Ethanol 1.5% w/w

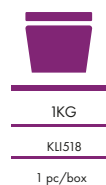
Biocidal efficacy	According to standards
Bactericidal	EN 13727 (MRSA + E. faecium) EN 13727, EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624, EN 14562
Fungicidal	EN 13624, EN 14562
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111

## OXOKLIN POWDER

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Acts through a cellular oxidation mechanism and is effective even at low temperatures
- Stable in disinfection tanks for up to 5 complete sets of instruments or within 8 hours of preparation



INTERMEDIATE  
LEVEL disinfection

HIGH LEVEL  
disinfection

30 minutes

### Indications:

For disinfecting medical instruments and devices by immersion.

### Active substances:

In situ generated peracetic acid (15% TAED and 40% Sodium Percarbonate) 14% w/w,  
Chlorinated quaternary ammonium compounds,  
benzyl-C12-C14-alkyldimethyl 2.4% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA) EN 14561
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 14562
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476 (MVA)

Disinfect effectively. Protect your patients with trusted solutions.

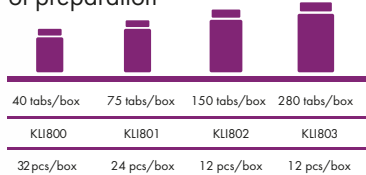


## FIZZY TABLET

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Effervescent tablet for easy, precise dosing  
Cleans and degreases effectively through oxidizing action
- Stable in disinfection tanks for up to 7 full sets of instruments or within 4 hours of preparation



INTERMEDIATE- LEVEL disinfection 30 minutes

HIGH- LEVEL disinfection 60 minutes

### Indications:

For disinfecting medical instruments and devices by immersion/filling, spraying, and wiping.

### Active substance:

80% w/w (one tablet releases 1.5g active chlorine)




Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (E. faecium) EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 16615, EN 13624, EN 14562
Fungicidal	EN 13624, EN 14562
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476

## STERISOL

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Good cleaning performance. Low-foaming formula.
- Stable in disinfection tanks for up to 15 complete sets of instruments or within 48 hours of filling.

		
500ml	1L	5L
KLI61	KLI60	KLI63
20 pcs/box	12 pcs/box	1 pc/box

INTERMEDIATE-LEVEL disinfection

HIGH-LEVEL disinfection

60 minutes

### Indications:

For disinfecting medical instruments and devices by immersion, spraying, and wiping.

### Active substances:

Didecyldimethylammonium chloride 0.34% w/w  
Quaternary ammonium compounds  
benzyl-C12-18-alkyldimethyl 0.09% w/w.




Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624, EN 13624 (C. auris), EN 14562
Fungicidal	EN 13624, EN 14562
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476

## KLINOSEPT

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance. Does not foam.

		
500 ml	1L	5L
KLI310	KLI311	KLI312
20 pcs/box	12 pcs/box	1 pc/box

INTERMEDIATE  
LEVEL disinfection

5 minutes

### Indications:

For disinfecting medical instruments and devices by immersion, filling, spraying, and wiping.

### Active substance:

Etanol 85% v/v

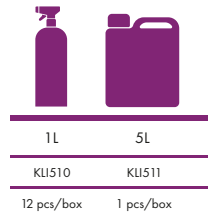
Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 13624 (C. auris), EN 14562
Fungicidal	EN 14562, EN 13624
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## PEROKLIN

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Good cleaning and degreasing performance  
Does not foam.
- Neutralizes unpleasant odors
- Stable in disinfection tanks for up to 10 complete sets of instruments or within 24 hours of filling



INTERMEDIATE LEVEL disinfection 40 minutes

HIGH LEVEL disinfection 60 minutes

### Indications:

For disinfecting medical instruments and devices by immersion, filling, and wiping.  
Used in cold sterilization of medical instruments.

### Active substances:

Hydrogen peroxide 6% w/w and  
Didecyldimethyl ammonium chloride 0.35% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + K. pneumoniae + A. baumannii), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624, EN 13624 (C. auris), EN 14562
Fungicidal	EN 13624, EN 14562
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476 (MVA)

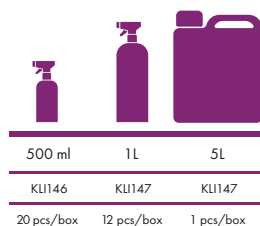
## KLINTENSIV PURE HYPOCHLOUROUS 4MEDICAL

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS  
COMPATIBLE WITH ULTRASONIC BATHS



- Acts through an oxidation mechanism

Decomposes naturally after use  
Non-irritating to the skin, respiratory tract, and ocular/oral mucosa under normal conditions of use



INTERMEDIATE LEVEL disinfection 30 minutes

HIGH-LEVEL disinfection 60 minutes

### Indications:

For disinfection of medical instruments and devices by immersion and filling.

### Active substance:

(0.0310-0.0340)% w/w active chlorine released from hypochlorous acid (hypochlorous acid is produced by electrolysis of a dilute aqueous solution of sodium chloride).



Biocidal efficacy	According to standards
Bactericidal	EN 14561, EN 13727
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 14562, EN 13624
Fungicidal	EN 14562, EN 13624
Sporicidal	EN 17126
Virucidal	EN 14476

## SURFACE DISINFECTANT WET WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS

- Good cleaning and degreasing performance.  
Low-foaming formula.



	
80 wipes/tube	120 wipes/tube
KLI70	KLI79
18 packs/box	6 tubes/box

INTERMEDIATE  
LEVEL disinfection

HIGH-LEVEL  
disinfection

60minutes

### Indications:

For disinfecting medical instruments and devices by wiping.

### Active substances:

Didecyltrimethylammonium chloride 0.34% w/w and Quaternary ammonium compounds, benzyl-C12-18-alkyldimethyl, chlorides 0.09% w/w


Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624, EN 13624 (C. auris), EN 14562
Fungicidal	EN 13624, EN 14562
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476

## KLINOMED WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS

- Good cleaning and degreasing performance.  
Does not foam.




120 pcs/tube
KLI75
6 pcs/box

INTERMEDIATE LEVEL  
disinfection

5 minutes

### Indications:

For disinfecting medical instruments and devices by wiping.

### Active substance:

Ethanol 85% v/v

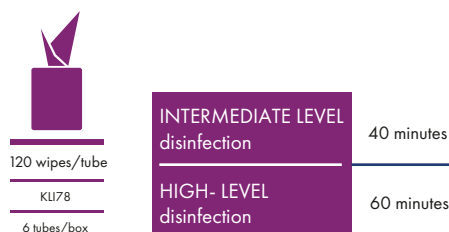
Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium + K. pneumoniae), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624, EN 13624 (C. auris)
Fungicidal	EN 13624, EN 14562
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476 (MVA)

## PEROKLIN WIPES

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance. Does not foam. Neutralizes unpleasant odors.



### Indications:

For disinfecting medical instruments and devices by wiping.

### Active substances:

Hydrogen peroxide 6% w/w  
Didecylmethyl ammonium chloride 0.35% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + K. pneumoniae + A. baumannii), EN 14561
Mycobactericidal/Tuberculocidal	EN 14348, EN 14563
Yeasticidal	EN 13624, EN 13624 (C. auris)
Fungicidal	EN 13624, EN 14562
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476, EN 17111
Virucidal against enveloped viruses	EN 14476 (MVA)

## KLINOZYME

CONCENTRATED PRODUCT  
COMPATIBLE WITH ULTRASONIC BATHS



- Tri-enzymatic concentrated detergent. Ready-to-use solution of 0.01%–0.5%. Effectively removes organic deposits. Compatible with surfaces of medical instruments and devices used in invasive procedures. Low-foaming formula.



### Indications:

For cleaning in ultrasonic baths, immersion baths, or through manual and automatic reprocessing of medical instruments and devices, including endoscopes.

### Active substances:

Tri-enzymatic complex: proteases, amylases, lipases

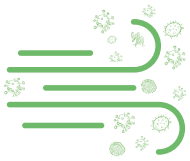
Produs	Product		Product type		Efficacy									
	Cleaning	Disinfection	RTU	Concentrated	Bactericidal	Yeasticidal	Fungicidal	Tuberculocidal	Mycobactericidal	Virucidal against enveloped viruses	Limited virucidal	General virucidal	Sporicidal against C. difficile	Sporicidal
Dezicon	•	•		•	•	•	•	•	•	•		•	•	•
Deziamino	•	•		•	•	•	•	•	•	•				
Concentrated Enzymatic Disinfectant Detergent	•	•		•	•	•	•	•	•	•	•	•		
Oxoklin		•		•	•	•	•	•	•			•	•	•
Oxoklin powder	•	•		•	•	•	•	•	•	•		•	•	•
Fizzy tablet		•		•	•	•	•	•	•			•	•	•
Sterisol	•	•	•		•	•	•	•	•	•		•	•	•
Klinosept		•	•		•	•	•	•	•	•		•		
Peroklin	•	•	•		•	•	•	•	•	•		•	•	•
Klintensiv Pure Hypochlourous 4Medical		•	•		•	•	•	•	•			•		•
Surface disinfectant wet wipes	•	•	•		•	•	•	•	•	•		•	•	•
Klinomed wipes		•	•		•	•	•	•	•	•		•		
Peroklin wipes	•	•	•		•	•	•	•	•	•		•	•	•
Klinozyme	•													



# PRODUCTS FOR AIRBORNE DISINFECTION

## General Guidelines:

Surfaces must be cleaned in advance and as exposed as possible, to allow the dry mist to settle evenly on vertical, horizontal, and sub-horizontal surfaces.



The area must be physically enclosed, with doors and windows shut. During both the nebulization process and the aeration phase, the space must not be accessed by personnel.

Airborne disinfection is a high-level terminal process that ensures coverage of hard-to-reach surfaces or areas missed during manual disinfection.

The frequency and timing of the process should be established based on the monitoring plan and the risk profile of each area.



# AIRBORNE DISINFECTION FOR ROOM SURFACES



Disinfection can be performed using both physical and chemical methods.



## Physical Methods

non-penetrating UV radiation lamps

UV lamps are used to supplement cleaning and disinfection protocols. They provide limited efficacy, being suitable only for short-range, non-shadowed, and flat pre-cleaned surfaces.

UV devices are recommended for disinfecting air and smooth surfaces. Units can be either fixed or mobile, depending on room layout and needs.



## Chemical Methods

aerosolization / nebulization

Ensures uniform distribution of disinfectant mist throughout the room — including hard-to-reach areas (vertical, angled, or obstructed surfaces).

Rooms must be tightly sealed; doors, drawers, and furniture compartments should be opened. Beds and soft furnishings (mattresses, pillows, blankets) should be positioned to allow deep penetration of the mist into pores and crevices.

Helps prevent cross-contamination. An added advantage: sensitive electronics left in the room are not affected by this method.





Clean and safe environments start with attention to detail.

## DESOGEN AERO



➤ Application rate: 10 ml per m<sup>3</sup> of room volume

Neutralizes unpleasant odors



HIGH-LEVEL disinfection

30 minutes

### Indications:

For airborne disinfection of room surfaces using dry-mist nebulization technology.

### Active substances:

Hydrogen peroxide 6% w/w and Didecylidimethyl ammonium chloride 0.35% w/w.

Biocidal efficacy	According to standards
Bactericidal	EN 17272
Mycobactericidal/Tuberculocidal	EN 17272
Yeasticidal	EN 17272
Fungicidal	EN 17272
Sporicidal	EN 17272
Sporicidal against <i>Clostridium difficile</i>	EN 17272
Virucidal	EN 17272

## KLINTENSIV PURE HYPOCHLOUROUS FOR AIR



- Application rate: 11.5 ml per m<sup>3</sup> of room volume
- Decomposes naturally after use

Non-irritating to skin, respiratory tract, or mucosae under normal use conditions

500 ml	1L	5L
KLI141	KLI142	KLI143
20 pcs/box	12 pcs/box	1 pc/box

INTERMEDIATE LEVEL disinfection

60 minutes

### Indications:

For airborne disinfection of room surfaces using dry-mist nebulization technology.

### Active substance:

(0.0310-0.0340)% w/w active chlorine released from hypochlorous acid (hypochlorous acid is produced by electrolysis of a dilute aqueous solution of sodium chloride).

Biocidal efficacy	According to standards
Bactericidal	EN 17272
Mycobactericidal/Tuberculocidal	EN 17272
Yeasticidal	EN 17272
Fungicidal	EN 17272
Virucidal	EN 17272
Virucidal against enveloped viruses	EN 17272

Product	Product type		Efficacitate								
	RTU	Concentrated	Bactericidal	Yeasticidal	Fungicidal	Tuberculocidal	Mycobactericidal	Virucidal against enveloped viruses	General virucidal	Sporicidal against C. difficile	Sporicidal
Desogen aero	•		•	•	•	•	•		•	•	•
Klintensiv Pure Hypochlorous for Air	•		•	•	•	•	•	•	•		•

# PRODUCTS FOR TEXTILES



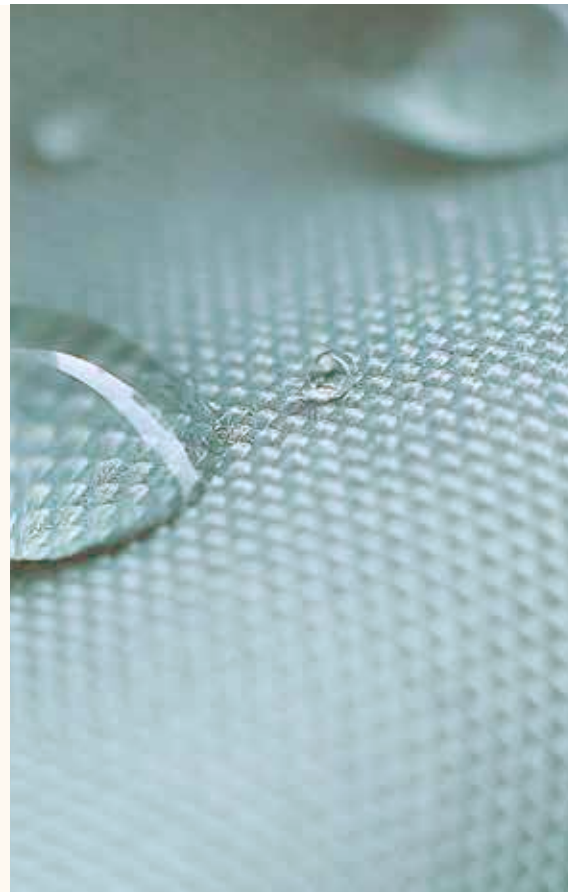
The removal of microbial contamination from textiles is a critical part of the washing process, alongside stain and dirt removal. In the 1950s, German chemist Herbert Sinner defined four essential factors behind effective cleaning now known as the Sinner's Circle: time, temperature, mechanical action, chemical agents.

It is well known that high temperatures (above 60°C) are highly effective in eliminating most pathogenic microorganisms including many non-enveloped viruses. However, in today's world, the push for energy savings and extended textile lifespan has led to a shift toward lower-temperature wash cycles. This shift can reduce disinfection efficiency, requiring compensatory measures.

According to Sinner's principle, if one factor is reduced, the others must be enhanced to maintain hygienic performance. For example, if wash temperature is lowered, increasing the mechanical action, detergent performance, and washing time becomes essential to achieve the same level of microbial control.

“

**In critical environments,  
clean textiles help  
safeguard life and  
compromise is not an  
option.**







Textiles are highly susceptible to contamination, as microorganisms such as bacteria, fungi, yeasts, and viruses can survive on their surfaces for long periods. Some of these pathogens can only be destroyed through high-temperature washing (e.g., *Enterococcus faecium*), while others are removed through mechanical or chemical action. Even the washing machine itself can become a source of contamination. Charles Gerba, a microbiology professor at the University of Arizona, conducted extensive research on germs found inside washing machines. His studies showed that a washing drum can contain up to 100 million *E. coli* bacteria after laundering large volumes of underwear — creating an immediate risk of cross-contamination. The effectiveness of textile disinfection is also influenced by detergent foaming. Microorganisms can remain suspended in the foam, reducing the efficacy of the disinfection step. For this reason, applying disinfectants in the final rinse phase, followed by a thorough rinse, has proven to be more effective. Another factor to consider is the machine load size: an overloaded machine may compromise the uniformity of disinfection. Maintaining a proper water-to-textile ratio is essential for optimal results. Disinfectant products that contain chlorine, hydrogen peroxide, peracetic acid, or quaternary ammonium salts have been shown to effectively eliminate pathogenic microorganisms from contaminated textiles.

## OXOKLIN



- Acts through a cellular oxidation mechanism, and is effective even at low temperatures. After use, it breaks down into acetic acid, water, and oxygen.

	
1L	5L
KLI520	KLI521
12 pcs/box	1 pc/box

INTERMEDIATE-LEVEL disinfection	15 minutes
HIGH-LEVEL disinfection	40 minutes

CONCENTRATED PRODUCT  
COMPATIBLE WITH ALKALINE DETERGENTS

### Indications:

For disinfecting textiles by immersion (5% v/v), as a disinfectant and neutralizer used in textile washing cycles at 60°C for 20 minutes. Recommended dosage for chemo-thermal disinfection: 1.2% v/v of product + 0.6% v/v Klino alkaline detergent

### Active substances:

Peracetic acid 5% w/w, Hydrogen peroxide 11% w/w, Ethanol 1.5% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA + E. faecium), EN 16616
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 16616, EN 13624
Fungicidal	EN 13727
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 17126
Virucidal	EN 14476

## OXOKLIN POWDER



- Acts through a cellular oxidation mechanism and is effective even at low temperatures.


1KG
KLI518
1 pc/box

INTERMEDIATE-LEVEL disinfection	30 minutes
HIGH-LEVEL disinfection	

CONCENTRATED PRODUCT  
COMPATIBLE WITH ALKALINE DETERGENTS

### Indications:

For disinfecting textiles by immersion or automatic washing, at concentrations between 0.5% m/v – 5% m/v.

### Active substances:

Peracetic acid generated in situ (15% TAED and 40% Sodium Percarbonate): 14% w/w, Chlorinated quaternary ammonium compounds, benzyl-C12-C14-alkyldimethyl 2.4% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 13727, EN 13727 (MRSA)
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against Clostridium difficile	EN 14348
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

## FIZZY TABLET

CONCENTRATED PRODUCT



- Effervescent tablet for easy, precise dosing
- Cleans effectively through oxidizing action.

40 tabs/box	75 tabs/box	150 tabs/box	280 tabs/box
KLI800	KLI801	KLI802	KLI803
32 pcs/box	24 pcs/box	12 pcs/box	12 pcs/box

HIGH-LEVEL disinfection

60 minutes

### Indications:

Disinfecting and bleaching white linen by immersion in a 0.2% m/v solution (2 tablets per 1.5 L of water) for 30 minutes.

### Active substance:

80% w/w (one tablet releases 1.5 g active chlorine)

### Biocidal efficacy

According to standards

Bactericidal	EN 13727
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13624
Fungicidal	EN 13624
Sporicidal	EN 17126
Sporicidal against <i>Clostridium difficile</i>	EN 17126
Virucidal	EN 14476

Product	Application		Product type		Efficacy								
	Cleaning	Disinfection	RTU	Concentrated	Bactericidal	Yeasticidal	Fungicidal	Tuberculocidal	Mycobactericidal	Virucidal against enveloped virus	Virucidal	Sporicidal against <i>C. difficile</i>	Sporicidal
Oxoklin		•		•	•	•	•	•	•		•	•	•
Oxoklin Powder	•	•		•	•	•	•	•	•	•	•	•	•
Fizzy Tablet		•		•	•	•	•	•	•		•	•	•

# PRODUCTS FOR THE **FOOD SERVICE AREA**



**Pathogens such as Escherichia coli, Salmonella, Campylobacter, Norovirus, and Hepatitis A virus are among the most frequently found on food-contact surfaces and ingredients within these areas.**

Maintaining strict hygiene in food service environments is essential to prevent the contamination of food products and reduce the risk of illness among consumers — including patients, visitors, and both medical and non-medical personnel. Cleaning and disinfection routines in hospital kitchens and food preparation zones should be performed daily, at the start and end of each work shift, and whenever necessary. In addition, general deep-cleaning should be scheduled on a weekly basis.

“

**Proper disinfection of the food service area prevents contamination and ensures a safe environment for patients.**





## General hygiene guidelines for the Food service area

Before starting the workday, all surfaces with a high risk of contamination must be disinfected.

Surfaces that come into contact with food must be rinsed after disinfection. Dish-drying racks must be cleaned and disinfected daily. At the end of each shift, all utensils used must be properly cleaned and disinfected.

Kitchen towels must be disinfected by immersion; however, single-use towels are preferred for hygiene reasons.

The waste bin area must be cleaned and disinfected daily or as often as needed — ideally using chlorine-based products. Cleaning and disinfection records must be maintained in a dedicated logbook.

Wearing protective clothing is mandatory: white kitchen coat, non-slip washable footwear, and a chef's cap.

Cleaning materials must be cleaned and disinfected daily in a designated area used exclusively for this purpose.

These materials should never be used for other tasks, such as food handling.

**The kitchen must operate as a closed circuit, with controlled external access for deliveries and waste removal only.**

**Strict adherence to the clothing change protocol is mandatory.**

## KLINTENSIV KLINOCHLOR TABS

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Easy dosing in effervescent tablet form. Effective cleaning and degreasing through oxidative action. Proven efficacy against pathogens including *Salmonella enterica*, *Lactobacillus brevis*, and *Saccharomyces cerevisiae*

40 tabs/box	75 tabs/box	150 tabs/box	280 tabs/box
KLI830	KLI831	KLI832	KLI833
32 pcs/box	24 pcs/box	12 pcs/box	12 pcs/box

INTERMEDIATE-LEVEL disinfection	30 minutes
HIGH-LEVEL disinfection	60 minutes

### Indications:

Disinfecting surfaces in food preparation and storage areas such as canteens and institutional kitchens, by spraying and wiping.

### Active substance:

80% w/w (one tablet releases 1.5 g active chlorine)

Biocidal efficacy	According to standards
Bactericidal	EN 1276, EN 13697, EN 1040
Mycobactericidal	EN 14348
Yeasticidal	EN 1650, EN 13697
Sporicidal	EN 13704
Sporicidal against <i>Clostridium difficile</i>	EN 13704
Virucidal	EN 14476

## HYPOKLINTENSIV (for use in the food industry)

CONCENTRATED PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance. Low-foaming formula. Bactericidal, yeasticidal, and fungicidal efficacy via oxidative mechanism.

1L	5L
KLI812	KLI813
12 pcs/box	1 pc/box

LOW-LEVEL disinfection	15 minutes
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### Indications:

For disinfecting equipment surfaces, containers, disposable utensils, as well as surfaces in food and beverage storage and serving areas, by spraying, wiping, or immersion.

### Active substance:


Minimum 5.0% – maximum 6.3% available chlorine, released from sodium hypochlorite (expressed as C12 equivalent)

## KLINOPRO™

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning performance with low foaming.
- Fragrance-free.

	
1L	5L
KLI681	KLI682
12 pcs/box	1 pc/box

HIGH- LEVEL disinfection

60 minutes

### Indications:

For disinfecting equipment surfaces, containers, disposable utensils, as well as surfaces in food and beverage storage and serving areas, by spraying and wiping.

### Active substances:

Didecyldimethylammonium chloride 0.34% w/w and Chlorinated quaternary ammonium compounds benzyl-C12-18-alkyldimethyl 0.09% w/w.




Biocidal efficacy	According to standards
Bactericidal	EN 13697, EN 1276
Mycobactericidal/Tuberculocidal	EN 14348
Fungicidal	EN 13697, EN 1650
Sporicidal	EN 13704
Virucidal	EN 14476

## KLINOSEPT 4IND

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Evaporates on its own without leaving surface residues.

		
500ml	1L	5L
HRC160	HRC161	HRC162
20 pcs/box	12 pcs/box	1 pc/box

INTERMEDIATE- LEVEL disinfection

90 seconds

### Indications:

For disinfecting equipment surfaces, containers, disposable utensils, as well as surfaces in food and beverage storage and serving areas, by spraying and wiping.

### Active substance:

Ethanol 85% v/v

Biocidal efficacy	According to standards
Bactericidal	EN 1276, EN 13697
Mycobactericidal/Tuberculocidal	EN 14348
Fungicidal	EN 1650, EN 13697
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476 (MVA)

Impeccable hygiene in the food service area is essential for safe nutrition and a trustworthy environment.

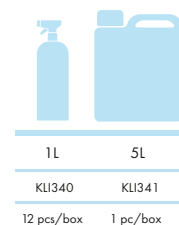


## ET F&B

RTU PRODUCT  
EFFECTIVE UNDER DIRTY CONDITIONS



- Good cleaning and degreasing performance. Does not foam. Evaporates on its own without leaving surface residues.



INTERMEDIATE-LEVEL disinfection

2 minutes

### Indications:

For disinfecting surfaces in areas designated for food preparation and processing, by spraying and wiping.

### Active substance:

Ethanol 70% w/w

Biocidal efficacy	According to standards
Bactericidal	EN 1276, EN 13697
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13697
Fungicidal	EN 1650, EN 13697
Virucidal	EN 14476

## ET F&B WIPES

RTU PRODUCT  
EFFICIENT IN DIRTY CONDITIONS



- Good cleaning and degreasing performance.  
Does not foam.



INTERMEDIATE-LEVEL disinfection

2 minutes

### Indications:

For disinfecting surfaces in areas designated for food preparation and processing, by wiping.

### Active substance:

Ethanol 70% w/w

#### Biocidal efficacy

Biocidal efficacy	According to standards
Bactericidal	EN 1276, EN 13697
Mycobactericidal/Tuberculocidal	EN 14348
Yeasticidal	EN 13697
Fungicidal	EN 1650, EN 13697
Virucidal	EN 14476
Virucidal against enveloped viruses	EN 14476

Product	Application		Product type		Efficacy									
	Cleaning	Disinfection	RTU	Concentrated	Bactericidal	Yeasticidal	Fungicidal	Tuberculocidal	Mycobactericidal	Virucidal against enveloped viruses	Limited virucidal	General virucidal	Sporicidal against C. difficile	Sporicidal
Klintensiv Klinochlor Tabs				•	•	•	•		•			•	•	•
Hypoklintensiv	•	•		•	•	•	•	•						
Klinopro™	•	•	•		•	•	•					•		•
Klinosept 4IND		•	•		•	•	•	•	•	•		•		
ET F&B		•	•		•	•	•	•	•			•		
ET F&B wipes		•	•		•	•	•	•	•	•		•		

# GUIDE TO HYGIENE & DISINFECTION

Epidemiologists Rutala and Weber developed a scoring system to help ensure the correct selection of disinfectants in healthcare and institutional settings.

Each category is scored from 1 to 10 (1 = lowest, 10 = highest)  
Maximum total score: 50

Evaluation Criteria	Key Questions	Score 1-10 Max: 50
Efficacy	<p>Does it eliminate the most common pathogens in healthcare, including:</p> <ul style="list-style-type: none"> <li>• Those responsible for healthcare-associated infections?</li> <li>• Outbreak-causing organisms?</li> <li>• The most common pathogens in your facility?</li> </ul>	
Contact Time and Speed of Action	<p>How quickly does it inactivate major pathogens? Does it keep surfaces wet for the full contact time as indicated?</p>	
Safety	<p>Does it have an acceptable toxicity profile? Is the flammability rating acceptable? Does it require minimal PPE? Is it compatible with your facility's surfaces?</p>	
Ease of use	<p>Is the odor acceptable? Is its shelf life appropriate? Is it available in the formats you need (liquid, spray, wipes, etc.)? Is it effective in the presence of organic matter? Is it water-soluble? Can it clean and disinfect in one step? Are instructions clear and easy to follow?</p>	
Other Considerations	<p>Does the manufacturer offer training and continuous education (on-site, printed, or virtual)? Is 24/7 technical support available? Is total cost justified by real-world efficacy, outbreak reduction, and proper usage compliance? Can it standardize disinfection protocols across your facility?</p>	



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**Safety begins with  
choosing the right  
disinfectant.**



# Disinfectant Resistance

## A Serious Threat to Public Health

Disinfectants are among the most widely used tools for protecting against pathogen transmission outside of biosecurity settings. However, misuse or overuse can lead to unintended consequences. Bacterial strains may develop resistance through mechanisms similar to those used to combat antibiotics. At a global level, the morbidity and mortality associated with healthcare-associated infections (HAIs) continue to rise — and have been increasingly linked to disinfectant resistance. The World Health Organization (WHO) has shown that in healthcare facilities where good infection prevention and control (IPC) practices are in place, 70% of infections can be prevented.

The improper or excessive use of disinfectants is a key contributor to the development of genes associated with antibiotic and disinfectant resistance. The use of diluted or sub-effective concentrations may increase bacterial tolerance through phenotypic adaptation, gene mutation, and horizontal gene transfer.



## Microorganism Load and Structural Organization

The higher the number of microorganisms present, the longer the disinfection time required.

Microbiologist Earle Spaulding demonstrated that it takes 30 minutes to kill just 10 spores of *Bacillus atrophaeus* (*Bacillus subtilis*), and only 3 minutes to kill 100,000 spores of the same species.

This highlights the critical role of pre-cleaning, which reduces the total microbial load and shortens the exposure time needed for disinfection — increasing the overall safety margin. It is well-documented that clustered cells are harder to eliminate than monodispersed cells.

Medical instruments composed of multiple parts requiring disassembly, or those with cracks, joints, and internal channels (such as endoscopes), are far more difficult to disinfect than flat-surfaced equipment. This is due to the challenge of ensuring disinfectant contact throughout the entire internal and external surface area.

To ensure proper exposure, there must be no air gaps during disinfection — instruments must be fully submerged for the entire recommended contact time. Hard-to-reach areas should be treated with longer exposure times or more potent formulations, as they tend to harbor more resistant and better-shielded microbial populations.

## Inherent Resistance of Microorganisms

Spores are highly resistant to disinfectants because their outer layers and cortex act as a protective barrier. Mycobacteria have a waxy cell wall that limits disinfectant penetration, while Gram-negative bacteria possess an outer membrane that similarly blocks absorption. With the exception of prions, bacterial spores are considered the most inherently resistant to chemical disinfectants. They are followed by coccidia (e.g., *Cryptosporidium*), mycobacteria (e.g., *M. tuberculosis*), non-enveloped viruses (e.g., poliovirus, coxsackievirus), fungi (e.g., *Aspergillus*, *Candida*), vegetative bacteria (e.g., *Staphylococcus*, *Pseudomonas*), and medium-sized or lipid-enveloped viruses (e.g., herpes, HIV).

## Disinfectant Concentration and Potency

The more concentrated a disinfectant is, the more effective it becomes and the shorter the time needed for microbial destruction, with the exception of certain substances such as iodophors. The potency of the active ingredient also plays a critical role. Spaulding demonstrated that 70% isopropyl alcohol eliminates *M. tuberculosis* organisms in 5 minutes, while phenol 3% required 2 to 3 hours under the same test conditions to achieve comparable results.

# Factors That Can Contribute to Increased Resistance

- » Microorganism count and location
- » Inherent resistance of microorganisms
- » Disinfectant concentration and potency
- » Physical and chemical factors
- » Organic and inorganic matter
- » Biofilms
- » Duration of exposure

## Exposure Time

Minimum contact times specified by the manufacturer must always be respected. Failure to do so can lead to a loss of disinfectant efficacy. In general, longer contact times are more effective than shorter ones.

## Organic and Inorganic Matter

Organic material (such as serum, blood, or pus) reduces disinfectant effectiveness by forming a chemical reaction barrier, especially with chlorine or iodine-based products. This phenomenon has been studied since the 1950s and remains relevant today. Additionally, inorganic matter (such as salt crystals) can hinder the activity of certain disinfectants by forming physical barriers. The importance of pre-cleaning before disinfection is critical to eliminate both types of interfering substances.

## Biofilms

Biofilms are dense microbial clusters that adhere firmly to surfaces and cannot be removed by simple rinsing. They are commonly found in dental unit water lines, hemodialysis systems, urinary catheters, contact lenses, and other medical devices. Bacteria embedded in biofilms can be up to 1,000 times more resistant to disinfectants than the same species in free-floating (planktonic) form. This high level of resistance is due to several factors: limited penetration of disinfectants through the biofilm matrix, neutralization of active ingredients by the biofilm's chemical environment (such as pH or proteins), and genetic adaptation or phenotypic variation among the microbial population. Disinfectants such as chlorine, chloramine, and peracetic acid have shown proven effectiveness in inactivating biofilms.



## Physical and Chemical Factors (Temperature, pH, Relative Humidity, and Water Hardness)

Elevated temperature generally enhances the activity of most disinfectants. However, excessively high temperatures may degrade the active substance and reduce its potency. A high pH increases the efficacy of glutaraldehyde and quaternary ammonium compounds, while it decreases the activity of phenols, hypochlorites, and iodine-based disinfectants.

Relative humidity impacts the performance of gaseous disinfectants such as ethylene oxide, chlorine dioxide, and formaldehyde all of which rely on optimal environmental moisture for effectiveness.

Water hardness can reduce the efficacy of certain disinfectants, as divalent cations (such as magnesium and calcium in hard water) interact with the disinfectant and form insoluble precipitates.

# How Do We Measure Disinfection Efficacy?

Using a logarithmic scale helps express the relative number of microorganisms eliminated by a disinfectant starting from an initial population of 1 million.

**1-LOG:** kills 90% 100,000 remain

**2-LOG:** kills 99% 10,000 remain

**3-LOG:** kills 99.9% 1,000 remain

**4-LOG:** kills 99.99% 100 remain

**5-LOG:** kills 99.999% 10 remain

**6-LOG:** kills 99.9999% 1 remains

To ensure reliable efficacy, it is recommended that disinfectants achieve at least a 4-LOG reduction in microbial load. A 6-LOG reduction represents near-sterilization and is considered the gold standard for disinfection.

Between 2017 and 2019, an epidemiological study was conducted by the Department of Epidemiology at the Nicolae Testemițanu State University of Medicine and Pharmacy. The study assessed the sensitivity and resistance of 40 microbial strains from 17 species (including *S. aureus*, *S. epidermidis*, *S. haemolyticus*, *E. faecalis*, *E. faecium*, *S. liquefaciens*, *C. freundii*, *P. rettgeri*, *E. coli*, *E. aerogenes*, *K. oxytoca*, *P. aeruginosa*, *K. pneumoniae*, *P. mirabilis*, *B. cepacia*, *A. baumannii*, and *P. fluorescens*). The strains were isolated from patients with septic-purulent infections in hospitals and public healthcare institutions.

Sixteen types of disinfectants were tested, grouped by chemical class: oxidants, alcohols, aldehydes, quaternary ammonium compounds (QACs), QACs+aldehydes, QACs+amines, and chlorine-based compounds.

High resistance to disinfectants was observed in Gram-positive strains (35.77%), particularly *E. faecalis* (76.93%), *E. faecium* (46.15%), and *S. aureus* (38.63%). Sensitivity varied between 18.75% and 95.12%, with the highest effectiveness recorded for oxidants (83.10%), alcohols (85.40%), aldehydes (93.75%), and lower sensitivity seen for QACs (50.80%), QACs+amines (40.0%), chlorine-based compounds (37.50%), and QACs+aldehydes (34.15%).

These findings highlight the importance of ongoing evaluation of microbial sensitivity and resistance to the disinfectants used in healthcare facilities, to ensure optimal infection prevention and support informed purchasing decisions.





# Active Ingredients in Biocidal Products

## Alcohols

Ethanol, isopropanol, and n-propanol are the most commonly used alcohols, serving both as antiseptics and disinfectants. They act against bacteria, viruses, and fungi by denaturing proteins. Although they lack sporicidal activity and their effect is reversible, alcohols are often used in lower concentrations to enhance the activity of other biocidal agents. Many alcohol-based products contain excipients (including emollients), which can extend evaporation time and improve overall efficacy.

Alcohols are most effective at concentrations between 60% and 90%.

In 2009, the World Health Organization (WHO) recommended alcohol-based products for hygienic and surgical hand disinfection to reduce healthcare-associated infection risk during patient care. As of 2015, WHO classifies 70% ethyl alcohol as an antiseptic and 80% (v/v) as a disinfectant.

Isopropyl alcohol is considered slightly more effective against bacteria, while ethyl alcohol is more effective against viruses. At concentrations of 60%–80%, ethyl alcohol inactivates all lipophilic viruses (e.g., herpes virus, vaccinia virus, and influenza virus) and many hydrophilic viruses (e.g., adenovirus, enterovirus, rhinovirus, and rotaviruses, but less so hepatitis A virus (HAV) or poliovirus). This effectiveness depends greatly on both the alcohol concentration and the tested microorganism. Isopropyl alcohol has more lipophilic properties than ethyl alcohol and is therefore less active against hydrophilic viruses (e.g., poliovirus).

**Mode of action:** denaturation of membrane and cellular proteins

## Phenols

The first surgical use of phenol as a disinfectant is attributed to Joseph Lister in 1867, with later antimicrobial effects confirmed by R. Koch in 1881. Today, phenols are often used in the form of ortho-phenylphenol and ortho-benzyl-para-chlorophenol.

Phenols have bactericidal, fungicidal, virucidal, and tuberculocidal activity, but not sporicidal, making them suitable for surface disinfection (e.g., in hospitals, labs) and for non-critical medical instruments.

**Mode of action:** at high concentrations, phenol disrupts the cell wall and precipitates proteins  
At low concentrations, it inactivates enzyme systems

## Aldehydes

Glutaraldehyde is a saturated dialdehyde used as a high-level disinfectant and chemical sterilant. Aqueous glutaraldehyde solutions are acidic and therefore not sporicidal.

When the solution is "activated" by alkalinizing agents to a pH of 7.5–8.5, it becomes sporicidal. Once activated, it has a shelf life of at least 14 days due to polymerization of glutaraldehyde molecules. Polymerization blocks the active sites of the glutaraldehyde molecules responsible for its biocidal activity.

It has been demonstrated that the activated solution has bactericidal effects in less than 2 minutes, tuberculocidal, fungicidal, and virucidal effects in less than 10 minutes, and sporicidal effects (against *Bacillus* and *Clostridium*) within 3 hours.

Glutaraldehyde is used for disinfecting medical equipment such as endoscopes, spirometry tubing, dialyzers, transducers, anesthesia and respiratory therapy equipment, hemodialysis dosing and dialysate delivery systems, and single-use plastic laparoscopic trocars. It is non-corrosive to metal and does not damage instruments with lenses, rubber, or plastic materials.

**Mode of action:** denaturation and polymerization of cellular proteins and nucleic acids

## Peroxides

Hydrogen peroxide ( $H_2O_2$ ) was first discovered in 1818 by French chemist Louis Jacques Thénard, who produced it by treating barium peroxide with nitric acid. Initially used as a bleaching agent, hydrogen peroxide gained broader medical application by the late 19<sup>th</sup> century. Its large-scale production began in 1894, following distillation methods developed by Richard Wolfenstein.

Today, hydrogen peroxide is widely used for disinfection, sterilization, and surface cleaning, usually in concentrations between 35–70% in aqueous solutions. In household settings, it is often stabilized in 3% solutions. However, exposure to heat, light, or organic materials can rapidly degrade its potency.

Its antimicrobial action is enhanced in acidic environments (optimal pH 3.5–4.5) and is further increased when paired with other acids or stabilizers. As an oxidizing agent, hydrogen peroxide generates reactive oxygen species (ROS) that disrupt microbial membranes, DNA, and cellular enzymes. It is effective against Gram-positive and Gram-negative bacteria, with virucidal and fungicidal activity within 5 minutes.

Hydrogen peroxide is also used to disinfect heat-sensitive devices like flexible endoscopes, tonometer probes, and even contact lenses (typically in 3% solutions for 2–3 hours of contact time).

**Mode of action:** Peroxides act as oxidants, producing free hydroxyl radicals that attack microbial lipids, proteins, and DNA.

Peracetic acid (or peroxyacetic acid) is considered a more powerful biocide than hydrogen peroxide. It is sporicidal, bactericidal, fungicidal, and virucidal, even at low concentrations (as low as 0.3%). It effectively inactivates both Gram-positive and Gram-negative bacteria, as well as yeasts and molds, typically in under five minutes and at concentrations below 100 ppm. In the presence of organic matter, dosage ranges between 200–500 ppm. For viruses, the effective dosage range is between 12–2,250 ppm. When combined with hydrogen peroxide, peracetic acid exhibits enhanced bactericidal power — for instance, at 1.5%, it effectively targets MRSA and carbapenem-resistant *E. coli*. A concentration of 0.08% peracetic acid combined with 1.0% hydrogen peroxide can inactivate mycobacteria that are resistant to glutaraldehyde.

Unlike hydrogen peroxide, which is decomposed by peroxidases, peracetic acid remains active in the presence of organic matter and retains its sporicidal activity even at low temperatures. It breaks down into oxygen, acetic acid, and hydrogen peroxide, all of which are themselves further degraded into water and carbon dioxide, making peracetic acid environmentally safe. Its stability, however, depends heavily on the formulation. When diluted, it becomes more unstable: for example, a 1% solution can lose up to half of its efficacy through hydrolysis within six days. A 40% formulation loses about 1–2% of its active ingredient per month. Peracetic acid may corrode materials like copper, brass, bronze, mild steel, and galvanized iron — although this risk can be reduced by adjusting pH levels and incorporating specific corrosion inhibitors. Peracetic acid is widely used to disinfect hard surfaces, dialysis units, anesthesia equipment, respiratory devices, endoscopes, and endotracheal tubes, as well as surgical and dental instruments.

**Mode of action:** Disrupts microbial viability by denaturing proteins, altering cell membrane permeability, and oxidizing sulfhydryl (-SH) and disulfide (S-S) bonds in proteins, enzymes, and other metabolic components.

## Biguanides

*Chlorhexidine* has been used as an antiseptic since 1954 and is available in three forms: digluconate, acetate, and hydrochloride. It is a positively charged molecule that binds to negatively charged sites on the microbial cell wall, disrupting membrane integrity and causing cell death. Chlorhexidine has a broad spectrum of activity, though it is not sporicidal, and demonstrates residual antimicrobial activity for up to 48 hours after application to the skin. Its efficacy is not significantly reduced by the presence of organic matter such as blood or other biological fluids.

It is widely used for hygienic and surgical hand disinfection, wound and mucosal antiseptics (0.05%), surface disinfection (0.05%), and instrument disinfection (0.1–0.5%). Chlorhexidine is also indicated in burn care protocols, and is often combined with ethyl or isopropyl alcohol (0.5–1%) to enhance efficacy, although it is non-volatile on its own.

The Centers for Disease Control and Prevention (CDC) recommends 2% chlorhexidine as the first-line antiseptic for catheter insertion sites, due to its effectiveness in preventing localized infections. It is important to monitor for potential allergic reactions. While most are mild (e.g., pruritus, localized swelling), rare severe reactions have been reported, including anaphylactic shock and cardiac arrest.

**Mode of action:** as a positively charged molecule, chlorhexidine binds to negatively charged components on the microbial cell surface, compromising cellular integrity and leading to microbial inactivation.

## Halogenated compounds

*Iodine-based compounds are among the most widely used antiseptics. Iodine was accidentally discovered in 1811 by Bernard Courtois, a pharmacist in the French army. Iodine tinctures have long been used for antiseptics, while iodophores combine iodine with solubilizing agents to enhance stability and usability. These complexes release free iodine in controlled amounts and are commonly formulated as aqueous solutions. The most well-known iodophore is povidone-iodine, a compound of iodine and polyvinylpyrrolidone (PVP). Iodophores, including povidone-iodine, maintain the antimicrobial efficacy of elemental iodine while reducing its irritant potential.*

Povidone-iodine was discovered in 1955 in the Industrial Toxicology Laboratories in Philadelphia by H. A. Shelanski and M. V. Shelanski, and since 1956 it has been used clinically, being available in various pharmaceutical forms: solution, spray, cream, ointment, etc. The concentration ranges between 9% and 12%.

Studies on the *in vitro* antimicrobial efficacy of iodoform compounds show they are bactericidal (even against MRSA – methicillin-resistant *Staphylococcus aureus*), mycobactericidal, and virucidal, but may require prolonged contact times to kill certain fungi and spores.

It is used for hygienic and preoperative disinfection of hands, skin antiseptics before procedures, wound care including burns, or as an adjuvant in cutaneous infections. In addition to its antiseptic use, blood culture bottles and medical equipment such as hydrotherapy reservoirs, thermometers, and endoscopes can be disinfected. Iodoform compounds formulated as antiseptics contain less free iodine than those formulated as disinfectants. Iodine or iodine-based antiseptics should not be used on silicone catheters, as they may negatively affect the silicone tubing.

**Mode of action:** The antimicrobial effect of povidone-iodine is due to the release of free iodine, which targets sulfhydryl (-SH) and hydroxyl (-OH) groups in microbial enzymes and proteins, resulting in their denaturation and destruction.

*Chlorine-based disinfectants have been used since around 1785, when French chemist Claude Louis Berthollet first employed sodium hypochlorite to develop liquid bleaching agents. The product became known as “liquor de Javel,” later commercialized by the Javel Company. In France, sodium hypochlorite is still referred to as Eau de Javel. Initially used in the textile industry to bleach cotton, it later found widespread use as a disinfectant. Today, hypochlorites are among the most widely used chlorine-based disinfectants, available in both liquid form (sodium hypochlorite) and solid form (calcium hypochlorite). They have a broad spectrum of antimicrobial activity, leave no toxic residues, are unaffected by water hardness, are inexpensive, act quickly, and even remove biofilms from surfaces.*

**Mode of action:** The exact mechanism is not fully understood, but chlorine compounds are believed to act by oxidizing sulfhydryl enzymes and amino acids, chlorinating amino acid rings, and disrupting microbial metabolism. These effects may lead to loss of intracellular content, reduced nutrient and oxygen absorption, inhibition of protein and ATP synthesis, and oxidation of respiratory components.

Sodium hypochlorite solution is widely used for disinfecting hard surfaces and is suitable even for areas contaminated with blood containing HIV or HBV. In 2017, the active chlorine released from sodium hypochlorite was approved in the European Union as a biocidal agent for five product types: 1) human hygiene, 2) disinfectants and algacides not intended for direct application to humans or animals, 3) veterinary hygiene, 4) food and feed area disinfection, and 5) drinking water. Most ready-to-use products contain between 0.05% and 5% sodium hypochlorite and are effective against bacteria, mycobacteria, yeasts, fungi, viruses, and spores.

In the human body, hypochlorous acid (HOCl) is produced by neutrophils as part of the immune response to inflammation and immunological stimuli. Myeloperoxidase (neutrophil peroxidase = verdoperoxidase, due to its green color) is a basic protein that catalyzes the oxidation of substrates donating H<sup>+</sup> ions or electrons by H<sub>2</sub>O<sub>2</sub>. Alongside hydrogen peroxide (an oxidizing agent) and a halogen (Cl or I), hypochlorous acid is formed—a strong oxidizer. Hypochlorous acid is obtained by electrolysis of an aqueous sodium chloride solution in a specially designed reactor. The production process of hypochlorous acid without elemental chlorine is due to the neutral pH of the process. The sodium hypochlorite solution has a slightly acidic pH, which gives it oxidizing properties. The product has a low toxicity profile and is active against a broad spectrum of microbial agents. It is effective against bacteria, mycobacteria, yeasts, fungi, viruses, and spores.

Against a wide range of pathogens while remaining affordable, fast-acting, and compatible with various use cases, including the removal of biofilms from surfaces.

**Mode of action:** It works by inhibiting the synthesis of adenosine 5'-triphosphate (ATP), disrupting nucleic acid structure and replication, and interfering with protein and cell wall synthesis.

## Quaternary ammonium compounds

Quaternary ammonium compounds are chemical substances formed around a central nitrogen atom, to which four substituent radicals (R1–R4) are attached — usually alkyl or heterocyclic chains of varying lengths — along with a halogen, sulfate, or similar group. Based on their molecular structure, these compounds are classified into several generations. Toxicity studies have been conducted for representatives of each generation. The first quaternary compounds were developed by Jacobs and Heidelberg in 1916, and since then, newer generations have shown improved stability in hard water, greater efficacy, and reduced toxicity. They are effective cleaners, have low foaming action, and remain active in the presence of organic matter (proteins, blood, carbohydrates), making them compatible with most surfaces. Common examples include benzalkonium chloride, didecylmethylammonium chloride, and other dialkyl and alkyl-dimethyl ammonium salts. Benzalkonium chloride, introduced into practice in 1935, was the first widely used quaternary ammonium compound for both disinfection and cleaning. Didecylmethylammonium chloride, a fourth-generation molecule, offers improved biocidal efficacy. Quaternary ammonium salts are active primarily against lipophilic viruses (enveloped), bacteria, and fungi. However, they are not sporicidal, and they offer limited activity against non-enveloped (hydrophilic) viruses and mycobacteria. As such, they are not considered tuberculocidal or virucidal against non-enveloped viruses. They are commonly used on non-critical surfaces such as floors, walls, and equipment that contacts intact skin (e.g., blood pressure cuffs, ECG electrodes, and bed rails). Some variants are also used in hand antiseptics and hygienic hand rubs.

**Mode of action:** quaternary ammonium compounds inactivate energy-producing enzymes, denature structural proteins in the cell wall, and alter membrane integrity. They can also denature phospholipids in the cytoplasmic membrane, leading to major membrane transport dysfunctions and disrupting the movement of essential compounds and ions such as potassium (K<sup>+</sup>) across the membrane.

# Glossary of Standards

According to SR EN 14885:2022

Chemical disinfectants and antiseptics.

Application of European standards for chemical antiseptics and disinfectants

## Bactericidal Efficacy

### EN 1499 - 2,2

Hygienic hand disinfection by washing  
Escherichia coli: 30 sec – 1 min

### EN 1500 - 2,2

Hygienic hand disinfection by rubbing  
Escherichia coli: 30 sec - 1 min

### EN 12791 - 2,2

Surgical hand disinfection by rubbing and washing  
Escherichia coli: 1 min - 5 min

### EN 13727 - 2,1

Hygienic disinfection by rubbing and washing (rubbing – clean conditions, washing – dirty conditions)  
Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Enterococcus hirae: 20°C, 30 sec – 1 min

Hygienic disinfection by rubbing and washing (rubbing – clean conditions, washing – dirty conditions)

Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli, Enterococcus hirae: 20°C, 1 min - 5 min

#### Instrument disinfection

Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae, Enterococcus faecium (≥40°): 20°C–70°C, ≤60 min

#### Surface disinfection

Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae: 4°C–30°C, ≤5 min (surfaces in contact with patients or healthcare staff), ≤60 min (other surfaces), minimum contact

### EN 14561 - 2,2

Instrument disinfection  
Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae: 20°C, 60 min.

### EN 16615 - 2,2

Surface disinfection  
Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae: 4°C–30°C, ≤5 min (surfaces in contact with patients or staff), ≤60 min (all surfaces), minimum contact time: 1 min.

### EN 16616 - 2,2

Textile disinfection  
Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae, Escherichia coli, Enterococcus faecium: according to manufacturer's recommendations.

## Sporicidal Efficacy

### EN 17126 - 2,1

#### Surface disinfection

Sporicidal activity: Bacillus subtilis and Bacillus cereus spores: 4°C–30°C, ≤15 min (for surfaces in contact with patients or medical staff), ≤60 min (for all other surfaces).

Sporicidal activity against Clostridium difficile spores: 4°C–30°C, ≤15 min (surfaces in contact with patients or medical staff), ≤60 min (other surfaces).

#### Instrument disinfection

Sporicidal activity: Bacillus subtilis and Bacillus cereus spores: 20°C–70°C, ≤60 min.  
Sporicidal activity against Clostridium difficile spores: 20°C–70°C, ≤60 min.

#### Textile disinfection

Sporicidal activity: Bacillus subtilis and Bacillus cereus spores: 20°C–80°C, ≤60 min.  
Sporicidal activity against Clostridium difficile spores: 20°C–80°C, ≤60 min.

## Fungicidal and Yeastcidal Efficacy

### EN 13624 - 2,1

Hygienic hand disinfection by rubbing and washing  
Levuricidal activity: Candida albicans: 20°C, 30 sec – 1 min,

Surgical hand disinfection by rubbing and washing  
Levuricidal activity: Candida albicans: 20°C, 1 min – 5 min

#### Instrument disinfection

Levuricidal activity: Candida albicans OR fungicidal activity: Candida albicans, Aspergillus brasiliensis: 20°C–70°C, ≤60 min  
Levuricidal activity: Candida albicans OR fungicidal activity: Candida albicans, Aspergillus brasiliensis: 4°C–30°C, ≤5 min (surfaces in contact with patients or personnel), ≤60 min (other surfaces)

### EN 14562 - 2,2

#### Instrument disinfection

Yeastcidal activity: Candida albicans only OR fungicidal activity: Candida albicans, Aspergillus brasiliensis: 20°C, 60 min

Yeastcidal activity: Candida albicans OR activity fungicide: Candida albicans, Aspergillus niger: 20°C, 60 min

### EN 16615 - 2,2

#### Surface disinfection

Yeastcidal activity: Candida albicans: 4°C–30°C, according to manufacturer's recommendations, ≤5 min (surfaces in contact with patient or healthcare personnel), ≤60 min (other surfaces), contact time: minimum 1 minute

### EN 16616 - 2,2

#### Textile disinfection

Yeastcidal activity: Candida albicans only OR fungicidal activity: Candida albicans, Aspergillus brasiliensis, according to manufacturer's recommendations

# Virucidal Efficacy

## EN 14476 - 2,1

### Hygienic hand disinfection by rubbing and washing

Virucidal activity on enveloped viruses: Vaccinia virus, Ankara strain (MVA), 20°C, 30 sec - 2 min Limited virucidal activity: Adenovirus type 5, strain Adenoid 75, Murine norovirus, strain S99 Berlin, 20°C, 30 sec - 2 min

Virucidal activity: Poliovirus type 1, Adenovirus type 5, Adenoid strain 75, Murine norovirus, S99 Berlin strain, 20°C, 30 sec - 2 min

### Instrument disinfection

Poliovirus type 1, Adenovirus type 5, Adenoid 75 strain, Murine norovirus, strain S99 Berlin and Murine parvovirus, Crawford strain (t<sub>1</sub>≤40°C) 20°C-70°C, ≤60 min

### Surface disinfection

Virucidal activity against enveloped viruses: Vaccinia virus, Ankara strain (MVA); effective at 4°C–30°C within ≤5 minutes on surfaces in contact with patients or healthcare personnel, and within ≤60 minutes on other surfaces.

Limited virucidal activity: Adenovirus type 5 (Adenoid 75 strain), Murine norovirus (S99 Berlin strain); effective at 4°C–30°C within ≤5 minutes on patient-contact surfaces, and within ≤60 minutes on other surfaces.

Broad virucidal activity: Poliovirus type 1, Adenovirus type 5 (Adenoid 75 strain), Murine norovirus (S99 Berlin strain); effective at 4°C–30°C within ≤5 minutes on

### Textile disinfection

Murine parvovirus, Crawford strain (t<sub>1</sub>≤40°C) 30°C-70°C, ≤20 min

## EN 16777 - 2,2

### Surface disinfection

Virucidal activity against enveloped viruses: Vaccinia virus, Ankara strain (MVA); effective at 18°C–25°C within ≤5 minutes on surfaces in contact with patients or healthcare personnel, and within ≤60 minutes on other surfaces.

Limited virucidal activity\*: Adenovirus type 5 (Adenoid 75 strain), Murine norovirus (S99 Berlin strain); effective at 18°C–25°C within ≤5 minutes on patient-contact surfaces, and within ≤60 minutes on other surfaces.

Virucidal activity: Adenovirus type 5 (Adenoid 75 strain), Murine norovirus (S99 Berlin strain); effective at 18°C–25°C within ≤5 minutes on surfaces in contact with patients or medical personnel, and within ≤60 minutes on other surfaces

## EN 17111 - 2,2

### Instrument disinfection

Virucidal activity against enveloped viruses: Vaccinia virus, Ankara strain (MVA), 20°C–70°C, ≤60 minutes

Virucidal activity: Adenovirus type 5 (Adenoid 75 strain), Murine norovirus (S99 Berlin strain), and Murine parvovirus (Crawford strain, at ≥40°C): 20°C–70°C, ≤60 minutes

\*Testing for "limited virucidal activity" includes all enveloped viruses (Annex A of EN 14476, EN 16777, or EN 17111) as well as Norovirus, Rotavirus, and Adenovirus: Coronavirus; Enterovirus; Hepatitis A, B (HBV), and C (HCV) viruses; Herpesviridae; Hepatitis Delta virus (HDV); HIV; HTLV; Parvovirus B19; Influenza virus; Paramyxoviridae; Measles virus; Rabies virus; Poxviridae; Caliciviridae; Astrovirus; Rhinovirus; Rubella virus; Papillomavirus; Polyomavirus.

# Mycobactericidal Efficacy

## EN 14348 - 2,1

### Hygienic disinfection of hands, surfaces and instruments

Tuberculocidal activity: Mycobacterium terrae only OR mycobactericidal activity: Mycobacterium avium ATCC 15769 and Mycobacterium terrae: 20°C, 60 min.

## EN 14563 - 2,1

### Instrument disinfection

Tuberculocidal activity: Mycobacterium terrae only OR mycobactericidal activity: Mycobacterium avium ATCC 15769 and Mycobacterium terrae: 20°C, 60 min.

## EN 16616 - 2,2

### Textile disinfection

Tuberculocidal activity: Mycobacterium terrae only OR mycobactericidal activity: Mycobacterium avium ATCC 15769 and Mycobacterium terrae: according to manufacturer's recommendations

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