Your Hands – Protection and care for the most precious instruments

Cleansing, disinfection, protection and care for your hands

Gentle. Caring. Efficient.

B BRAUN
SHARING EXPERTISE

The hand and skin care products of B. Braun

Over a period of years, B. Braun has developed and implemented a simple and convincing concept for professional hand hygiene. Mutually compatible products guarantee a particularly high level of skin tolerance.

	Our concept	Your benefit
Skin tolerance	Potential risk factors are eliminated in the development stage of each product by applying the principle: "avoidance through prevention."	Optimal tolerability of the mutually compatible products.
Long-term use	Hand disinfections with optimal effectiveness against bacteria, fungi and viruses. The products' effectiveness is based on a combination of alcohols, while avoiding other non volatile such as residual property factors.	A high-level of user safety even with long-term use because alcohols have been thoroughly researched from a toxicological and allergenic perspective.
Low allergenic	Fragrances are largely avoided. If they are used, then these substances and mixtures are carefully chosen for their low allergenic potential. Preservatives are necessary, especially when cleansing and skin care products are supplied from dispensing systems. However, B. Braun only uses preservatives proven to have an especially low allergenic potential. As a rule, the use of colouring agents is reduced to a minimum. Food colouring is used where colouring agents are required.	Optimal product acceptance with low risk of sensitivity and allergic reactions with long-term use.
Product quality	B. Braun has a sophisticated quality assurance system, from the procurement of raw materials to shipping of the finished product.	Consistently high, standardized product quality.

Your hands – Protection and care for the most precious instruments

B. Braun offers a wide range of carefully harmonised products for a complete hand hygiene concept.

Depending on the requirements, three independent concepts are available: products for normal skin, products for sensitive skin and perfume-free products.

	Product	Normal skin	Dry, sensitive skin	Perfume-free	
Cleansing	Your 5 moments for Hand Hygiene				**4**
	Lifosan® soft	•			**6**
	Lifosan® pure		•	✓	**6**
	Softaskin®		•		**7**
	Softaskin® pure		•	✓	**7**
	Softaderm® pearl		•		**8**
Disinfection	Softa-Man®		•		**11**
	Softa-Man® pure		•	✓	**12**
	Softa-Man® acute	•		✓	**13**
	Softa-Man® ViscoRub		•	✓	**14**
	Promanum® N	•			**15**
	Promanum® pure		•	✓	**16**
Care	Trixo®	•			**19**
	Trixo®-lind		•		**20**
	Trixo®-lind pure		•	✓	**21**
Protection	Vasco® / Manufix® Sensitive Vasco® / Manufix® powdered Vasco® Basic	Examination gloves, natural rubber latex			**31**
	Manufix® Free	Examination gloves, nitrile			**33**
	Vasco® Nitril white / blue / light	Examination gloves, ultra sensitive, nitrile			**33**
	Vasco® Nitril long	Examination gloves, extended cuff, nitrile			**35**
	Vasco® Nitril white semi-long	Examination gloves, extended cuff, nitrile			**35**
	Manyl® Sensitive / powdered	Examination gloves, vinyl			**37**
	Manuplast®	Disposable gloves, polyethylene			**37**
	Finger cots	Latex / polyethylene			**37**
	Vasco® OP free	Surgical gloves, polyisoprene			**39**
	Vasco® OP / Vasco® Surgical	Surgical gloves, natural rubber latex			**39**
Education	How to Handwash?				**22**
	How to Handrub?				**23**
	Surgical hand preparation according to WHO				**24**
	History of hand disinfection				**40**
	B. Braun Service				**48**
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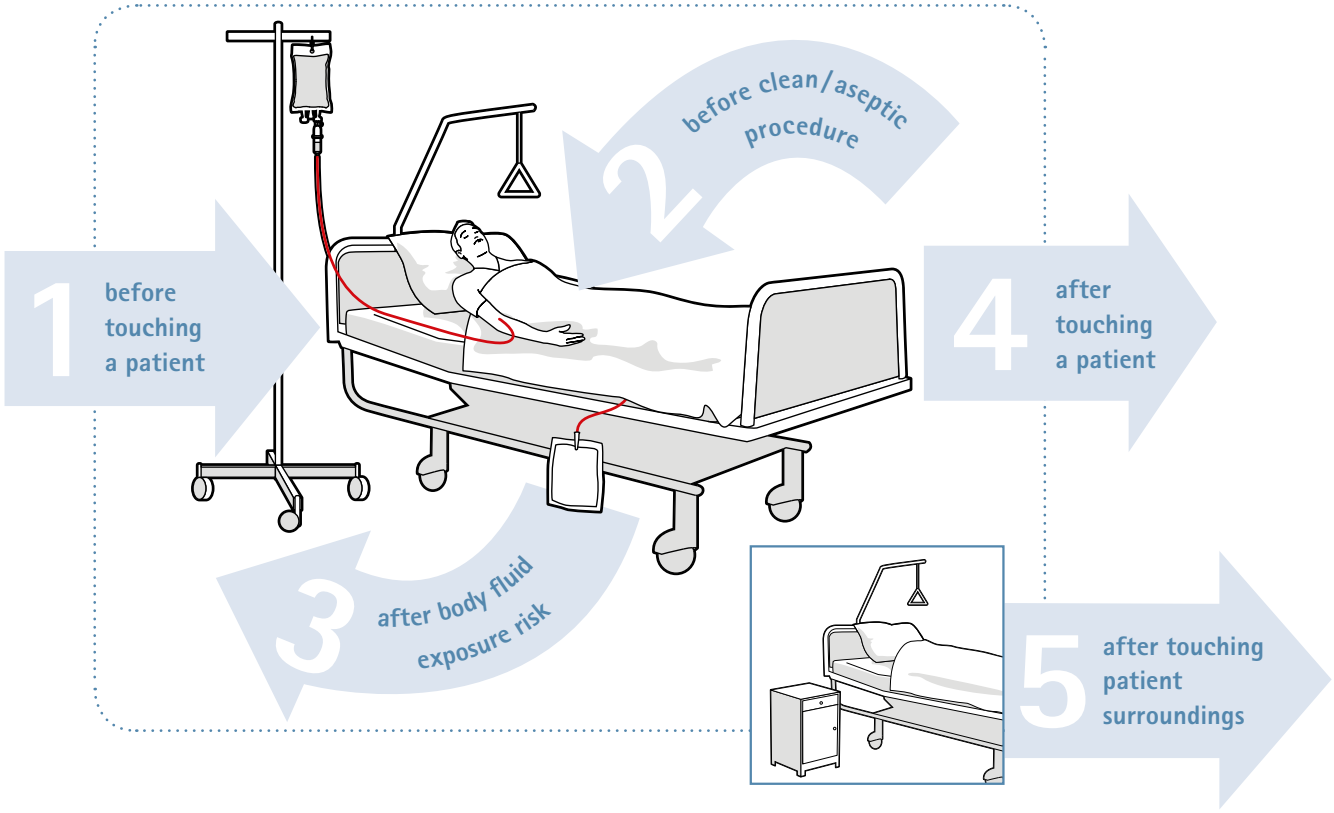
Your 5 moments for Hand Hygiene

Clean hands are safer hands. Are yours clean?

Based on the ‚My 5 moments for Hand Hygiene`, URL:
http://www.who.int/gpsc/5may/background/5moments/en/index.html

When?



1	before touching a patient	When?	Clean your hands before touching a patient when approaching him/her.
		Why?	To protect the patient against harmful germs carried on your hands.
2	before clean/ aseptic procedure	When?	Clean your hands immediately before performing a clean/aseptic procedure.
		Why?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	after body fluid exposure risk	When?	Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		Why?	To protect yourself and the health-care environment from harmful patient germs.
4	after touching a patient	When?	Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		Why?	To protect yourself and the health-care environment from harmful patient germs.
5	after touching patient surroundings	When?	Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		Why?	To protect yourself and the health-care environment from harmful patient germs.

Hand cleansing

Hand cleansing

When:

- if your hands are visibly dirty or visibly soiled with blood or other body fluids
- after using the toilet
- if exposure to potential spore-forming pathogens is strongly suspected or proven, including outbreaks of Clostridium difficile
- before handling medication and preparing food
- at the start/end of the shift
- before and after long breaks
- visitors: at the beginning of a visit

Lifosan® soft / Lifosan® pure

Soothing wash lotion

Lifosan® soft ... a classic from B. Braun

Properties

- pH-skin neutral
- free of alkali and soap
- good foaming characteristic
- contains high quality skin care components makes it
- suitable for frequent use
- fresh, pleasant fragrance

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
5 l canister	

Soothing

Lifosan® soft – ingredients
Aqua, sodium laureth sulfate, cocamidopropyl betaine, sodium chloride, C12-15 alkyl lactate, starch hydroxypropyltrimonium chloride, PEG-6 caprylic/capric glycerides, lactic acid, parfum, hexyl cinnamal, sodium benzoate, CI 42090, CI 47005.

Lifosan® pure ... mild wash lotion with low-allergenic formula

Properties

- pH-skin neutral
- free of alkali and soap
- good foaming characteristic
- contains high quality skin care components
- suitable for frequent use

Product Size	REF
100 ml bottle	
500 ml pump bottle	
1000 ml pump bottle	

Free of perfume and colourants

Lifosan® pure – ingredients
Aqua, sodium laureth sulfate, cocamidopropyl betaine, sodium chloride, C12-15 alkyl lactate, starch hydroxypropyltrimonium chloride, PEG-6 caprylic/capric glycerides, allantoin, lactic acid, sodium benzoate.

Softaskin® / Softaskin® pure

Mild, low-allergenic wash lotion

Softaskin® ... for sensitive skin

Properties

- pH-skin neutral
- free of alkali, soap and colourants
- suitable for cleansing extremely sensitive skin, even for children or incontinence patients
- Allantoin soothes and protects irritated skin

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
5 l canister	

Allergy tested

Softaskin® – ingredients
Aqua, sodium laureth sulfate, cocamidopropyl betaine, lactic acid, allantoin, coco glucoside, C12-15 alkyl lactate, polyquaternium-10, PEG-6 caprylic/capric glycerides, parfum, sodium benzoate, sodium chloride.

Softaskin® pure ... for frequent use

Properties

- pH-skin neutral
- free of alkali and soap
- suitable for cleansing extremely sensitive skin, even for children or incontinent patients
- Allantoin soothes and protects irritated skin

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	

Free of perfume and colourants

Softaskin® pure – ingredients
Aqua, Sodium Laureth Sulfate, Cocamidopropyl Betaine, Lactic Acid, Coco Glucoside ,C12-15 Alkyl Lactate, PEG-6 Caprylic / Capric Glycerides, Polyquaternium-10, Allantoin, Sodium Benzoate, Sodium Chloride

Softaderm® pearl

Nourishing cream wash

Softaderm® pearl ... the moisturising cream wash for a gentle feeling

Properties

- pH-skin neutral, allergy tested
- free of alkali, soap and colourants
- with pleasant fragrance
- particularly gentle to skin for a silky skin feelingafter hand washing
- panthenol moisturises and protects sensitive skin

Application

Use approx. 3 ml Softaderm® pearl for handwashing.
To wash patients prior to surgical procedures or patients with incontinence, distribute approx.
3 – 5 ml Softaderm® pearl on a damp sponge or washcloth, wash patient and rinse with lukewarm water.
For full-body baths, pour 20 ml Softaderm® pearl into the tub before filling with water.

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
Wall Dispenser for 500 ml	
Wall Dispenser for 1000 ml	

For higher expectations

Softaderm® pearl – ingredients
Aqua, Sodium Laureth Sulfate, Cocamidopropyl Betaine, PEG-8, Panthenol, Lactic Acid, C12-15 Alkyl Lactate, Starch Hydroxypropyltrimonium Chloride, PEG-6 Caprylic/ Capric Glycerides, Styrene/Acrylates Copolymer, Sodium Lauryl Sulfate, Trideceth-7, Parfum, Sodium Benzoate, Sodium Chloride, Magnesium Chloride

Hand disinfection

Hand disinfection

When:

- before and after touching the patient
- before handling an invasive device for patient care, regardless of whether or not gloves are used
- after contact with body fluids or excretions, mucous membranes, non-intact skin or wound dressings
- if moving from a contaminated body site to another body site during care of the same patient
- after contact with surfaces and objects (including medical equipment) in the immediate vicinity of the patient
- after removing sterile or non-sterile gloves
- before handling medication and preparing food

Softa-Man® / Softalind® Hand Sanitizer

Hand disinfectant for sensitive skin

Softa-Man® / Softalind® Hand Sanitizer ... a classic from B. Braun

Properties

- combination of alcohols as active ingredients
- listed by the DGHM[1] / VAH[2], RKI[3] (category A)
- effective against bacteria (incl. MRSA, TbB) and fungi
- virucidal effect: enveloped viruses (incl. HBV, HCV, HIV)[6], effective against herpes simplex virus, adenovirus, rotavirus, vaccinia virus and norovirus
- free of colourants
- use of hypoallergenic perfumes
- enriched with high-quality dermoprotectors such as panthenol and bisabolol

Spectrum of activity / Exposure time	
Hygienic hand disinfection[4]	15 s
Surgical hand disinfection[5]	60 s
effective against enveloped viruses (incl. HBV, HIV, HCV)[6]	15 s
BVDV (HCV)	15 s
Vaccinia virus	15 s
Avian Influenza A virus	15 s
Rotavirus	15 s
Herpes simplex virus	30 s
Norovirus[7]	60 s
Adenovirus	2 min.

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
5 l canister	
Wall Dispenser for 500 ml	
Wall Dispenser for 1000 ml	

Very good skin tolerability

Softa-Man® / Softalind® Hand Sanitizer – ingredients
100 ml solution contains active *ingredients:* 45 g ethanol (100%), 18 g 1-propanol;
Other excipients: Purified water, diisopropyl adipate, PEG-6 caprylic/capric, glycerides, dexpanthenol, bisabolol, fragrance (contains limonene, linalool), allantoin.

1) DGHM = German Society for Hygiene and Microbiology
2) VAH = Association for Applied Hygiene
3) RKI = Robert Koch-Institute
4) EN 1500
5) EN 12791
6) per RKI recommendation, Federal Health Gazette 01-2004
7) FCV model virus

Softa-Man® pure / Softalind® pure

Low-allergenic hand disinfectant

Softa-Man® pure / Softalind® pure ... Hand disinfectant to rub into the skin

Properties

- ready-to-use alcohol-based hand disinfectant
- free of perfume and colourants
- listed by the DGHM [1] / VAH [2]
- dermatologically tested
- effective against bacteria (incl. MRSA, TbB) and fungi
- virucidal effect: enveloped viruses (incl. HBV, HCV, HIV) [1], vaccinia virus, rotavirus, adenovirus and avian influenza A virus

Spectrum of activity / Exposure time	
Hygienic hand disinfection [3]	15 s
Surgical hand disinfection [4]	60 s
effective against enveloped viruses (incl. HBV, HIV, HCV) [5]	15 s
Rotavirus	15 s
BVDV (HCV)	15 s
Vaccinia virus	15 s
Avian Influenza A virus	15 s
Adenovirus	30 s
Norovirus [6]	15 s

Product Size	REF
100 ml bottle	
500 ml pump bottle	
1000 ml pump bottle	
Wall Dispenser for 500 ml	
Wall Dispenser for 1000 ml	

Free of perfume and colourants

Softa-Man® pure / Softalind® pure – Inhaltsstoffe
100 mL solution contains active *ingredients:* 45 g ethanol (100%), 18 g 1-propanol (Ph. Eur.)
Other excipients: Purified water, isopropyl myristate, octyldodecanol, panthenol, glycerin, bisabolol, allantoin.

1) DGHM = German Society for Hygiene and Microbiology
2) VAH = Association for Applied Hygiene
3) EN 1500
4) EN 12791
5) per RKI recommendation, Federal Health Gazette 01-2004
6) MNV model virus

Softa-Man® acute / Softalind® 999

High-performance hand disinfectant with comprehensive virucidal efficacy

Softa-Man® acute / Softalind® 999 ... fast virucidal hand disinfection

Properties

- listed by the DGHM[1] / VAH[2]), RKI[3]
- comprehensive virucidal action in 30 seconds
- effective against bacteria (incl. MRSA, TbB) and fungi
- virucidal effect: enveloped viruses (incl. HBV, HCV, HIV)[4] and virucidal[4]
- effective against norovirus[8] within 15 seconds
- free of perfume and colourants
- dermatologically tested

Spectrum of activity / Exposure time	
Hygienic hand disinfection[5]	15 s
Surgical hand disinfection[6]	60 s
effective against enveloped viruses (incl. HBV, HIV, HCV)[4]	15 s
Virucidal (EN 14476)	30 s
TbB[7] and MRSA	15 s
Clostridium difficile (vegetative form)	30 s
Rotavirus	15 s
Norovirus[8]	15 s
Avian Influenza A virus	15 s
Coronavirus (SARS)	15 s
Vaccinia virus	15 s
BVDV (HCV)	15 s
Polyomavirus	15 s
Adenovirus	30 s
Poliovirus	30 s

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
Wall Dispenser for 500 ml	
Wall Dispenser for 1000 ml	

For Outbreak Management

Softa-Man® acute / Softalind® 999 – ingredients
100 mL solution contains active *ingredients:* 45 g ethanol (100%), 18 g 1-propanol (Ph. Eur.); *Other excipients:* Purified water, Macrogol 4000, 2-butanol, octyldodecanol (Ph. Eur.), glycerin, phosphoric acid (85%)

1) DGHM = German Society for Hygiene and Microbiology
2) VAH = Association for Applied Hygiene
3) RKI = Robert Koch-Institute
4) per RKI recommendation, Federal Health Gazette 01-2004
5) EN 1500
6) EN 12791
7) per RKI guidelines, hygienic hand disinfection should be performed twice in case of contamination with mycobacteria.
8) FCV model virus

Softa-Man® ViscoRub / Softalind® ViscoRub

Low-allergenic hand disinfectant with a gel-like consistency

Softa-Man® ViscoRub / Softalind® ViscoRub ... innovation in hand disinfection

Properties

- combination of alcohols as active ingredients **with a gel-like consistency** which is as effective as a liquid rub
- listed by the DGHM [1] / VAH [2]
- effective against bacteria (incl. MRSA, TbB) and fungi
- virucidal effect: effective against enveloped viruses (incl. HBV, HCV, HIV)[5], vaccinia virus, rotavirus, avian influenza A virus and norovirus
- free of perfume and colourants
- excellent skin tolerability

Spectrum of activity / Exposure time	
Hygienic hand disinfection[3]	15 s
Surgical hand disinfection[4]	90 s
effective against enveloped viruses (incl. HBV, HIV, HCV)[5]	15 s
Rotavirus	15 s
BVDV (HCV)	15 s
Vaccinia virus	15 s
Avian Influenza A virus	15 s
Norovirus[6]	15 s
Adenovirus	60 s
Poliovirus	60 s

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
5 l canister	
Wall Dispenser for 500 ml	
Wall Dispenser for 1000 ml	

Unique consistency

Softa-Man® ViscoRub / Softalind® ViscoRub – ingredients
100 ml solution contains active *ingredients:* 45 g ethanol (100%), 18 g 2-propanol (Ph. Eur.);
Other excipients: Purified water, 2-butanol, glycerin, isopropyl myristate, (cetearyl ethylhexanoate), Tetrahydroxypropyl ethylenediamine, acrylates/C10-30 alkyl acrylate crosspolymer, octyldodecanol, bisabolol.

1) DGHM = German Society for Hygiene and Microbiology
2) VAH = Association for Applied Hygiene
3) EN 1500
4) EN 12791
5) per RKI recommendation, Federal Health Gazette 01-2004
6) MNV model virus

Promanum® N

Hand disinfection for normal skin

Promanum® N ... with special moisturizing system

Properties

- combination of alcohols as active ingredients
- listed by the DGHM[1]/VAH[2], RKI[3] (category A)
- effective against bacteria (incl. MRSA, TbB) and fungi
- virucidal effect: enveloped viruses (incl. HBV, HCV, HIV)[4], effective against herpes simplex virus, adenovirus, rotavirus, vaccinia virus and norovirus
- contains selected moisturizers
- mild, subtle scent

Spectrum of activity/ Exposure time	
Hygienic hand disinfection[5]	15 s
Surgical hand disinfection[6]	90 s
effective against enveloped viruses (incl. HBV, HIV, HCV)[1]	15 s
BVDV (HCV)	15 s
Vaccinia virus	15 s
Herpes simplex virus	15 s
Rotavirus	15 s
Norovirus[7]	15 s
Adenovirus	3 min.

Product Size	REF
100 ml bottle	
500 ml bottle	
1000 ml bottle	
5 l canister	
Wall Dispenser for 500 ml	
Wall Dispenser for 1000 ml	

For normal skin

Promanum® N – ingredients

100 g solution contains active *ingredients:* 73.4 g ethanol (100%), 10 g 2-propanol; *Other excipients:* Purified water, isopropyl myristate, sorbitol, (hexadecyl, octadecyl) [(RS) 2-ethylhexanoate)], povidone K 30, fragrance (contains limonene, linalool), colorants: patent blue (E131) and quinoline yellow (E104).

1) DGHM = German Society for Hygiene and Microbiology
2) VAH = Association for Applied Hygiene
3) RKI = Robert Koch-Institute
4) per RKI recommendation, Federal Health Gazette 01-2004
5) EN 1500
6) EN 12791
7) MNV model virus

Promanum® pure

Hand disinfection for sensitive skin

Promanum® pure ... with special moisturizing system

Properties

- combination of alcohols as active ingredients
- listed by the DGHM[1]/VAH[2], RKI[3]
- effective against bacteria (incl. MRSA, TbB) and fungi
- virucidal effect: enveloped viruses (incl. HBV, HCV, HIV)[3], effective against adenovirus, norovirus, rotavirus, vaccinia virus and poliovirus
- contains selected moisturizers
- free of perfume and colourants
- effective against adenovirus within the period of hygienic hand disinfection (30 s)

Spectrum of activity/ Exposure time	
Hygienic hand disinfection[4]	15 s
Surgical hand disinfection[5]	90 s
effective against enveloped viruses (incl. HBV, HIV, HCV)[1]	15 s
BVDV (HCV)	15 s
Vaccinia virus	15 s
Rotavirus	15 s
Norovirus[6]	15 s
Adenovirus	30 s
Poliovirus	60 s

Product Size	REF
100 ml bottle	
500 ml pump bottle	
1000 ml pump bottle	
5 l canister	

Virucidal in 60 s[7]

Promanum® pure – ingredients
100 g solution contains active *ingredients:* 73.4 g ethanol (100 %), 10 g 2-propanol; *Other excipients:* Purified water, isopropyl myristate, sorbitol, (hexadecyl, octadecyl) [(RS) 2-ethylhexanoate)], povidone K 30.

1) DGHM = German Society for Hygiene and Microbiology
2) VAH = Association for Applied Hygiene
3) per RKI recommendation, Federal Health Gazette 01-2004
4) EN 1500
5) EN 12791
6) MNV model virus
7) EN 14476

B. Braun hand hygiene products at a glance

		Softa-Man® ViscoRub / Softalind® ViscoRub	Softa-Man® acute/ Softalind® 999	Softa-Man®/ Softalind® Handsanitizer	Softa-Man® pure/ Softalind® pure	Promanum® N	Promanum® pure	Lifosan® soft	Lifosan® pure	Softaskin®	Softaskin® pure	Softaderm® pearl	Trixo®	Trixo®-lind	Trixo®-lind pure
Therapeutic Indications	Hand Disinfection	●	●	●	●	●	●								
	Hand/Skin Cleansing							●	●	●	●	●			
	Hand/Skin Care												●	●	●
	Personal Hygiene							●	●	●	●	●			
	Personal Care												●	●	●
	Free of colourants	●	●	●	●		●		●	●	●	●	●	●	●
	Free of perfume	●	●		●		●		●		●				●
	Dry, Sensitive Skin	●		●	●		●		●	●	●	●		●	●
	Normal Skin		●			●		●					●		
Efficacy	Bacteria	●	●	●	●	●	●								
	Tuberculosis bacteria	●	●	●	●	●	●								
	MRSA	●	●	●	●	●	●								
	Spores														
	Fungi	●	●	●	●	●	●								
	Enveloped viruses (incl. HBV, HCV, HIV) [1]	●	●	●	●	●	●								
	Fully virucidal [1]		●												
	Noroviruses (FCV/MNV)	●	●	●	●	●	●								
Disinfecting Agent	Alcohols	●	●	●	●	●	●								
	Polihexanide														
	Aldehydes														
	Phenol derivatives														
	Quaternary ammonium compounds														
	Alkylamines														
	Peracetic acid														
	Povidone-iodine														
	Citric acid														
	Active chlorine														
Application	Ready to use	●	●	●	●	●	●								
	pH of ready-to-use solution														
	Concentrate for dilution														
	Concentration for use (DGHM [2]/VAH [3])	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.								
	Handrub EN 1500	15 s	15 s	15 s	15 s	15 s	15 s								
	Outbreak management EN 14476		30 s				60 s								

1) pursuant to RKI recommendations, Federal Health Gazette 01-2004
2) DGHM: German Society for Hygiene and Microbiology
3) VAH: Association for Applied Hygiene

Hand Care

Hand care

When:

- use a hand care lotion when necessary
- before long breaks and after work
- cracks in dry skin are reservoirs for bacteria and thus sources of infection
- keeping hands in good condition is an essential part of good hand hygiene and helps stop the transmission of infection

Trixo®

Fast-absorbing moisture lotion

Trixo® ... classic care from B. Braun

Properties

- oil-in-water emulsion
- free of colourants
- skin-neutral pH
- gentle, mild perfumes and preservatives
- non-sticky
- fast-absorbing

Application

Trixo® can be used as needed

- after handwashing
- after completing the OR program
- after hands are exposed to severe conditions
- for moisturizing the entire body after showering and bathing
- whenever the skin needs moisturizing and care

Additional information for users with allergies

- allergy tested
- free of colourants
- can be used by people with allergies to long-chain aliphatic alcohols and lanolin derivatives

Product Size	REF
100 ml tube	
500 ml pump bottle	
Dispensing pump for 500 ml pump bottle	

High-quality care

Trixo® – ingredients

Aqua, cyclomethicone, sorbitol, methylglucose sesquistearate, paraffinum liquidum, cetearyl ethylhexanoate, glyceryl stearate, phenoxyethanol, stearic acid, panthenol, fragrance, polyacrylamide, C13-14 isoparaffin, laureth-7, bisabolol, citric acid, hydroxyisohexyl-3-cyclohexene carboxaldehyde, butylphenyl methylpropional, citronellol, alpha methyl ionone, benzyl salicylate, linalool, limonene.

Trixo®-lind

Rich, allergy-tested moisture lotion

Trixo®-lind ... moisture lotion for extremely dry, irritated skin

Properties

- oil-in-water emulsion
- free of colourants
- skin-neutral pH
- especially suitable for extremely sensitive skin
- provides the skin with intensive care
- skin-soothing ingredients
- allergy tested

Application

Trixo®-lind can be used as needed

- after handwashing
- after the OR program
- after hands are exposed to severe conditions
- for moisturizing the entire body after showering and bathing, particularly with dry skin
- whenever the skin needs moisturizing and protection

Additional information for users with allergies

- allergy tested
- free of colourants
- can be used by people with allergies to long-chain aliphatic alcohols and lanolin derivatives

Product Size	REF
20 ml tube	
100 ml tube	
500 ml pump bottle	
Dispensing pump for 500 ml pump bottle	

Allergy tested

Trixo®-lind – ingredients

Aqua, paraffinum liquidum, sorbitol, methylglucose sesquistearate, cetearyl ethylhexanoate, glyceryl stearate, phenoxyethanol, stearic acid, panthenol, allantoin, fragrance, polyacrylamide, C13-14 isoparaffin, laureth-7, citric acid, hydroxyisohexyl-3-cyclohexene carboxaldehyde, butylphenyl methylpropional, benzyl salicylate, linalool, hexyl cinnamal, citronellol, alpha methyl ionone, limonene.

Trixo®-lind pure

Rich, low-allergenic moisture lotion

Trixo®-lind pure ... skin care with lower allergenic potential

Properties

- oil-in-water emulsion
- free of perfume and colourants
- skin-neutral pH
- suitable for especially sensitive skin
- panthenol and allantoin soothe skin irritation

Application

Trixo®-lind pure can be used as needed

- after handwashing
- after the OR program
- after hands are exposed to severe conditions
- for moisturizing the entire body after showering and bathing, particularly with dry skin
- whenever the skin needs moisturizing and protection

Additional information for users with allergies

- allergy tested
- free of colourants
- free of perfume
- can be used by people sensitive to long-chain aliphatic alcohols and lanolin derivatives

Product Size	REF
100 ml tube	
500 ml pump bottle	

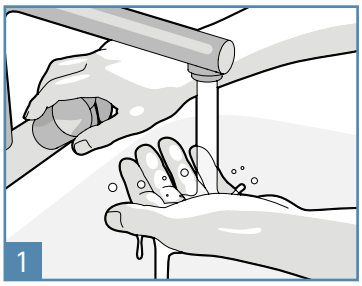
Free of perfume and colourants

Trixo®-lind pure – ingredients

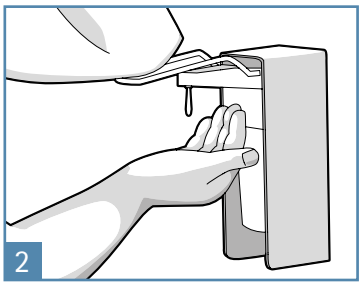
Aqua, paraffinum liquidum, sorbitol, methylglucose sesquistearate, cetearyl ethylhexanoate, glyceryl sterarate, phenoxyethanol, stearic acid, panthenol, allantoin, polyacrylamide, C13-14 isoparaffin, laureth-7, citric acid.

How to Handwash?

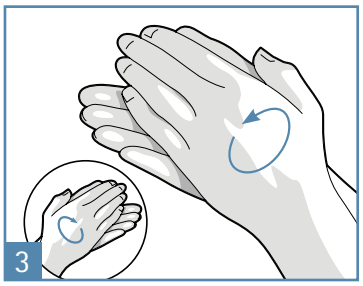
Wash hands when visibly soiled! Otherwise, use a handrub.
Duration of the entire procedure: 40 – 60 seconds



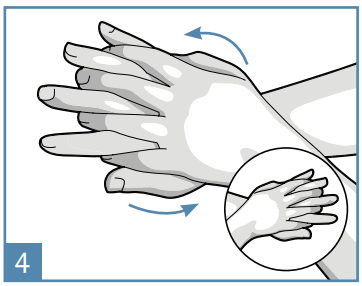
Wet hands with water



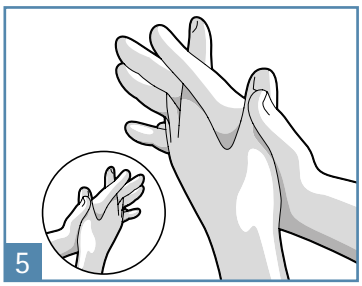
Apply enough soap to cover all hand surfaces



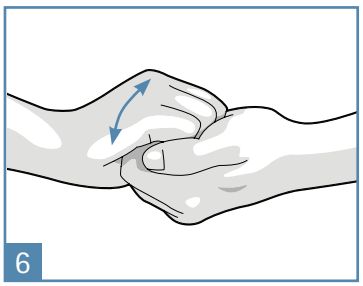
Rub hands palm to palm



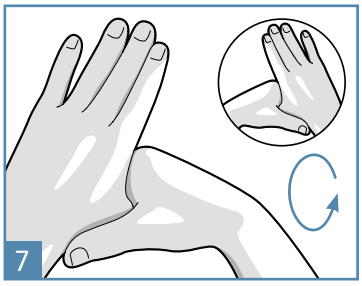
Right palm over left dorsum with interlaced fingers and vice versa



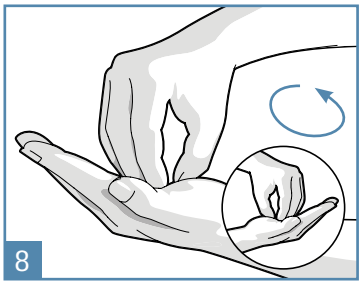
Palm to palm with fingers interlaced



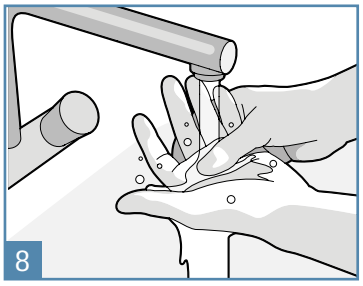
Backs of fingers to opposing palms with fingers interlocked



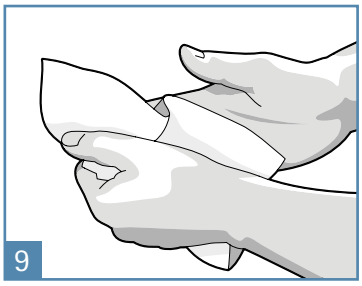
Rotational rubbing of left thumb clasped in right palm and vice versa



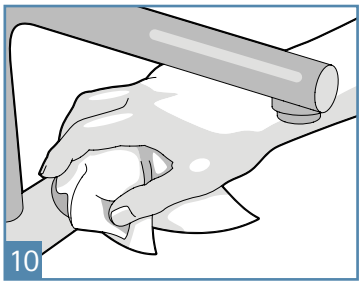
Rotational rubbing, backwards and forwards with casped fingers of right hand in left palm and vice versa



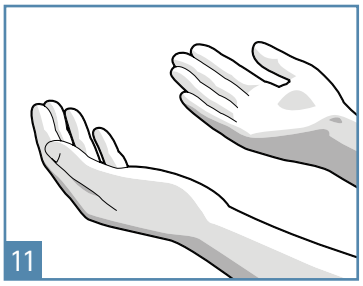
Rinse hands with water



Dry hands thoroughly with a single use towel



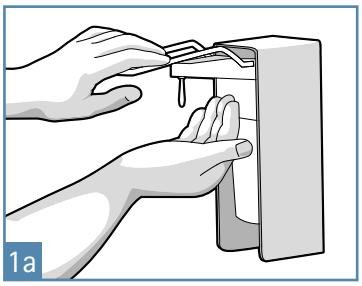
Use towel to turn off faucet

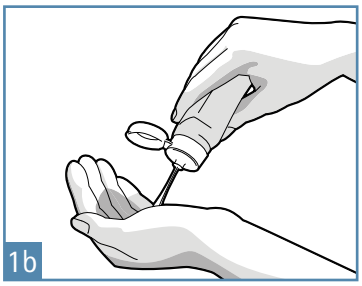


Your hands are now safe

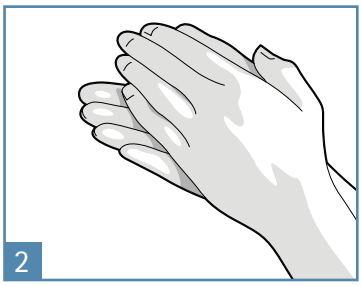
How to Handrub?

Rub hands for hand hygiene! Wash hands instead when visibly soiled.
Duration of the entire procedure: 20 – 30 seconds

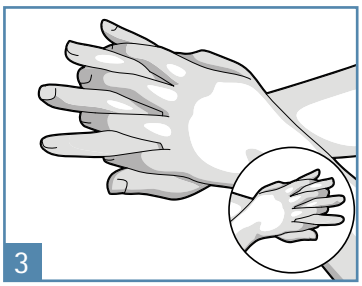




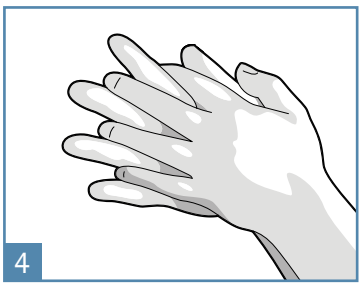
Apply a palmful of the product in a cupped hand, enough to cover all hand surfaces



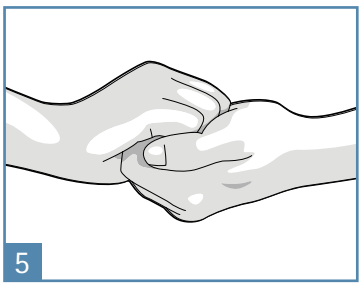
Rub hands palm to palm



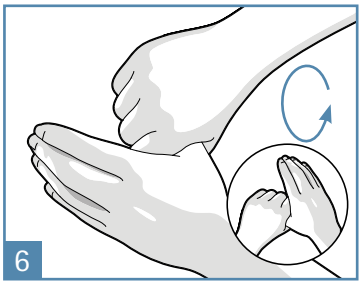
Right palm over left dorsum with interlaced fingers and vice versa



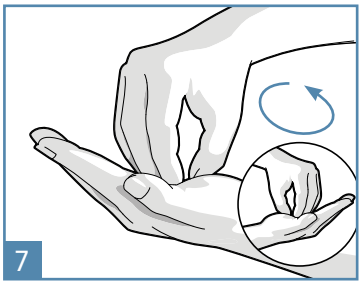
Palm to palm with fingers interlaced



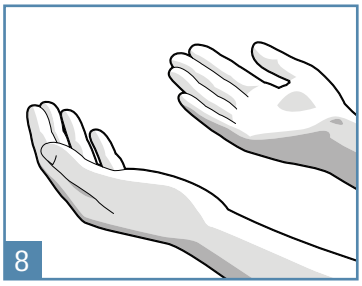
Backs of fingers to opposing palms with fingers interlocked



Rotational rubbing of left thumb clasped in right palm and vice versa



Rotational rubbing, backwards and forwards with casped fingers of right hand in left palm and vice versa



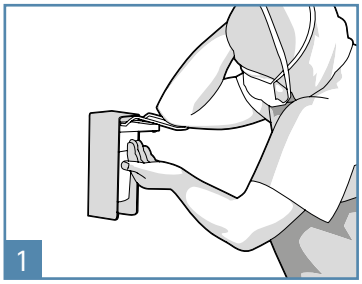
Once dry, your hands are safe

Surgical hand preparation

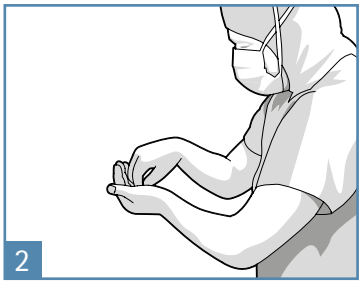
Technique with an alcohol-based handrub formulation

The handrubbing technique for surgical hand preparation must be performed on perfectly clean, dry hands. On arrival in the operating theatre and after having donned theatre clothing (cap/hat/bonnet and mask), hands must be washed with soap and water. After the operation when removing gloves, hands must be rubbed with an alcohol-based formulation or washed with soap and water if any residual talc or biological fluids are present (e.g. the glove is punctured).

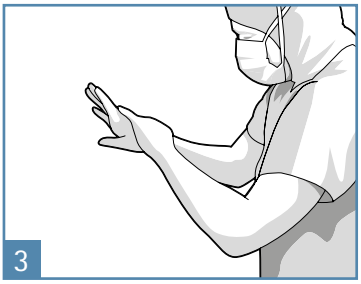
Surgical procedures may be carried out one after the other without the need for handwashing, provided that the handrubbing technique for surgical hand preparation is followed (images 1 to 17).



Put approx. 5 ml (3 doses) of alcohol-based handrub in the palm of your left hand, using the elbow of your other arm to operate the dispenser.

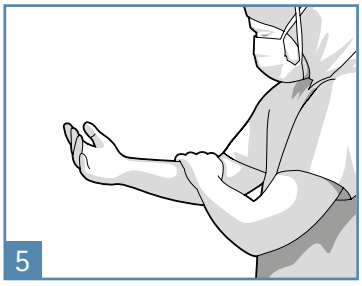


Dip the fingertips of your right hand in the handrub to decontaminate under the nails (5 sec).

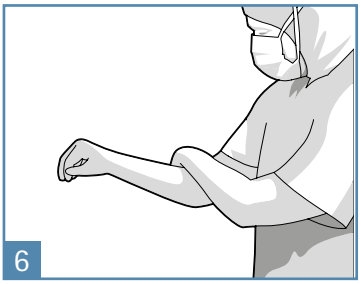


Images 3–7: Smear the handrub on the right forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the handrub has fully evaporated (10–15 sec).

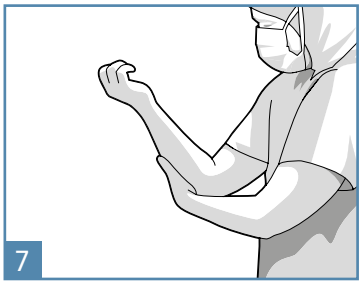
See legend for image 3.



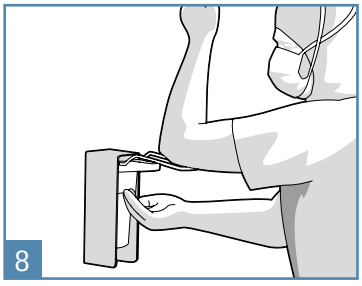
See legend for image 3.



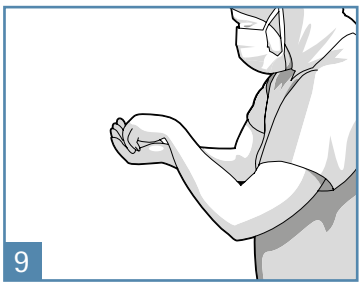
See legend for image 3.



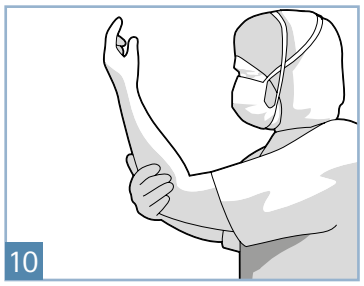
See legend for image 3.



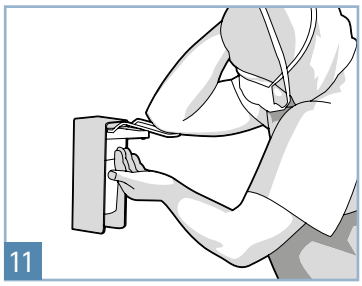
Put approx. 5 ml (3 doses) of alcohol-based handrub in the palm of your right hand, using the elbow of your other arm to operate the dispenser.



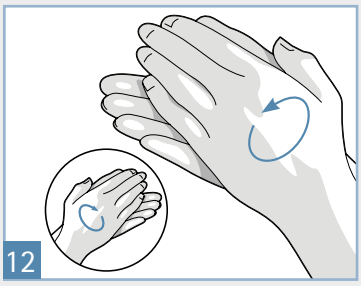
Dip the fingertips of your left hand in the handrub to decontaminate under the nails (5 sec).



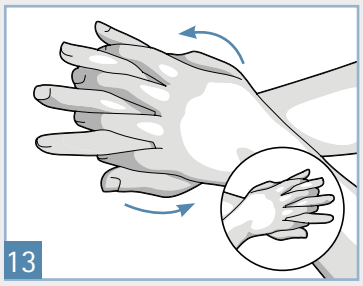
Smear the handrub on the left forearm up to the elbow. Ensure that the whole skin area is covered by using circular movements around the forearm until the handrub has fully evaporated (10–15 sec).



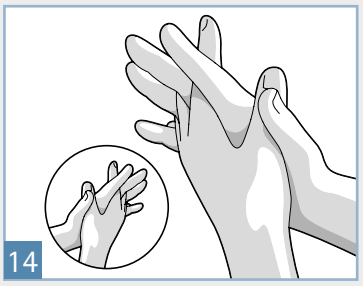
Put approx. 5 ml (3 doses) of alcohol-based handrub in the palm of your left hand, using the elbow of your other arm to operate the distributor. Rub both hands at the same time up to the wrists and ensure that all the steps represented in images 12–17 are followed (20–30 sec).



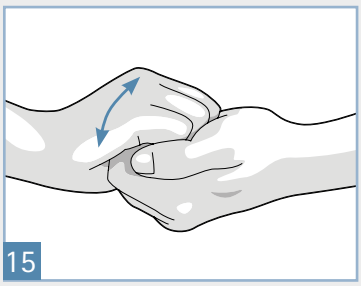
Cover the whole surface of the hands up to the wrist with alcohol-based handrub, rubbing palm against palm with a rotating movement.



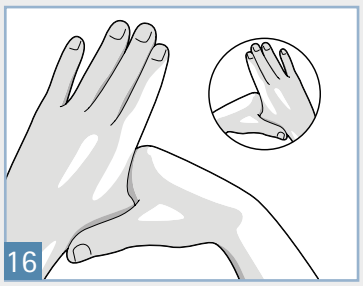
Rub the back of the left hand, including the wrist, moving the right palm back and forth and vice versa.



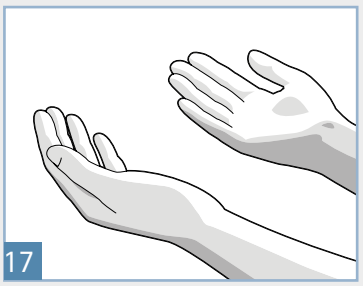
Rub palm against palm, back and forth with fingers interlinked.



Rub the back of the fingers by holding them in the palm of the other hand with a sideways back and forth movement.



Rub the thumb of the left hand by rotating it in the clasped palm of the right hand and vice versa.



When the hands are dry, sterile surgical clothing and gloves can be donned.

Repeat the above-illustrated sequence (average duration, 60 sec) according to the number of times corresponding to the total duration recommended by the manufacturer for surgical hand preparation with an alcohol-based handrub.

Medical and Protective Gloves

Infection control in good hands

Wearing gloves reduces the risk of contaminating hands with body fluids and the risk of germ dissemination to the environment and of transmission from the health care workers to patients and vice versa as well as from one patient to another. (Hand Hygiene in Health Care, WHO Guidelines 2009)
The use of gloves does not replace the need for hand hygiene by either hand washing or hand rubbing. Combining disinfection and glore policy leads to significant reduction of infection rates (Fuller et al, 2011).

Rising awareness regarding natural rubber latex allergens and technology breakthroughs in synthetic materials have lead to an increased use of gloves made from nitrile and other synthetic materials, which in some regards even exceed the performance of their natural counterpart.

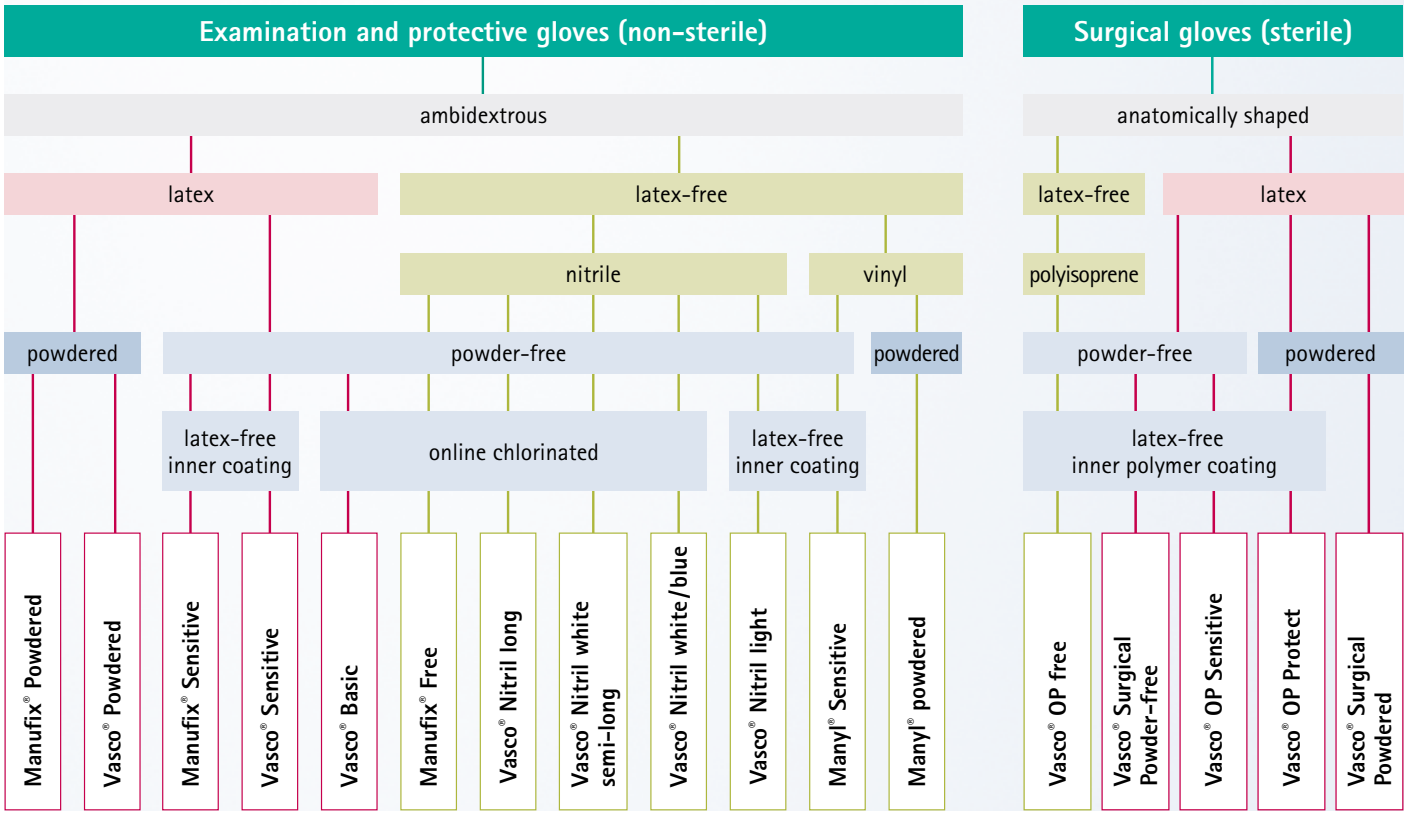
Latex protein tests of the powder-free Vasco® and Manufix® latex gloves constantly show low levels of latex protein (< 30 µg/g).

In case of latex allergy, high quality latex-free gloves such as Vasco® OP free made from polyisoprene, Vasco® Nitril and Manufix® Free nitrile gloves or the Manyl® gloves made from vinyl may be used.

Double gloving ... to increase personal protection

Wearing two pairs of gloves reduces the risk of contamination in medical surroundings and cleanrooms.
Double gloving significantly results in a decrease of perforations of the innermost glove. In case of liquid entrance through the outer glove, a dark spot becomes immediately visible when combining a blue underglove and a white second glove – the gloves can be changed instantly.

The resistance characteristics of two different materials add together, increasing the overall resistance of the combined synthetic and natural rubber latex gloves.



Medical and Protective Gloves

Glove performance

Strengths and weaknesses of glove materials

	synthetic polyisoprene	natural rubber latex	nitrile	vinyl
comfort	✸✸✸✸	✸✸✸✸	✸✸	✸
grip	✸✸✸✸	✸✸✸✸	✸✸✸	✸✸
tensile strength	✸✸✸✸	✸✸✸✸	✸✸✸	✸
puncture resistance	✸✸	✸✸	✸✸✸✸	✸
elongation	800 %	800 %	600 %	300 %
food conformity	✸✸✸✸	✸✸✸	✸✸✸✸	✸
chemical resistance	✸✸✸	✸✸✸	✸✸✸✸	✸✸

Synthetic polyisoprene

Synthetic polyisoprene rubber (IR) is a chemically highly specific latex. In contrary to natural rubber latex, it does not contain any antigenic proteins. The structure and the properties are very similar to its natural pendant. Within all synthetic latex materials, IR has the highest resilience, elasticity and tensile strength. Because of its excellent material characteristics, synthetical polyisoprene is eminently suited for surgical procedures in particular where the allergenic impacts of natural rubber must be avoided.

Natural rubber latex

Vulcanized natural rubber latex is outstanding regarding elasticity, tensile strength, non-sticky surface and abrasion resistance. Even when punctured, the material reseals to a certain extend due to its unique cross-linked and highly elastic structure. Because of these unique characteristics, natural rubber gloves are the most-favored gloves in medical treatment, healthcare and laboratory use.

Latex allergy
Approximately 10 % of latex glove users and 2 – 3 % of the patients develop a hypersensitivity against latex proteins. Allergic reactions such as skin rashes, hives, flushing, itching, nasal, eye or sinus symptoms, asthma, and (rarely) life-threatening shock are increasingly reported, especially among health care workers.

Powder-free latex gloves
The highest sensitization risk is related to glove powder which transports latex protein particles via the air into lungs and wounds. As a protective measure, occupational health organizations have banned powdered latex gloves in many countries. Modern technologies have lead to the development of synthetic coatings for easy donning, replacing the glove powder and reducing sensitization.

B. Braun strongly recommends not to use powdered latex gloves to prevent allergic reactions.

Nitrile

Synthetic nitrile butadiene rubber (NBR or NR) is highly resistant against oil and lipids and a broad range of chemicals. Together with the good cut and puncture resistance, its characteristics make NBR an ideal glove material for medical treatment, laboratory and industrial procedures as well as food processing. Modern technologies have lead to the development of new highly elastic and tear resistant materials, resulting in a wide range of use and high user acceptance.

Occupational health and safety
The recommendations for minimizing latex-related health problems include substituting non latex products when appropriate. Nitrile is the most cost-effective synthetic material for examination and protective gloves which is more and more replacing natural rubber latex.

Vinyl

Polyvinyl chloride (PVC, vinyl) is one of the most widely produced plastic. Vinyl gloves are frequently used because of their low cost and light glove design. Due to very poor elasticity and barrier functions, vinyl gloves are not appropriate for work with high demands regarding protection and infection control.

Health and Safety
Most vinyl gloves contain DOP (dioctyl-phthalate) or DEHP (diethylhexyl-phthalate) plasticizers to make the material flexible. These plasticizers can gradually dissolve out of the gloves into the environment and into the human body. DOP has been found to be hazardous for reproduction (hazard category 2: toxic to reproduction and development). Manyl® gloves are free of DOP / DEHP; they contain the plasticizer DINP (diisononyl phtalate) instead, which is not regarded as a dangerous substance according to the directives 67 / 548 / EEC and REACH.

Examination and Protective Gloves Natural Rubber Latex

Ambidextrous | non-sterile

Vasco® and Manufix® examination and protective gloves for safe work

Standard compliance	Vasco® and Manufix® examination and protective gloves comply with EN 420, 455 and 374 and are qualified for food conformity. Chemical resistance is tested for selected substances. (data sheet: www.bbraun.com ➔ Product Quick Finder ➔ Infection Prevention)
Donning and fit	The synthetic inner lining of Vasco®/Manufix® Sensitive and Powdered is fusion-bonded to the latex material, reducing friction on the skin and resulting in a snug fit. The inner coating together with the rolled rim ensure easy donning. Online chlorination in Vasco® Basic allows easy donning and leads to high sensitivity.
Tactile properties	In the finger area, the gloves are textured to allow a good grip without restricting the gliding properties, ideal for instrument handling as well as patient treatment.

Vasco® Sensitive

Size	Sales unit	REF
XS	100	6067500
S	100	6067526
M	100	6067549
L	100	6067565
XL	90	6067590

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- wall thickness: min. 0.08 mm

Vasco® Basic

Size	Sales unit	REF
XS	100	6066608
S	100	6066616
M	100	6066624
L	100	6066632
XL	90	6066640

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- wall thickness: min. 0.08 mm

Vasco® Powdered

Size	Sales unit	REF
S	100	6066526
M	100	6066542
L	100	6066569

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powdered examination gloves according EN 455
- wall thickness: min. 0.08 mm

Manufix® Sensitive
Manufix® Powdered

Manufix® Sensitive, powder-free

Size	Sales unit	REF
XS	100	9209430
S	100	9209441
M	100	9209468
L	100	9209484
XL	90	9209499

Manufix® Powdered

Size	Sales unit	REF
XS	100	6090079
S	100	6090010
M	100	6090036
L	100	6090052

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- examination gloves according EN 455
- wall thickness: min. 0.08 mm

Examination and Protective Gloves Nitrile

Ambidextrous | non-sterile

Vasco® Nitril and Manufix® Free examination and protective gloves

Standard compliance	Vasco® and Manufix® examination and protective gloves comply with EN 420, 455 and 374 and are qualified for food conformity. Chemical resistance is tested for selected substances. (data sheet: www.bbraun.com ➔ Product Quick Finder ➔ Infection Prevention)
Donning and fit	Nitrile gloves are per se very easy to don because of the nitrile material characteristics. The rolled rim provides cuff strength for further ease in donning. The good elasticity ensures a comfortable fit of the gloves.
Tactile properties	All gloves have a micro-rough structure in the finger area for safe grip and instrument handling. Vasco® Nitril blue and white as well as Vasco® Nitril light provide a superior sensitivity due to their light glove design.

Manufix® Free

Size	Sales unit	REF
S	100	9209670
M	100	9209689
L	100	9209697
XL	90	9209698

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- wall thickness: min. 0.08 mm

Vasco® Nitril white

Size	Sales unit	REF
XS	100	9207902
	150	9208402
S	100	9207910
	150	9208410
M	100	9207929
	150	9208429
L	100	9207937
	150	9208437
XL	90	9207945
	135	9208445

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- wall thickness: min. 0.05 mm

Vasco® Nitril blue

Size	Sales unit	REF
XS	150	9209809
S	150	9209817
M	150	9209825
L	150	9209833
XL	135	9209841

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- wall thickness: min. 0.05 mm

Vasco® Nitril light

Size	Sales unit	REF
XS	100	9207708
	150	9208801
S	100	9207716
	150	9208810
M	100	9207724
	150	9208828
L	100	9207732
	150	9208836
XL	90	9207740
	135	9208844

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- wall thickness: min. 0.05 mm

Examination and Protective Gloves Nitrile

Ambidextrous | non-sterile

Vasco® Nitril long and Vasco® Nitril white semi-long examination and protective gloves

Medical examination gloves with extra long cuffs provide an increased level of skin protection compared to regular examination gloves. This leads to additional safety in preventing cross-contamination in high risk tasks as well as higher protection while handling liquids.

As nitrile is not as elastic as natural rubber latex, a longer cuff is important when a tight fit at wrist is required.

Vasco® Nitril long is especially suitable for laboratory use and protection against chemicals and disinfectants.
Vasco® Nitril white semi-long is appropriate whenever higher protection in medical care is needed.

Vasco® Nitril long

Size	Sales unit	REF

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- glove length: 290 mm
- wall thickness: min. 0.07 mm

Vasco® Nitril white semi-long

Size	Sales unit	REF
XS	150	9208500
S	150	9208518
M	150	9208526
L	150	9208534
XL	135	9208542

- protective gloves according EN 420, EN 374, PPE 89/686/EEC category III
- powder-free examination gloves according EN 455
- glove length: 265 mm
- wall thickness: min. 0.05 mm

Examination and Protective Gloves Vinyl

Ambidextrous | non-sterile

Manyl® examination and protective gloves

Standard compliance	Manyl® examination gloves comply with EN 455. They are protective gloves for minimal risks according EN 420 and 374. (data sheet: www.bbraun.com ➔ Product Quick Finder ➔ Infection Prevention)
Donning	Manyl® gloves are easy to don due to their smooth surface and rolled rim.
Tactile properties	Because of the smooth material and light glove design, Manyl® gloves provide good sensitivity.

Examination and Protective Gloves

Made from vinyl | non-sterile

Manyl® Sensitive

Size	Sales unit	REF
S	100	6090210
M	100	6090230
L	100	6090250

- protective gloves against minimal risks according EN 420, EN 374, PPE 89/686/EEC category I
- powder-free examination gloves according EN 455
- wall thickness: min. 0.05 mm
- DOP-free | latex-free

Manyl® powdered

Size	Sales unit	REF
S	100	6090117
M	100	6090133
L	100	6090150

- protective gloves against minimal risks according EN 420, EN 374, PPE 89/686/EEC category I
- powdered examination gloves according EN 455
- wall thickness: min. 0.05 mm
- DOP-free | latex-free

PE Gloves and Finger Cots

For general purpose | non-sterile

Manuplast® | Finger cots

Manuplast®

Size	Sales unit	REF
S	100	6075010
L	100	6075053

- latex-free | powder-free
- made from polyethylene
- for non-clinical use

Finger cots

Size	Sales unit	REF
uni	100	9160906

- latex-free | powder-free
- made from polyethylene
- for general applications
- wide cuff

Finger cots

Size	Sales unit	REF
3 / M	100	6091032
4 / L	100	6091040
5 / XL	100	6091059

- latex | powder-free
- for cleanroom or general applications where only finger protection is required
- rolled rim

Surgical Gloves

Anatomically shaped | sterile

Vasco® surgical gloves are designed to meet highest requirements in the operating theatre and in aseptic working procedures.

Donning	Special washing procedures and a net-like inner lining structure of the Vasco® powder-free surgical gloves allow very easy donning in single and double gloving. The beaded conical cuff provides a safe border to the gown and well adjusted fit on the wrist.
Comfort	The specifically developed ergonomic design guarantees perfect fit and high comfort, hand fatigue is avoided.
Grip	The special friction factor (sliding over polished metal surface) of the Vasco® surgical gloves leads to an outstanding dry and wet grip performance and high acceptance in surgery.
Sensitivity	Vasco® surgical gloves have a distinguished record of glove resistance and safety in relation to wall thickness. Like a second skin, the sensitivity is not even compromised by double gloving.
Tolerance	Sensitizing substances are reduced to a minimum by sophisticated surface treatment, resulting in excellent skin tolerance.
Safety	The AQL of 1.0 for freedom of holes (water tightness test) ensures a high level of safety and personal protection in Vasco® OP (Vasco® Surgical: AQL 1.5 acc. EN 455).

Vasco® OP free

Size	Sales unit	REF
6	40 pairs	9208305
6.5	40 pairs	9208313
7	40 pairs	9208321
7.5	40 pairs	9208330
8	40 pairs	9208348
8.5	40 pairs	9208356
9	40 pairs	9208364

- high quality surgical gloves made from synthetical polyisoprene
- latex-free inner polymer coating
- powder-free

Vasco® OP Sensitive

Size	Sales unit	REF
6	40 pairs	6081002
6.5	40 pairs	6081010
7	40 pairs	6081029
7.5	40 pairs	6081037
8	40 pairs	6081045
8.5	40 pairs	6081053
9	40 pairs	6081060

- high quality surgical gloves made from natural rubber latex
- latex-free inner polymer coating
- powder-free

Vasco® OP Protect

Size	Sales unit	REF
6	50 pairs	6035000
6.5	50 pairs	6035019
7	50 pairs	6035027
7.5	50 pairs	6035035
8	50 pairs	6035043
8.5	50 pairs	6035051

- high quality surgical gloves made from natural rubber latex
- latex-free inner polymer coating
- lightly powdered

Vasco® Surgical

Size	Sales unit	REF Powder-free	REF Powdered
6	50 pairs	6081101	6035500
6.5	50 pairs	6081111	6035518
7	50 pairs	6081121	6035526
7.5	50 pairs	6081131	6035534
8	50 pairs	6081141	6035542
8.5	50 pairs	6081151	6035559
9	50 pairs	6081161	

- standard surgical gloves made from natural rubber latex
- powder-free (latex-free inner polymer coating) or powdered

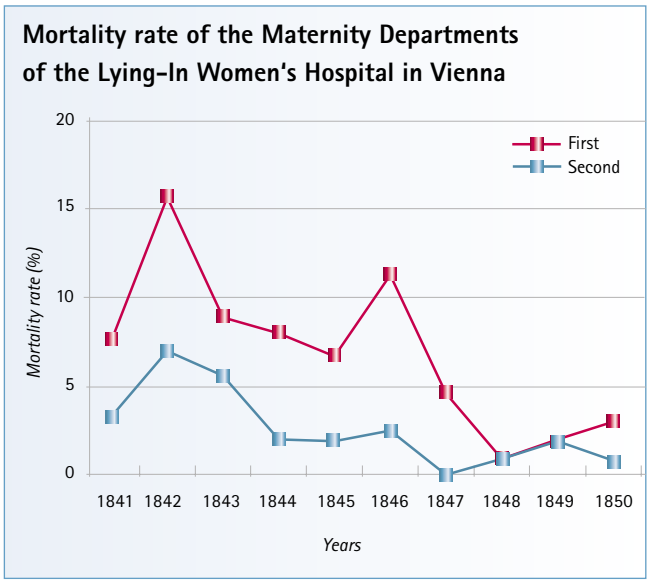
History of hand disinfection

Hygiene is the study of preventing diseases and maintaining and stabilising health. In everyday language the word is also used to describe a specific state with a similar meaning to «cleanliness».

The word hygiene comes from the Greek «hygieiné» and means «the art of health». It is derived from the name of the Greek goddess of health, Hygéia. In a more specific sense, hygiene is used to describe measures to prevent infectious diseases, especially cleansing and disinfection.

Cleanliness and disinfection were not seen as necessary in medicine until the first half of the 19th century. This meant that the tables surgeons operated on were almost never washed, which is why they were black so that the dried blood stains were not so obvious.

In the 1840s, **Ignaz Semmelweis** (1818–1865) was first able to prove hand hygiene can prevent diseases. As an assistant physician in the Maternity Department of the Vienna Lying-In Hospital, he looked into why the mortality rate due to puerperal fever was considerably higher on one ward where physicians



Maternal mortality rates in the First (care provided by doctors and medical students) and Second (midwife-assisted deliveries) Clinics at the Lying-In Women's Hospital, Vienna, before and after the introduction of hand hygiene using chlorinated lime in May, 1847[5]

and medical students worked (First Clinic) than on another ward where midwifery students were trained (Second Clinic). He discovered the reason for this when one of his colleagues was injured by a student's scalpel during a post-mortem examination and, a few days later, died of blood poisoning which is a disease with a similar development to puerperal fever. Semmelweis postulated that those participating in post-mortem examinations could infect mothers during ensuing obstetric examinations. Because midwifery students did not perform post-mortem operations, the incidence of puerperal fever was considerably lower on the second hospital ward. Semmelweis thus instructed his students to disinfect their hands with a solution of chlorinated lime before examining the mothers. This effective measure reduced the mortality rate from 12.3 % to 1.3 %.

However, physicians and students alike opposed the measure. On the one hand, the disease pathogens themselves (bacteria and fungi) were still unknown at this point and, on the other hand, the medical staff did not want to accept that they themselves were transmitting infectious diseases instead of healing them.

Sir **Joseph Lister** (1827–1912), a Scottish surgeon, successfully used carbolic acid to disinfect wounds prior to surgery. His initial opinion was that infections were caused by pathogens in the air. This is why, for a time, fine carbolic mist was sprayed above the patient during operations. This, however, came to an end when it was recognised that infections are mainly caused by hands and objects coming into contact with wounds.

Lister became aware of a paper published in 1868 by **Louis Pasteur** (1822 –1895), which showed that rotting and fermentation could occur without oxygen if micro-organisms were present. Lister confirmed this with his own experiments. If micro-organisms were causing gangrene, the problem was how to get rid of them. Pasteur suggested three methods: to filter them out, heat them up, or expose them to chemical solutions. The first two were inappropriate in a human wound so Lister experimented with the third.

Carbolic acid (phenol) had been in use as a means of deodorizing sewage, so Lister tested the results of spraying instruments, surgical incisions, and dressings with a solution of it. Lister found that carbolic acid solution swabbed on wounds markedly reduced the incidence of gangrene, and subsequently published a series of articles on the *Antiseptic Principle of the Practice of Surgery* describing this procedure on March 16th, 1867 in the journal *The Lancet*.

The controversy and uncertainty surrounding the nature and significance of microbes for the development of wound diseases started to dissipate only after **Robert Koch** (1843 –1910) proved without doubt the «diversity of pathogenic bacteria» with his investigations into experimental wound infections.

Although the necessity and efficacy of hand hygiene measures has been well-established for more than 100 years, hand hygiene is still an extremely relevant topic.

On October 25th, 2002,[6] the **CDC (Centre of Disease Control of Atlanta) released new guidelines that advise the use of alcohol-based hand rubs** in conjunction with traditional soap and water, and sterile gloves to protect patients in healthcare settings.

The World Health Organisation (WHO) has specifically entrusted the management of its patient safety programme, the **Global Patient Safety Challenge**, to Professor Didier Pittet, Director of the Geneva University Hospital (HUG) infection prevention and control programme. The project is a core element of the WHO World Alliance for Patient Safety, launched in **October 2004** (www.who.int/patientsafety/en/). Its aim is to address the issue of the prevention of health care-associated infection under the banner **Clean Care is Safer Care**.

Professor Didier Pittet is an internationally recognised expert in hospital hygiene and infection prevention and control, and continues to support a strategy model to prevent nosocomial infections, known in scientific literature as the «Geneva model».[8]

On April 14th, 2005, the Geneva University Hospital (HUG) was designated by the WHO as a centre of reference for the prevention of nosocomial infections. This recognition rewards an institutional prevention strategy and ten years of endeavour.

The World Health Organization (WHO) SAVE LIVES:
Clean Your Hands was launched in 2009. This global, annual campaign was developed as an extension of the WHO Clean Care is Safer Care programme. It is targeted at healthcare facilities and has the aim of 'Bringing people together to improve and sustain hand hygiene' every 5th of May.

Parallel on May 5th, 2009 the WHO Guidelines on Hand Hygiene in Health Care, as the first global infection guideline have been published.

Private Organizations for Patient Safety (POPS)
With the aim of working with private industry companies, who in particular focus on hand hygiene related products in the first instance, the WHO Clean Care is Safer Care programme launched Private Organization for Patient Safety (POPS) in May 2012.

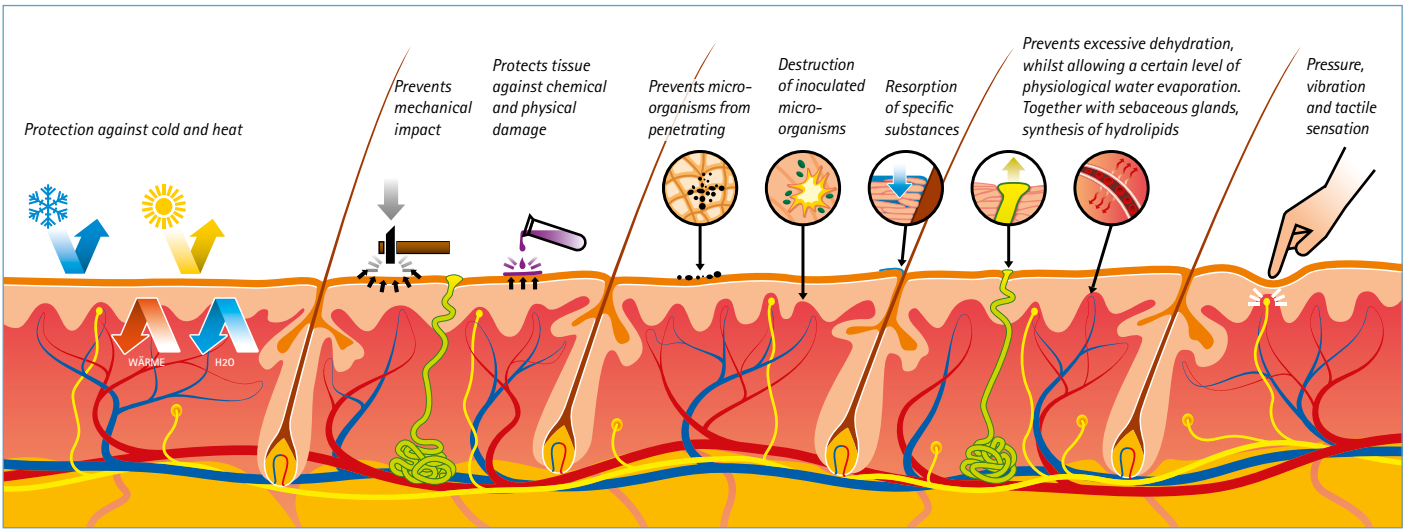
The goal of the collaboration is to benefit patients, and to reduce health-care associated infections through improvements in hand hygiene, based on the overall aim of the WHO Clean Care is Safer Care Programme by
a) increasing education and awareness on the importance of hand hygiene in health care;
b) improving access to commodities (alcohol-based handrub, water, soap, towels).

The skin

The Latin word for skin is «cutis», and skin is the human body's largest and heaviest organ in terms of area, and most diverse organ in terms of function. Depending on body circumference and size, its surface area may span between 1.5 and 2 m^2, and can weigh up to 10 kg. The skin is a vital organ that forms the external surface of the organism and thus the barrier between the external and internal environment. Because of its close connection to the psyche, it is also called the «mirror of the soul» because problems with the largest human organ understandably impair one's whole joie de vivre.

The skin's functions

- **Protects tissues** against chemical, physical and, in particular, mechanical damage and prevents micro-organisms from penetrating
- **Prevents excessive dehydration**, whilst at the same time allowing a certain level of physiological water evaporation (insensible perspiration)
- **Acts as a heat regulator** by constricting or widening the skin vessels and by evaporating perspiration
- **Supports renal activity** to a slight degree through secretion of perspiration
- **Transmits pressure, temperature and pain stimuli as a sensory organ** through its numerous receptors
- **The skin's physiological pH value is about 5.5**



The skin's layers

The external skin (cutis) basically has three main layers

- **Epidermis** (outermost layer)
- **Dermis** (corium layer)
- **Hypodermis** (subcutaneous layer)

The epidermis

Is one of the epithelial tissues and is a multi-layered horny squamous epithelium that is usually between 0.03 and 0.05 millimetres thick. It can, however, achieve thicknesses of several millimetres on the palms of the hands and soles of the feet.

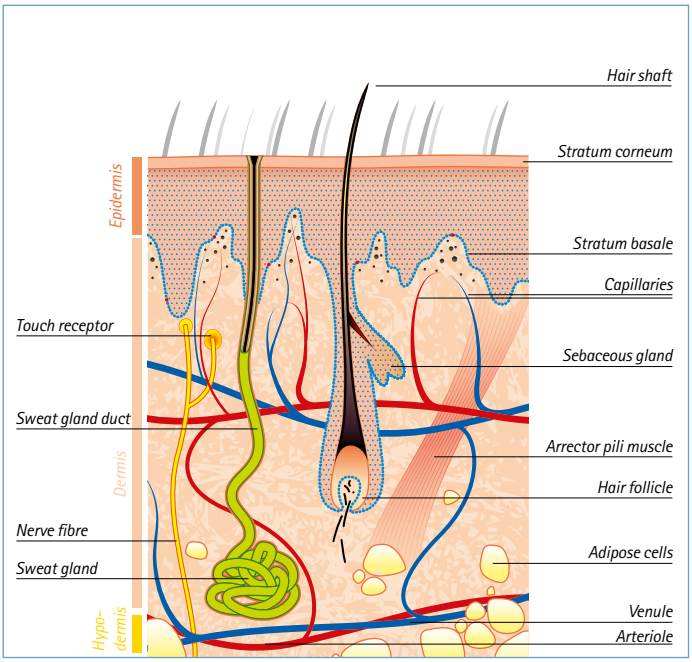
The following layers can be distinguished from the outside to the inside:

- **Stratum corneum** (horny layer): consists of flattened, completely horny, denucleated cells that continuously slough off at the surface in the form of small flakes. A human being loses about 1.5 million skin flakes a minute. The stratum corneum is the skin's barrier and storage system.

- **Stratum lucidum** (clear layer): consists of cells that refract a great deal of light.
- **Stratum granulosum** (granular layer): the stratum granulosum is made up of 2 to 5 rows of flattened cells with small nuclei. The epidermal lipids responsible for the barrier function of the epidermis are found in this layer.
- **Stratum spinosum** (prickle cell layer): this is where 4 to 8 layers of polygonal cells are responsible for strengthening cell layers.
- **Stratum basale** (basal cell layer): consists of a layer of cylindrical cells that connect the epithelial layer to the dermis.

The dermis

Consists mainly of connective tissue fibres and serves to nourish and anchor the epidermis. This is where the blood vessel system with its fine capillaries provides nourishment to the stratum basale of the epidermis. Sebaceous glands and sweat glands originate in the lower dermis. The dermis contains smooth muscles and blood vessels that play an important role in temperature regulation.



The dermis consists of:

- **Stratum papillare** (papillary layer): rich in fine fibrillae, cells and capillaries. The stratum papillare also contains nerve fibres.
- **Stratum reticulare** (reticular layer): consists of tightly interwoven bundles of collagen fibres. Elastic fibres, which are also reticulated and ensure the skin's elasticity, and fibroblasts are found between these bundles.

The hypodermis

Forms the base for the layers of skin above it and contains larger blood vessels, nerves for the upper layers of skin, subcutaneous fat to protect against the cold and for energy storage, and loose connective tissue. The sensory cells for strong pressure stimuli are located in the hypodermis.

Skin appendages

The skin's appendages include hairs with their sebaceous glands and hair erector muscles, nails and sweat glands. Teeth, horns and other structures are formed by the skin. Last, but not least, the mammary gland is also a modified skin gland.

By looking at the skin in more detail, a fine contour becomes visible. This is used to distinguish two types of skin:

- Hairless skin is found on the fingers, the palm of the hand and the sole of the foot. Here the epidermis reveals fine papillary lines (skin ridges) that result from the projection of rows of papillae from the dermis. The skin ridges form an individual pattern consisting of different geometrical figures that vary from individual to individual (fingerprint).

- Hairy skin: here, the surface reveals diamond-shaped areas (areolae cutaneae) that are separated by fine furrows. The furrows develop in epidermal areas without papillae and disappear when the skin is stretched taut. These are reserve wrinkles because the epidermis is less elastic than the dermis.

The size of the shapes on the skin depends on the region of the body.

The hands

Hands are high-precision instruments that are challenged to achieve outstanding performances every day during operations. They are placed under equal pressure in patient care and nursing where – despite ever increasing medical progress – the main emphasis is still on manual work.

It has, however, been proven that hands are also one of the most frequent transmitters of infection pathogens, and that they thus represent a potential risk for patients, especially for those who are particularly susceptible to infections because of a weakened immune system. This is why hygienic hand disinfection is indispensable.

Skin protection

Skin is not only placed under strain through professional activity, but also through constantly increasing environmental strain, which can cause various skin problems.

Work-induced skin diseases, such as eczema, which ranks first in the list of reported occupational diseases, have increased dramatically over the past years, while measures to reduce their development have become increasingly important. This is why skin protection is an essential component of work safety and, in the context of occupationally acquired skin diseases, skin protection usually means «hand protection».

There is no question that consistent infection prophylaxis in the form of specific hand disinfection measures can markedly reduce the number of nosocomial infections. Nonetheless, even today there is a gap between what is known and what is practised. While unconsciously «forgetting» to disinfect one's hands should be a thing of the past due to the broad dissemination of information, another problem is now coming to the fore: when, on a daily basis, you work with liquid media, wear gloves, and wash and disinfect your hands frequently, your hands suffer.

Damaged skin can no longer be properly disinfected as microbes remain in the cracked and rough areas, and cannot be reached by the disinfectant. The result is a decrease in proper hand hygiene, especially hand disinfection, with the accompanying increase in the risk of infection transmission.

If the skin or hands are adversely affected by external or internal influences, i.e. if they are exposed to excessive strain and the skin's own regenerative mechanisms are no longer able to keep up, skin reacts in an unmistakable manner, and consequences include itching, scaly skin or cracked skin. Eczema, an inflammatory, non-infectious disease of the epidermis and/or upper dermis, may also be a common occurrence. The tasks of an ideally balanced range of products for cleansing, disinfection and care include minimising the occurrence of this «eczema caused by wear and tear» and thus preventing the ensuing allergic contact eczema.

If skin irritation, such as redness and stinging, occurs, this is usually connected to hand disinfection. However, even if the symptoms occur immediately after disinfection, the cause is usually pre-existing skin damage. It becomes apparent during disinfection because it is easy for alcohol to reach living cells in the epidermis and cause irritation such as stinging. However, the causes tend to be, for example, frequent cleansing with excessively hot water, weather influences, or an unrecognised atopic syndrome.

The transmission of disease pathogens usually occurs through direct or indirect person-to-person contact. In this context, contact via the hands plays a key role.

It has been proven that hand disinfection measures represent the most cost-effective and generally effective method of interrupting this chain of infection. The aim of hygienic hand disinfection is to reduce effectively the transient (= external) bacterial flora on the surface of the hand within a short period of time to minimise the risk of transmitting an infection. These bacteria are transmitted to the skin via direct or indirect contact, and colonise it temporarily.

Because of its pH value of 5.5 and its relatively low level of moisture, healthy skin provides good growth conditions for predominantly gram-positive bacterial flora. This flora is known as resident flora. Resident bacteria are characterised by particularly strong adhesion. They mainly colonise the upper layers of the stratum corneum and the upper sections of hair follicles and the excretory ducts of sebaceous glands. About 20 % of micro-organisms can still be found in layers deeper than 0.3 mm. Surgical hand disinfection serves to reduce this bacterial flora and requires longer contact times than hygienic hand disinfection.

It has been shown in practice that despite obvious arguments and clinical studies, the implementation of hand hygiene measures by professional medical staff is, in part, unsatisfactory. The EURIDIKI study carried out in Germany and Austria evaluated knowledge, insight and behaviour with regard to hygienic hand disinfection based on a total of 317 interviews. «Lack of self-discipline, incorrect habits and convenience» were listed as essential reasons for inadequate hand disinfection. The analysis of the survey on problems connected to applying the products revealed that those surveyed felt that rubbing-in takes too long and requires patience. People felt that their hands were «unusable» for a long period of time. The authors of the study emphasised that the way the disinfectant was applied was, on average, 60% responsible for insufficient hand hygiene.

Looking at the results of the survey leads to the conclusion that the longer it takes to apply the product for the indication in question, the lower hand disinfection compliance becomes because the user's estimate of «when the prescribed contact time is over» and «whether enough preparation has been applied» fails with increasing contact times.

Checklist of causes of skin problems

- excessively dry skin
- mechanically damaged skin
- skin damaged by chemical substances
- micro-organisms (infections)
- genetic predisposition towards low-tolerance skin (atopic syndrome)
- not wearing gloves when required
- intolerance against glove material and substances of content
- donning gloves when hands are still wet
- frequent intensive washing of hands
- perfume allergy
- colourant allergy

The solutions

Four factors are decisive in the prevention of occupational skin diseases:

- special skin protection or wearing gloves
- specific and gentle cleansing of skin
- specific skin disinfection adapted to the skin and the situation
- effective skin care

Skin protection products

Should be used before and during activities that put strain on the skin. These are measures that prevent contact between contaminants and skin. It is essential to be aware of the mode of action and the type of contaminants against which protection needs to be provided.

Cleansing the skin

Cleansing the skin should be adapted to the contamination that occurs in the workplace. In this context, it is important to use the correct preparation sparingly. After cleansing, attention should be paid to drying the hands well.

Skin disinfection

Hands should be disinfected before and after direct contact with patients and after contact with organic material (blood, urine, stool, saliva). It goes without saying that medical staff should not wear jewellery, including watches and rings, on their hands. Disinfection occurs in accordance with European standards (EN 1500 and EN 12791) and hands are rubbed until they are completely dry.

Skin care

Skin care measures should always be taken before starting work, after activities that put strain on the skin, and upon finishing work. O/W (oil-in-water) or W/O (water-in-oil) emulsions should be used for this purpose. A less greasy preparation should be used before starting work than upon finishing work or at night.

Wearing gloves

Rising awareness regarding natural rubber latex allergens and technology breakthroughs in synthetic materials have lead to an increased use of gloves made from nitrile and other synthetic materials, which in some regards even exceed the performance of their natural counterpart.

Recommendations

- Wash your hands for max. 1 minute and only if they are visibly dirty before disinfecting them. Excessively long and intensive cleansing before disinfection can lead to swelling and hypersensitivity of the skin. The bacteria of the resident flora rise to the surface of the skin and can affect disinfection.
- Use lukewarm water. Hot water causes the stratum corneum to swell and reduces the skin's protective lipid layer.
- Only use mild soaps and wash lotions with a pH value adapted to the skin.
- If using a brush, use it only under the finger nails, and use a soft brush. A hard brush could damage the upper layers of the skin.
- Always rinse well to remove all wash lotion or soap residue. Residue can irritate the skin and lead to the inactivation of disinfectants. In addition, permanent contact with solvents, detergents and other substances can increase the risk of an allergy.
- Dry your hands well after washing them. If gloves are worn, residual moisture can cause the skin to swell rapidly and thus undermine the barrier function of the epidermis which should protect the deeper skin layers.
- Apply care lotion to your hands several times a day. Use water-in-oil emulsions in winter because they contain more greasy substances.
- Wearing gloves for a long time leads to an unhealthy environment if your hands are still damp when you put on the gloves.
- «Natural» soaps lead to an alkalinisation of the skin with an equivalent effect on the protective lipid layer.
- Apply disinfectants only to dry hands.
- Rub in alcoholic preparations until they are dry.
- Do not use pure alcohols, but choose preparations with skin care components specially adapted to your skin.
- Use a protective agent prior to contact with water.
- Use absorbable single-use towels.
- During your breaks, apply rich emulsions or skin care substances to your hands to ensure intensive care.
- Always rub in hand creams completely.

Blackbox and FluoRub

In addition to a correctly applied rubbing-in technique, user motivation is essential to the success of disinfection. Only if people understand why a measure has been set up will they perform the necessary procedures willingly and conscientiously!

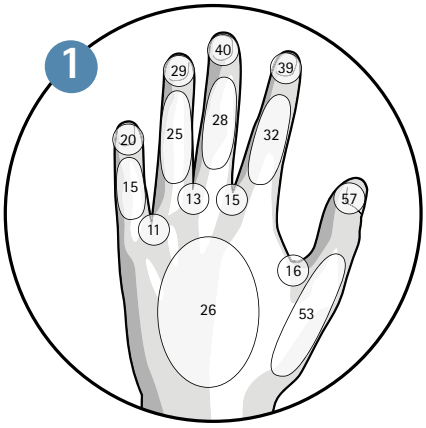
In the context of a training session and in accordance with locally applicable hygiene standards, it is necessary to provide on a regular basis answers to questions such as who has to carry out hygienic hand disinfection, when, how often and with which means of application, what infrastructure is necessary, whether jewellery or even painted false fingernails are allowed.

After FluoRub (fluorescent hand disinfectant for training purposes) has been rubbed in, the Blackbox uses UV light to reveal areas that have not been covered with the hand rub. The skin remains dark in uncovered areas, which is where bacteria can survive. However, after correct and complete application, hands are completely illuminated in blue. The training concept has been used successfully for more than ten years now. The diagram shows the location and frequency of application gaps.[7]

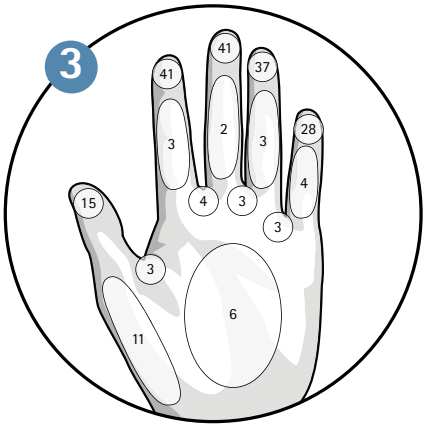
Epidermal skin test

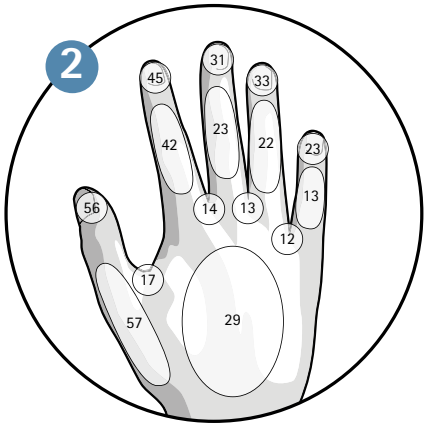
What if you still have a problem? We can help here, too! Allergies can never be completely excluded despite a sophisticated product concept. There are too many environmental influences affecting us on a daily basis. If you notice a potentially allergic reaction, we will make epidermal test solutions with the product's individual substances available to your dermatologist on request. This provides you with the possibility of determining the cause of a potentially allergic reaction. At the same time we can use this database to offer you specific alternatives so that you can protect yourself effectively against infections in future, too, with substances that are compatible with your skin. It goes without saying that all data is treated in a confidential manner.

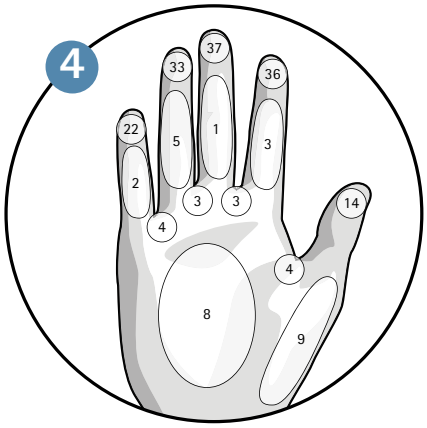
Wetting short falls on the dorsum of the hands following hand disinfection (percentage)[7]



Wetting short falls on the palms following hand disinfection (percentage)[7]







Literature

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Softa-Man®/Softa-Man® acute
Softa-Man® pure
Softa-Man® ViscoRub
Softalind® ViscoRub / Softalind® 999
Softalind® Hand Sanitizer
Softalind® pure

Zusammensetzung:
100 ml Lösung enthalten:
Wirkstoffe:
Ethanol (100%) 45 g, 1-Propanol (Ph. Eur.) 18 g
Sonstige Bestandteile:
Softa-Man®: gereinigtes Wasser, Diisopropyladipat, Macrogol-6-glycerolcaprylocaprat (Ph. Eur.), Dexpanthenol, (+/-)alpha-Bisabolol, Geruchsstoffe (enthalten Limonen und Linalool), Allantoin.
Softa-Man® acute: gereinigtes Wasser, Macrogol 4000, Butan-2-on, Octyldodecanol (Ph. Eur.), Glycerol, Phosphorsäure 85%.
Softa-Man® pure: gereinigtes Wasser, Isopropylmyristat
(Ph. Eur.), Octyldodecanol (Ph. Eur.), Dexpanthenol, Glycerol, (+/-)alpha-Bisabolol, Allantoin, Denatoniumbenzoat.
Softa-Man® ViscoRub: gereinigtes Wasser, Butan-2-on, Glycerol, Isopropylmyristat (Ph. Eur.), (Hexadecyl, octadecyl)[(RS)-2-ethylhexanoat], Octyldodecanol (Ph. Eur.), Edetol, Acrylate (C10-30 Alkylacrylat-Crosspolymer), (+/-) alpha-Bisabolol.

Anwendungsgebiete:
Hygienische und chirurgische Händedesinfektion.

Gegenanzeigen:
Überempfindlichkeit (Allergie) gegenüber Ethanol oder 1-Propanol oder einem der sonstigen Bestandteile.

Nebenwirkungen:
Insbesondere bei häufiger Anwendung kann es zu Hautirritationen wie Rötung und Brennen kommen.
Auch sind Kontaktallergien möglich.

Warnhinweise:
entzündlich. Behälter dicht geschlossen halten.
Von Zündquellen fernhalten. Nicht rauchen!
Nicht in die Augen bringen. Nicht auf verletzter Haut oder auf Schleimhäuten anwenden.
Nur zur äußerlichen Anwendung.
52.3 Gew.-% Ethanol
20.9 Gew.-% 1-Propanol
21 °C Flammpunkt nach DIN 51 755

Stand der Information: 02/2012

Pharmazeutischer Unternehmer:
B. Braun Melsungen AG,
D-34209 Melsungen

Promanum® N/Promanum® pure

Zusammensetzung:
100 g Lösung enthalten:
Wirkstoffe:
Ethanol (100%) 73.4 g, 2-Propanol (Ph. Eur.) 10.0 g
Sonstige Bestandteile:
gereinigtes Wasser, Isopropylmyristat (Ph. Eur.), Butan-2-on, Sorbitol (Ph. Eur.), (Hexadecyl, octadecyl)[(RS)-2-ethylhexanoat], Povidon K 30.

Anwendungsgebiete:
Hygienische und chirurgische Händedesinfektion.

Gegenanzeigen:
Überempfindlichkeit (Allergie) gegenüber Ethanol oder 2-Propanol oder einem der sonstigen Bestandteile.

Nebenwirkungen:
Kontaktallergie. Hautirritationen wie Rötung und Brennen insbesondere bei häufiger Anwendung.

Warnhinweise:
Leicht entzündlich.
Behälter dicht geschlossen halten.
Von Zündquellen fernhalten. Nicht rauchen!
Nicht in die Augen bringen. Nicht auf verletzter Haut oder auf Schleimhäuten anwenden.
Nur zur äußerlichen Anwendung.
14 °C Flammpunkt nach DIN 51755.

Stand der Information: 03/2012

Pharmazeutischer Unternehmer:
B. Braun Melsungen AG,
34209 Melsungen

	Natural Rubber Latex
	Free of Natural Rubber Latex
	Conformity for Food Contact
	Protection against Microorganisms (Biohazards)
	Low Protection against Chemical Hazards
CE	Conformity with Medical Device Directive and PPE Directive 89/686/EEC
STERILE R	Sterilized by Gamma Radiation

For detailed information please visit **www.bbraun.com**
➔ Product Quick Finder ➔ Infection Prevention

This international brochure contains information which is targeted to a wide range of audiences and could contain product details or information otherwise not accessible or valid in your country.

Private Organizations for Patient Safety

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