

Material Safety Data Sheet Cover-Sheet – This page provides additional New Zealand specific information for this product and must be read in conjunction with the Safety Data Sheet (SDS) attached

Product Name: Microshield 4 Chlorhexidine Surgical Handwash

Manufacturer: Schulke

SDS Expiry: 1 November 2024

Supplier Details: Henry Schein New Zealand  
23 William Pickering Drive, Albany  
PO Box 101 140, North Shore, Auckland 0745  
Ph. 0800 808 855  
[www.henryschein.co.nz](http://www.henryschein.co.nz)

Emergency Contacts: Poisons/Hazardous Chemical Info Centre –  
0800POISON/0800764766 (24 Hours)  
Phone 111 for Fire, Ambulance or Police

HSNO Class/Category: 6 / 8

HSNO Group Standard: Dental Products Subsidiary Hazard Group Standard 2020  
HSR002558

Statements/Pictograms: As per attached Safety Data Sheet (SDS)

Date Prepared: This coversheet was prepared - May 2021

This SDS coversheet has been produced by Henry Schein NZ and has been prepared in accordance with NZ EPA advice on making overseas SDS compliant to HSNO Act. The above information is based on the present state of our knowledge of the product at the time of publication. It is given in good faith, no warranty is implied with respect to the quality or the specifications of the product. Users must satisfy that the product is entirely suitable for their purpose. The SDS and this coversheet may be revised from time to time, please ensure you have a current copy.

# MICROSHIELD 4 CHLORHEXIDINE SURGICAL HANDWASH

## Schulke New Zealand Ltd

Chemwatch: 60-3467  
Version No: 3.1.1.1  
Safety Data Sheet according to HSNO Regulations

Chemwatch Hazard Alert Code: 1

Issue Date: 01/11/2019  
Print Date: 07/09/2020  
L.GHS.NZL.EN

### SECTION 1 Identification of the substance / mixture and of the company / undertaking

#### Product Identifier

Product name	MICROSHIELD 4 CHLORHEXIDINE SURGICAL HANDWASH
Synonyms	schulke code: 70000354, 70000360, 70000350,
Other means of identification	Not Available

#### Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Antiseptic skin cleanser surgical hand washing and preoperative body washing. For external use only. SDS are intended for use in the workplace. For domestic-use products, refer to consumer labels.
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#### Details of the supplier of the safety data sheet

Registered company name	Schulke New Zealand Ltd
Address	14/188 Quay St Auckland 1010 New Zealand
Telephone	0800 724 855
Fax	Not Available
Website	<a href="http://www.schuelke.co.nz">www.schuelke.co.nz</a>
Email	info.nz@schuelke.com

#### Emergency telephone number

Association / Organisation	NZ Poisons Centre
Emergency telephone numbers	0800 764 766
Other emergency telephone numbers	Not Available

### SECTION 2 Hazards identification

#### Classification of the substance or mixture

**Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Not regulated for transport of Dangerous Goods.**

#### ChemWatch Hazard Ratings

	Min	Max	
Flammability	0		
Toxicity	0		
Body Contact	1		0 = Minimum 1 = Low
Reactivity	0		2 = Moderate 3 = High
Chronic	0		4 = Extreme

Classification [1]	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI
Determined by Chemwatch using GHS/HSNO criteria	6.3A, 6.4A

#### Label elements

Hazard pictogram(s)	
Signal word	Warning

#### Hazard statement(s)

H315	Causes skin irritation.
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## MICROSHIELD 4 SURGICAL HANDWASH

H319	Causes serious eye irritation.
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**Supplementary statement(s)**

Not Applicable

**Precautionary statement(s) Prevention**

P280	Wear protective gloves/protective clothing/eye protection/face protection.
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**Precautionary statement(s) Response**

P321	Specific treatment (see advice on this label).
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

**Precautionary statement(s) Storage**

Not Applicable

**Precautionary statement(s) Disposal**

Not Applicable

**SECTION 3 Composition / information on ingredients****Substances**

See section below for composition of Mixtures

**Mixtures**

CAS No	%[weight]	Name
18472-51-0	4	<u>chlorhexidine gluconate</u>
67-63-0	<10	<u>isopropanol</u>
Not Available	<10	ethoxylated alkylphenol
Not Available	<10	fatty acid diethanolamide
64-19-7	<1	<u>acetic acid glacial</u>
Not Available	<10	dye
Not Available	<10	fragrance
9004-34-6	<10	<u>cellulose</u>
7732-18-5	>60	<u>water</u>

**SECTION 4 First aid measures****Description of first aid measures**

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Wash out immediately with fresh running water.</li> <li>▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▶ Seek medical attention without delay; if pain persists or recurs seek medical attention.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>No adverse effects anticipated from normal use.</p> <ul style="list-style-type: none"> <li>▶ Concentrate and diluted solution is readily removed with water.</li> <li>▶ Abraded or broken skin should be washed carefully and thoroughly.</li> <li>▶ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> </ul>

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5 Firefighting measures****Extinguishing media**

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should

Continued...

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take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- ▶ foam.
- ▶ dry chemical powder.
- ▶ carbon dioxide.

## Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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## Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> <li>▶ <b>DO NOT</b> approach containers suspected to be hot.</li> <li>▶ Cool fire exposed containers with water spray from a protected location.</li> <li>▶ If safe to do so, remove containers from path of fire.</li> <li>▶ Equipment should be thoroughly decontaminated after use.</li> </ul>
Fire/Explosion Hazard	<ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered to be a significant fire risk.</li> <li>▶ Expansion or decomposition on heating may lead to violent rupture of containers.</li> <li>▶ Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).</li> <li>▶ May emit acrid smoke.</li> </ul> <p>Decomposition may produce toxic fumes of: carbon dioxide (CO<sub>2</sub>) nitrogen oxides (NO<sub>x</sub>) other pyrolysis products typical of burning organic material.</p>

## SECTION 6 Accidental release measures

## Personal precautions, protective equipment and emergency procedures

See section 8

## Environmental precautions

See section 12

## Methods and material for containment and cleaning up

Minor Spills	<p>Slippery when spilt.</p> <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Avoid breathing vapours and contact with skin and eyes.</li> <li>▶ Control personal contact with the substance, by using protective equipment.</li> <li>▶ Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>▶ Wipe up.</li> <li>▶ Place in a suitable, labelled container for waste disposal.</li> </ul>
Major Spills	<p>Slippery when spilt. Minor hazard.</p> <ul style="list-style-type: none"> <li>▶ Clear area of personnel.</li> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Control personal contact with the substance, by using protective equipment as required.</li> <li>▶ Prevent spillage from entering drains or water ways.</li> <li>▶ Contain spill with sand, earth or vermiculite.</li> <li>▶ Collect recoverable product into labelled containers for recycling.</li> <li>▶ Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal.</li> <li>▶ Wash area and prevent runoff into drains or waterways.</li> <li>▶ If contamination of drains or waterways occurs, advise emergency services.</li> </ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 Handling and storage

## Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> <li>▶ Limit all unnecessary personal contact.</li> <li>▶ Wear protective clothing when risk of exposure occurs.</li> <li>▶ Use in a well-ventilated area.</li> <li>▶ <b>When handling DO NOT eat, drink or smoke.</b></li> <li>▶ Always wash hands with soap and water after handling.</li> <li>▶ Avoid physical damage to containers.</li> <li>▶ Use good occupational work practice.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>
Other information	<ul style="list-style-type: none"> <li>▶ Store in original containers.</li> <li>▶ Keep containers securely sealed.</li> <li>▶ Store in a cool, dry, well-ventilated area.</li> <li>▶ Store away from incompatible materials and foodstuff containers.</li> <li>▶ Protect containers against physical damage and check regularly for leaks.</li> <li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li> </ul>

## Conditions for safe storage, including any incompatibilities

Suitable container	▶ Lined metal can, lined metal pail/ can.
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	<ul style="list-style-type: none"> <li>▶ Plastic pail.</li> <li>▶ Polyliner drum.</li> <li>▶ Packing as recommended by manufacturer.</li> <li>▶ Check all containers are clearly labelled and free from leaks.</li> </ul>
<b>Storage incompatibility</b>	None known

## SECTION 8 Exposure controls / personal protection

## Control parameters

## Occupational Exposure Limits (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	isopropanol	Isopropyl alcohol	400 ppm / 983 mg/m <sup>3</sup>	1230 mg/m <sup>3</sup> / 500 ppm	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	acetic acid glacial	Acetic acid	10 ppm / 25 mg/m <sup>3</sup>	37 mg/m <sup>3</sup> / 15 ppm	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	cellulose	Cellulose (paper fibre)	10 mg/m <sup>3</sup>	Not Available	Not Available	Not Available

## Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
isopropanol	Isopropyl alcohol	400 ppm	2000* ppm	12000** ppm
acetic acid glacial	Acetic acid	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
chlorhexidine gluconate	Not Available	Not Available
isopropanol	2,000 ppm	Not Available
acetic acid glacial	50 ppm	Not Available
cellulose	Not Available	Not Available
water	Not Available	Not Available

## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
chlorhexidine gluconate	E	≤ 0.1 ppm

## Notes:


Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

## MATERIAL DATA

## Exposure controls

<b>Appropriate engineering controls</b>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p>										
	<p>General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.</p>										
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	Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.
<b>Personal protection</b>	
<b>Eye and face protection</b>	No special equipment for minor exposure i.e. when handling small quantities. <b>OTHERWISE:</b> <ul style="list-style-type: none"> <li>▶ Safety glasses with side shields.</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	No special equipment needed when handling small quantities. <b>OTHERWISE:</b> Wear general protective gloves, e.g. light weight rubber gloves.
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	No special equipment needed when handling small quantities <b>OTHERWISE:</b> <ul style="list-style-type: none"> <li>▶ Overalls</li> <li>▶ Eyewash unit.</li> </ul>

**Recommended material(s)****GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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Material	CPI
NEOPRENE	A
BUTYL	C
BUTYL/NEOPRENE	C
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NITRILE	C
NITRILE+PVC	C
PE	C
PE/EVAL/PE	C
PVA	C
PVC	C
SARANEX-23	C
TEFLON	C
VITON	C

\* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

**NOTE:** As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

**Respiratory protection**

Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AB-AUS P3	-	AB-PAPR-AUS / Class 1 P3
up to 50 x ES	-	AB-AUS / Class 1 P3	-
up to 100 x ES	-	AB-2 P3	AB-PAPR-2 P3 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

**SECTION 9 Physical and chemical properties****Information on basic physical and chemical properties**

<b>Appearance</b>	Pale pink viscous liquid with a cologne fragrance; partly mixes with water.		
<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	1.02

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<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	5.3	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	Not Available	<b>Viscosity (cSt)</b>	Not Available
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	Not Applicable	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Applicable	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Applicable	<b>Volatile Component (%vol)</b>	Not Available
<b>Vapour pressure (kPa)</b>	Not Available	<b>Gas group</b>	Not Available
<b>Solubility in water</b>	Partly miscible	<b>pH as a solution (1%)</b>	Not Available
<b>Vapour density (Air = 1)</b>	Not Available	<b>VOC g/L</b>	Not Available

## SECTION 10 Stability and reactivity

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	Product is considered stable and hazardous polymerisation will not occur.
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

## SECTION 11 Toxicological information

## Information on toxicological effects

<b>Inhaled</b>	Not normally a hazard due to non-volatile nature of product The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
<b>Ingestion</b>	The liquid is mildly discomforting Ingestion may result in nausea, abdominal irritation, pain and vomiting
<b>Skin Contact</b>	Not considered to cause discomfort through normal use. Discontinue use if irritation occurs
<b>Eye</b>	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
<b>Chronic</b>	Chronic ingestion of chlorhexidine can result in liver and kidney damage. There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.

<b>MICROSHIELD 4 SURGICAL HANDWASH</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
<b>chlorhexidine gluconate</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	25 mg/kg <sup>[2]</sup> Oral (rat) LD50: 2000 mg/kg <sup>[2]</sup>	Not Available
<b>isopropanol</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	223 mg/kg <sup>[2]</sup>	Eye (rabbit): 10 mg - moderate
	Inhalation (rat) LC50: 72.6 mg/l/4h <sup>[2]</sup>	Eye (rabbit): 100 mg - SEVERE
	Oral (dog) LD50: =4828 mg/kg <sup>[2]</sup>	Eye (rabbit): 100mg/24hr-moderate
	Oral (mouse) LD50: =4475 mg/kg <sup>[2]</sup>	Skin (rabbit): 500 mg - mild
	Oral (mouse) LD50: 3600 mg/kg <sup>[2]</sup>	
	Oral (rabbit) LD50: 6410 mg/kg <sup>[2]</sup>	
	Oral (rat) LD50: =4396 mg/kg <sup>[2]</sup>	
	Oral (rat) LD50: =5045 mg/kg <sup>[2]</sup>	
	Oral (rat) LD50: =5338 mg/kg <sup>[2]</sup>	

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acetic acid glacial	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: 1060 mg/kg <sup>[2]</sup>	Eye (rabbit): 0.05mg (open)-SEVERE
	Oral (rat) LD50: 3310 mg/kg <sup>[2]</sup>	Skin (human):50mg/24hr - mild Skin (rabbit):525mg (open)-SEVERE
cellulose	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >2000 mg/kg <sup>[2]</sup>	Not Available
	Inhalation (rat) LC50: >5.8 mg/l/4H <sup>[2]</sup>	
water	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (rat) LD50: >90000 mg/kg <sup>[2]</sup>	Not Available
<b>Legend:</b>	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

<b>CHLORHEXIDINE GLUCONATE</b>	<p>The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.</p> <p>In acute toxicity studies using laboratory animals, chlorhexidine diacetate is mildly to moderately toxic when administered by inhalation, oral and dermal routes. However, in repeat primary eye irritation studies, the chemical is severely toxic.</p> <p>In a subchronic dermal rabbit toxicity study systemic effects included degenerative changes in the livers of females. In a developmental toxicity study in rats, no observable malformations nor signs of developmental toxicity were found at any dose level tested.</p> <p>A battery of mutagenicity studies were negative for mutagenic effects.</p>
<b>ISOPROPANOL</b>	<p>For isopropanol (IPA):</p> <p><b>Acute toxicity:</b> Isopropanol has a low order of acute toxicity. It is irritating to the eyes, but not to the skin. Very high vapor concentrations are irritating to the eyes, nose, and throat, and prolonged exposure may produce central nervous system depression and narcosis. Human volunteers reported that exposure to 400 ppm isopropanol vapors for 3 to 5 min. caused mild irritation of the eyes, nose and throat.</p> <p>Although isopropanol produced little irritation when tested on the skin of human volunteers, there have been reports of isolated cases of dermal irritation and/or sensitization. The use of isopropanol as a sponge treatment for the control of fever has resulted in cases of intoxication, probably the result of both dermal absorption and inhalation. There have been a number of cases of poisoning reported due to the intentional ingestion of isopropanol, particularly among alcoholics or suicide victims. These ingestions typically result in a comatose condition. Pulmonary difficulty, nausea, vomiting, and headache accompanied by various degrees of central nervous system depression are typical. In the absence of shock, recovery usually occurred.</p> <p><b>Repeat dose studies:</b> The systemic (non-cancer) toxicity of repeated exposure to isopropanol has been evaluated in rats and mice by the inhalation and oral routes. The only adverse effects-in addition to clinical signs identified from these studies were to the kidney.</p> <p><b>Reproductive toxicity:</b> A recent two-generation reproductive study characterised the reproductive hazard for isopropanol associated with oral gavage exposure. This study found that the only reproductive parameter apparently affected by isopropanol exposure was a statistically significant decrease in male mating index of the F1 males. It is possible that the change in this reproductive parameter was treatment related and significant, although the mechanism of this effect could not be discerned from the results of the study. However, the lack of a significant effect of the female mating index in either generation, the absence of any adverse effect on litter size, and the lack of histopathological findings of the testes of the high-dose males suggest that the observed reduction in male mating index may not be biologically meaningful.</p> <p><b>Developmental toxicity:</b> The developmental toxicity of isopropanol has been characterized in rat and rabbit developmental toxicity studies. These studies indicate that isopropanol is not a selective developmental hazard. Isopropanol produced developmental toxicity in rats, but not in rabbits. In the rat, the developmental toxicity occurred only at maternally toxic doses and consisted of decreased foetal body weights, but no teratogenicity</p> <p><b>Genotoxicity:</b> All genotoxicity assays reported for isopropanol have been negative</p> <p><b>Carcinogenicity:</b> rodent inhalation studies were conducted to evaluate isopropanol for cancer potential. The only tumor rate increase seen was for interstitial (Leydig) cell tumors in the male rats. Interstitial cell tumors of the testis is typically the most frequently observed spontaneous tumor in aged male Fischer 344 rats. These studies demonstrate that isopropanol does not exhibit carcinogenic potential relevant to humans.</p> <p>Furthermore, there was no evidence from this study to indicate the development of carcinomas of the testes in the male rat, nor has isopropanol been found to be genotoxic. Thus, the testicular tumors seen in the isopropanol exposed male rats are considered of no significance in terms of human cancer risk assessment</p> <p>The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.</p> <p>The substance is classified by IARC as Group 3:</p> <p><b>NOT</b> classifiable as to its carcinogenicity to humans.</p> <p>Evidence of carcinogenicity may be inadequate or limited in animal testing.</p>
<b>ACETIC ACID GLACIAL</b>	<p>for acid mists, aerosols, vapours</p> <p>Data from assays for genotoxic activity in vitro suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airways from direct exposure to inhaled acidic mists, just as mucous plays an important role in protecting the gastric epithelium from its auto-secreted hydrochloric acid. In considering whether pH itself induces genotoxic events in vivo in the respiratory system, comparison should be made with the human stomach, in which gastric juice may be at pH 1-2 under fasting or nocturnal conditions, and with the human urinary bladder, in which the pH of urine can range from &lt;5 to &gt; 7 and normally averages 6.2. Furthermore, exposures to low pH in vivo differ from exposures <i>in vitro</i> in that, <i>in vivo</i>, only a portion of the cell surface is subjected to the adverse conditions, so that perturbation of intracellular homeostasis may be maintained more readily than in vitro.</p> <p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.</p> <p>Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.</p>



## MICROSHIELD 4 SURGICAL HANDWASH

	NOAELs following repeated exposure to acetic acid and its salts range from 210 mg/kg bw/day (2-4 month acetic acid drinking water study; systemic toxicity) to 3600 mg/kg bw/day (acetic acid, sodium salt, 4 week dietary study; no effects reported). Signs of irritation/corrosion at the site of contact as well as systemic toxicity have been reported. Prolonged inhalation exposure to acetic acid results in muscle imbalance, increase in blood cholinesterase activity, decreases in albumins and decreased growth at concentrations greater than 0.01 mg/m <sup>3</sup> /day. Groups of 20 mice/sex were given 0.025% sodium acetate in drinking water (about 60 mg/kg bw/day) for 1 week before breeding, during a 9-day breeding period and (females only) throughout pregnancy, lactation and until the offspring were weaned at 3 weeks of age. No effects on fertility were observed. The male offspring were given the same solution until they were 5-7 weeks old and were then examined in a 24-hour activity test. Examination of the litters revealed no overt deformities and normal pup weights at day 1 and day 21. The activity of offspring of the treated group was lower than that of controls during the first 12 hours but was similar during the second 12 hours. It is unknown if the decreased activity observed in the sodium acetate treated group to was a result of exposure in utero and/or post-weaning, since the pups were exposed during both time periods.). Acetic acid had no effects on implantation or on maternal or fetal survival in rats, mice or rabbits dosed via gavage during gestation days 6-19 at doses up to 1600 mg/kg/day. The number of abnormalities seen in either soft or skeletal tissues of the test groups did not differ from the number occurring in the controls. Sodium acetate had no effect on pregnant mice or offspring when mice were administered 1000 mg/kg bw, by gavage on days 8-12 of gestation.
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<b>WATER</b>	No significant acute toxicological data identified in literature search.
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<b>ISOPROPANOL &amp; ACETIC ACID GLACIAL &amp; CELLULOSE</b>	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.
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<b>Acute Toxicity</b>	✗	<b>Carcinogenicity</b>	✗
<b>Skin Irritation/Corrosion</b>	✓	<b>Reproductivity</b>	✗
<b>Serious Eye Damage/Irritation</b>	✓	<b>STOT - Single Exposure</b>	✗
<b>Respiratory or Skin sensitisation</b>	✗	<b>STOT - Repeated Exposure</b>	✗
<b>Mutagenicity</b>	✗	<b>Aspiration Hazard</b>	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
 ✓ – Data available to make classification

## SECTION 12 Ecological information

## Toxicity

MICROSHIELD 4 SURGICAL HANDWASH	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

chlorhexidine gluconate	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	2.08mg/L	2
	EC50	48	Crustacea	0.087mg/L	2
	EC50	72	Algae or other aquatic plants	0.011mg/L	2
	NOEC	72	Algae or other aquatic plants	0.007mg/L	2

isopropanol	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	9-640mg/L	2
	EC50	48	Crustacea	12500mg/L	5
	EC50	72	Algae or other aquatic plants	>1000mg/L	1
	EC0	24	Crustacea	5-102mg/L	2
NOEC	504	Crustacea	=30mg/L	1	

acetic acid glacial	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96	Fish	>1-mg/L	2
	EC50	48	Crustacea	>1-mg/L	2
	EC50	72	Algae or other aquatic plants	>1-mg/L	2
NOEC	72	Algae or other aquatic plants	1-mg/L	2	

cellulose	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

water	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite

Continued...

## MICROSHIELD 4 SURGICAL HANDWASH

V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

**DO NOT discharge into sewer or waterways.**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
isopropanol	LOW (Half-life = 14 days)	LOW (Half-life = 3 days)
acetic acid glacial	LOW	LOW
cellulose	LOW	LOW
water	LOW	LOW

### Bioaccumulative potential

Ingredient	Bioaccumulation
isopropanol	LOW (LogKOW = 0.05)
acetic acid glacial	LOW (LogKOW = -0.17)
cellulose	LOW (LogKOW = -5.1249)
water	LOW (LogKOW = -1.38)

### Mobility in soil

Ingredient	Mobility
isopropanol	HIGH (KOC = 1.06)
acetic acid glacial	HIGH (KOC = 1)
cellulose	LOW (KOC = 10)
water	LOW (KOC = 14.3)

## SECTION 13 Disposal considerations

### Waste treatment methods

<b>Product / Packaging disposal</b>	<ul style="list-style-type: none"> <li>▶ Recycle wherever possible.</li> <li>▶ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li> <li>▶ Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material).</li> <li>▶ Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</li> <li>▶ Containers may still present a chemical hazard/ danger when empty.</li> <li>▶ Return to supplier for reuse/ recycling if possible.</li> </ul> <p>Otherwise:</p> <ul style="list-style-type: none"> <li>▶ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li> <li>▶ Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li> </ul>
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Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

### Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.

The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous. Only dispose to the environment if a tolerable exposure limit has been set for the substance.

Only deposit the hazardous substance into or onto a landfill or sewage facility or incinerator, where the hazardous substance can be handled and treated appropriately.

## SECTION 14 Transport information

### Labels Required

<b>Marine Pollutant</b>	NO
<b>HAZCHEM</b>	Not Applicable

**Land transport (UN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

## SECTION 15 Regulatory information

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

## MICROSHIELD 4 SURGICAL HANDWASH

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002624	N.O.S. (Subsidiary Hazard) Group Standard 2017
HSR002535	Gas Under Pressure Mixtures (Subsidiary Hazard) Group Standard 2017
HSR002596	Laboratory Chemicals and Reagent Kits Group Standard 2017
HSR002530	Cleaning Products (Subsidiary Hazard) Group Standard 2017
HSR002585	Fuel Additives (Subsidiary Hazard) Group Standard 2017
HSR002519	Aerosols (Subsidiary Hazard) Group Standard 2017
HSR002521	Animal Nutritional and Animal Care Products Group Standard 2017
HSR002606	Lubricants, Lubricant Additives, Coolants and Anti-freeze Agents (Subsidiary Hazard) Group Standard 2017
HSR002644	Polymers (Subsidiary Hazard) Group Standard 2017
HSR002647	Reagent Kits Group Standard 2017
HSR002670	Surface Coatings and Colourants (Subsidiary Hazard) Group Standard 2017
HSR002638	Photographic Chemicals (Subsidiary Hazard) Group Standard 2017
HSR002565	Embalming Products (Subsidiary Hazard) Group Standard 2017
HSR002578	Food Additives and Fragrance Materials (Subsidiary Hazard) Group Standard 2017
HSR002558	Dental Products (Subsidiary Hazard) Group Standard 2017
HSR002684	Water Treatment Chemicals (Subsidiary Hazard) Group Standard 2017
HSR002573	Fire Fighting Chemicals Group Standard 2017
HSR100425	Pharmaceutical Active Ingredients Group Standard 2017
HSR002600	Leather and Textile Products (Subsidiary Hazard) Group Standard 2017
HSR002605	Lubricants (Low Hazard) Group Standard 2017
HSR002571	Fertilisers (Subsidiary Hazard) Group Standard 2017
HSR002648	Refining Catalysts Group Standard 2017
HSR002653	Solvents (Subsidiary Hazard) Group Standard 2017
HSR002544	Construction Products (Subsidiary Hazard) Group Standard 2017
HSR002549	Corrosion Inhibitors (Subsidiary Hazard) Group Standard 2017
HSR100757	Veterinary Medicine (Limited Pack Size, Finished Dose) Standard 2017
HSR100758	Veterinary Medicines (Non-dispersive Closed System Application) Group Standard 2017
HSR100759	Veterinary Medicines (Non-dispersive Open System Application) Group Standard 2017
HSR100580	Tattoo and Permanent Makeup Substances Group Standard 2017
HSR002612	Metal Industry Products (Subsidiary Hazard) Group Standard 2017
HSR002503	Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2017
HSR002552	Cosmetic Products Group Standard 2017

#### chlorhexidine gluconate is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls  
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data  
New Zealand Inventory of Chemicals (NZIoC)

#### isopropanol is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs  
New Zealand Approved Hazardous Substances with controls  
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data  
New Zealand Inventory of Chemicals (NZIoC)  
New Zealand Workplace Exposure Standards (WES)

#### acetic acid glacial is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls  
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals  
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data

New Zealand Inventory of Chemicals (NZIoC)  
New Zealand Workplace Exposure Standards (WES)

#### cellulose is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)  
New Zealand Inventory of Chemicals (NZIoC)

New Zealand Workplace Exposure Standards (WES)

#### water is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

#### Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity (Closed Containers)	Quantity (Open Containers)
Not Applicable	Not Applicable	Not Applicable

Continued...

## MICROSHIELD 4 SURGICAL HANDWASH

**Certified Handler**

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

**Tracking Requirements**

Not Applicable

**National Inventory Status**

National Inventory	Status
Australia - AIIC	Yes
Australia Non-Industrial Use	No (chlorhexidine gluconate; isopropanol; acetic acid glacial; cellulose; water)
Canada - DSL	Yes
Canada - NDSL	No (chlorhexidine gluconate; isopropanol; acetic acid glacial; water)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (chlorhexidine gluconate; cellulose)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (chlorhexidine gluconate)
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes
<b>Legend:</b>	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

**SECTION 16 Other information**

<b>Revision Date</b>	01/11/2019
<b>Initial Date</b>	05/10/2015

**SDS Version Summary**

Version	Issue Date	Sections Updated
3.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification

**Other information**

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

**Definitions and abbreviations**

PC—TWA: Permissible Concentration-Time Weighted Average  
 PC—STEL: Permissible Concentration-Short Term Exposure Limit  
 IARC: International Agency for Research on Cancer  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 STEL: Short Term Exposure Limit  
 TEEL: Temporary Emergency Exposure Limit.  
 IDLH: Immediately Dangerous to Life or Health Concentrations  
 OSF: Odour Safety Factor  
 NOAEL :No Observed Adverse Effect Level  
 LOAEL: Lowest Observed Adverse Effect Level  
 TLV: Threshold Limit Value  
 LOD: Limit Of Detection  
 OTV: Odour Threshold Value  
 BCF: BioConcentration Factors  
 BEI: Biological Exposure Index

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