

1950  
Chlorhexidine first synthesised by ICI Laboratories

1980  
**HiBiSOL** launched

2000  
**HiBi** range of antiseptics joins forces  
with Regent Medical

2005  
Mölnlycke Health Care becomes the new owners  
of the **HiBi** range of antiseptics

2008  
**HiBi** Liquid Hand Rub+ proven to pass EN12791 within 1.5 minutes<sup>17</sup>

Within the modern health service, infection control is an issue of increasingly critical status. Hence the urgent need for antiseptic solutions that deliver the same standard of care you are committed to delivering as a professional.

The **HiBi** range represents our active participation in the integration of higher standards of antiseptic care into the modern hospital environment.

Created for infection control professionals, **HiBi** makes the matching of product to procedure an instinctive process based on the certain knowledge of doing the right thing at the right time. A certainty built on years of proven clinical effectiveness.

In the critically important arena of infection control, the **HiBi** range helps nursing staff by providing easy to use antiseptic solutions that are right for every procedure.

Use biocides carefully. Always read product label before use.



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**HiBi**®

Liquid Hand Rub+

**Surgical and Hygienic Hand Disinfection**

Chlorhexidine gluconate 0.5% w/v, Isopropyl alcohol 70% v/v



**Spectrum of Activity**

## Viruses

ORGANISM	RESULTS	METHODOLOGY	REF
<b>H5N1 construct (NIBRG-14)</b>	<ul style="list-style-type: none"> <li>≥ 3.75 log<sub>10</sub> reduction at 20 sec</li> <li>≥ 4.50 log<sub>10</sub> reduction at 1 min</li> <li>≥ 4.50 log<sub>10</sub> reduction at 5 min</li> <li>≥ 4.25 log<sub>10</sub> reduction at 10 min</li> </ul>	EPA DIS/TSS-7 using <b>HiBisol</b> at 90% conc. Efficacy Data Requirements Virucides (1981)	1
<b>Hepatitis B: using Duck Hepatitis B virus</b>	≥ 3.0 log <sub>10</sub> reduction at 10 min	ASTM E 1052 using <b>HiBistat</b> undiluted. Standard Test Method for Efficacy of Virucidal Agents intended for Special Applications	9
<b>Hepatitis C: using Bovine Viral Diarrhoea Virus</b>	<ul style="list-style-type: none"> <li>4.25 log<sub>10</sub> reduction at 20 sec</li> <li>4.25 log<sub>10</sub> reduction at 1 min</li> <li>4.25 log<sub>10</sub> reduction at 5 min</li> <li>4.25 log<sub>10</sub> reduction at 10 min</li> </ul>	In Vitro time kill study using <b>HiBistat</b> at 90% conc	11
<b>HIV (strain HTLV-IIIB)</b>	Complete inactivation at 15 sec	In Vitro Viral inactivation assay using <b>HiBisol</b> and <b>HiBistat</b> at 0.1% conc	16
<b>HIV-1 (strain HTLV-IIIB)</b>	≥ 3.25 log <sub>10</sub> reduction at 30 sec	ASTM E 1052 using <b>HiBistat</b> undiluted. Standard Test Method for Efficacy of Virucidal Agents intended for Special Applications	10

## Definitions

**Log reduction** is a measurement of the activity of an antibacterial agent. An initial count of overall bacterial numbers is taken and the antimicrobial agent is then added/applied. After a certain time has elapsed (as defined by the standard being used to test the antibacterial) the number of bacteria is recorded again. The difference between the initial and final counts is usually a very large number (in the hundreds of thousands) and so it is considered easier to record it using the log scale rather than writing it in full.

A simple example of a log scale is that a 5-log reduction means a reduction in the number of micro-organisms by 100,000-fold (10<sup>5</sup>). For example, if a sample contained 100,000 pertinent micro-organisms, a 5-log reduction would reduce the number of these microorganisms to 1. A 3-log reduction would reduce the number by 1000-fold to 100. An X-log reduction would reduce the number by a factor of 10.<sup>x</sup>

The **higher** the quoted log reduction, the more effective the antimicrobial agent is against that organism.

## Abbreviations

**MDR** Multi Drug Resistant

**ESBL** Extended Spectrum Beta Lactamase

**VRE** Vancomycin Resistant Enterococcus

**EMRSA** Epidemic Methicillin Resistant Staphylococcus aureus

**MRSA** Methicillin Resistant Staphylococcus aureus

**NARSA** Network on Antimicrobial Resistance in Staphylococcus aureus

**VISA** Vancomycin Intermediate Staphylococcus aureus

**VRSA** Vancomycin Resistant Staphylococcus aureus

**HIV** Human Immunodeficiency Virus

## Dermatophytes

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Microsporium canis</b>	4.12 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	4.12 log <sub>10</sub> reduction at 1 min		
	4.12 log <sub>10</sub> reduction at 5 min		
	4.12 log <sub>10</sub> reduction at 10 min		
<b>Trichophyton mentagrophytes</b>	6.1 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.1 log <sub>10</sub> reduction at 1 min		
	6.1 log <sub>10</sub> reduction at 5 min		
	6.1 log <sub>10</sub> reduction at 10 min		
<b>Trichophyton rubrum</b>	5.39 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	5.39 log <sub>10</sub> reduction at 1 min		
	5.39 log <sub>10</sub> reduction at 5 min		
	5.39 log <sub>10</sub> reduction at 10 min		

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Enterobacter aerogenes (ESBL)</b>	6.4 log <sub>10</sub> reduction at 15 sec	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	6.1 log <sub>10</sub> reduction at 30 sec		
	6.4 log <sub>10</sub> reduction at 1 min		
	6.1 log <sub>10</sub> reduction at 3 min		
	6 log <sub>10</sub> reduction at 5 min		
6 log <sub>10</sub> reduction at 10 min			
<b>Escherichia coli</b>	>6.05 log <sub>10</sub> reduction at 1 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash-Bactericidal activity. Phase 2 Step 1.	3
	>6.05 log <sub>10</sub> reduction at 3 min		
	6.17 log <sub>10</sub> reduction at 1 min	In Vitro time kill study using <b>HiBistat</b> at 10% conc	7
	6.17 log <sub>10</sub> reduction at 5 min		
	6.17 log <sub>10</sub> reduction at 10 min		
	6.01 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.01 log <sub>10</sub> reduction at 1 min		
	6.01 log <sub>10</sub> reduction at 5 min		
	6.01 log <sub>10</sub> reduction at 10 min		
	5.81 log <sub>10</sub> reduction at 15 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	5.81 log <sub>10</sub> reduction at 30 sec		
	5.81 log <sub>10</sub> reduction at 1 min		
	5.81 log <sub>10</sub> reduction at 3 min		
	5.81 log <sub>10</sub> reduction at 6 min		
	5.8 log <sub>10</sub> reduction at 15 sec	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	5.8 log <sub>10</sub> reduction at 30 sec		
	5.7 log <sub>10</sub> reduction at 1 min		
	5.8 log <sub>10</sub> reduction at 3 min		
	5.8 log <sub>10</sub> reduction at 5 min		
	6 log <sub>10</sub> reduction at 10 min		

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Escherichia coli (ESBL)</b>	6.5 log <sub>10</sub> reduction at 15 sec 6.4 log <sub>10</sub> reduction at 30 sec 6.4 log <sub>10</sub> reduction at 1 min 6.8 log <sub>10</sub> reduction at 3 min 6.5 log <sub>10</sub> reduction at 5 min 6.3 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Haemophilus influenzae</b>	6.23 log <sub>10</sub> reduction at 15 sec 6.23 log <sub>10</sub> reduction at 30 sec 6.23 log <sub>10</sub> reduction at 1 min 6.23 log <sub>10</sub> reduction at 3 min 6.23 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Klebsiella aerogenes (K21)</b>	4 log <sub>10</sub> reduction at 3 min, 1 min and 30 min	<b>In Vivo</b> A model test for the laboratory assessment of <b>HiBisol</b> by using fingertip sampling after artificial contamination with <i>Klebsiella</i> (n=3)	15
<b>Klebsiella oxytoca</b>	6.32 log <sub>10</sub> reduction at 15 sec 6.32 log <sub>10</sub> reduction at 30 sec 6.32 log <sub>10</sub> reduction at 1 min 6.32 log <sub>10</sub> reduction at 3 min 6.32 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Klebsiella oxytoca (ESBL)</b>	6.4 log <sub>10</sub> reduction at 15 sec 6.3 log <sub>10</sub> reduction at 30 sec 6.3 log <sub>10</sub> reduction at 1 min 6.1 log <sub>10</sub> reduction at 3 min 6.3 log <sub>10</sub> reduction at 5 min 6.3 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Streptococcus pneumoniae</b>	7.74 log <sub>10</sub> reduction at 15 sec 7.74 log <sub>10</sub> reduction at 30 sec 7.74 log <sub>10</sub> reduction at 1 min 7.74 log <sub>10</sub> reduction at 3 min 7.74 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Streptococcus pyogenes</b>	6.27 log <sub>10</sub> reduction at 15 sec 6.27 log <sub>10</sub> reduction at 30 sec 6.27 log <sub>10</sub> reduction at 1 min 6.27 log <sub>10</sub> reduction at 3 min 6.27 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Vancomycin Resistant Staphylococcus aureus (NARSA strain VRSA1)</b>	6.36 log <sub>10</sub> reduction at 20 sec 6.36 log <sub>10</sub> reduction at 1 min 6.36 log <sub>10</sub> reduction at 5 min 6.36 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
<b>Vancomycin Resistant Staphylococcus aureus (NARSA strain VRSA2)</b>	4.96 log <sub>10</sub> reduction at 20 sec 6.08 log <sub>10</sub> reduction at 1 min 6.08 log <sub>10</sub> reduction at 5 min 6.08 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
<b>Vancomycin Resistant Staphylococcus aureus (NARSA strain VRSA3)</b>	4.35 log <sub>10</sub> reduction at 20 sec 5.15 log <sub>10</sub> reduction at 1 min 5.12 log <sub>10</sub> reduction at 5 min 5.97 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
<b>Vancomycin Resistant Staphylococcus aureus (NARSA strain VRSA4)</b>	4.47 log <sub>10</sub> reduction at 20 sec 6.02 log <sub>10</sub> reduction at 1 min 5.84 log <sub>10</sub> reduction at 5 min 6.02 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
<b>Vancomycin Resistant Staphylococcus aureus (NARSA strain VRSA5)</b>	4.04 log <sub>10</sub> reduction at 20 sec 4.92 log <sub>10</sub> reduction at 1 min 4.65 log <sub>10</sub> reduction at 5 min 5.60 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Methicillin Resistant Staphylococcus aureus (NARSA strain NRS123) (USA 400)</b>	6.31 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.31 log <sub>10</sub> reduction at 1 min		
	6.31 log <sub>10</sub> reduction at 5 min		
	6.31 log <sub>10</sub> reduction at 10 min		
<b>Methicillin Resistant Staphylococcus aureus (NARSA strain NRS385) (USA 500)</b>	6.58 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.58 log <sub>10</sub> reduction at 1 min		
	6.58 log <sub>10</sub> reduction at 5 min		
	6.58 log <sub>10</sub> reduction at 10 min		
<b>Methicillin Resistant Staphylococcus aureus (NARSA strain NRS22) (USA 600)</b>	5.8 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	5.8 log <sub>10</sub> reduction at 1 min		
	5.8 log <sub>10</sub> reduction at 5 min		
	5.8 log <sub>10</sub> reduction at 10 min		
<b>Methicillin Resistant Staphylococcus aureus (NARSA strain NRS386) (USA 700)</b>	6.42 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.42 log <sub>10</sub> reduction at 1 min		
	6.42 log <sub>10</sub> reduction at 5 min		
	6.42 log <sub>10</sub> reduction at 10 min		
<b>Methicillin Resistant Staphylococcus aureus (NARSA strain NRS387) (USA 800)</b>	6.52 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.52 log <sub>10</sub> reduction at 1 min		
	6.52 log <sub>10</sub> reduction at 5 min		
	6.52 log <sub>10</sub> reduction at 10 min		
<b>Methicillin Resistant Staphylococcus aureus (VISA)</b>	8.9 log <sub>10</sub> reduction at 15 sec	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	9 log <sub>10</sub> reduction at 30 sec		
	8.6 log <sub>10</sub> reduction at 1 min		
	6.8 log <sub>10</sub> reduction at 3 min		
	6.2 log <sub>10</sub> reduction at 5 min		
	6.2 log <sub>10</sub> reduction at 10 min		

## Bacteria – Gram Positive

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Clostridium difficile (vegetative cells)</b>	6.8 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
	6.8 log <sub>10</sub> reduction at 1 min		
	6.8 log <sub>10</sub> reduction at 5 min		
	6.8 log <sub>10</sub> reduction at 10 min		
<b>EMRSA-15 (MRSA 42) (strain NCTC 13142)</b>	>6.07 log <sub>10</sub> reduction at 1 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash-Bactericidal activity. Phase 2 Step 1.	3
	>6.07 log <sub>10</sub> reduction at 3 min		
<b>EMRSA-16 (MRSA 43) (strain NCTC 13143)</b>	>6.14 log <sub>10</sub> reduction at 1 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash-Bactericidal activity. Phase 2 Step 1.	3
	>6.14 log <sub>10</sub> reduction at 3 min		
<b>Enterococcus cloacae (ESBL)</b>	6.7 log <sub>10</sub> reduction at 15 sec	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	6.6 log <sub>10</sub> reduction at 30 sec		
	6.7 log <sub>10</sub> reduction at 1 min		
	6.3 log <sub>10</sub> reduction at 3 min		
	6.5 log <sub>10</sub> reduction at 5 min		
	6.5 log <sub>10</sub> reduction at 10 min		
<b>Enterococcus faecalis</b>	6.22 log <sub>10</sub> reduction at 15 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	6.22 log <sub>10</sub> reduction at 30 sec		
	6.22 log <sub>10</sub> reduction at 1 min		
	6.22 log <sub>10</sub> reduction at 3 min		
	6.22 log <sub>10</sub> reduction at 6 min		
<b>Enterococcus faecalis (MDR; VRE)</b>	6.63 log <sub>10</sub> reduction at 20 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	6
	6.63 log <sub>10</sub> reduction at 1 min		
	6.63 log <sub>10</sub> reduction at 5 min		
	6.63 log <sub>10</sub> reduction at 10 min		
	6.32 log <sub>10</sub> reduction at 1 min	In Vitro time kill study using <b>HiBistat</b> at 50% conc	7
	6.32 log <sub>10</sub> reduction at 5 min		
	6.32 log <sub>10</sub> reduction at 10 min		

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Enterococcus faecalis (Van A)</b>	6.1 log <sub>10</sub> reduction at 15 sec 6.4 log <sub>10</sub> reduction at 30 sec 6.2 log <sub>10</sub> reduction at 1 min 6.7 log <sub>10</sub> reduction at 3 min 6.4 log <sub>10</sub> reduction at 5 min 6.1 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Enterococcus faecalis (Van B)</b>	6.2 log <sub>10</sub> reduction at 15 sec 6.2 log <sub>10</sub> reduction at 30 sec 6 log <sub>10</sub> reduction at 1 min 6.3 log <sub>10</sub> reduction at 3 min 5.9 log <sub>10</sub> reduction at 5 min 6.2 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Enterococcus faecalis (VRE)</b>	6.49 log <sub>10</sub> reduction at 20 sec 6.49 log <sub>10</sub> reduction at 1 min 6.49 log <sub>10</sub> reduction at 5 min 6.49 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBi</b> stat at 99% conc	6
<b>Enterococcus faecium</b>	5.82 log <sub>10</sub> reduction at 15 sec 5.82 log <sub>10</sub> reduction at 30 sec 5.82 log <sub>10</sub> reduction at 1 min 5.82 log <sub>10</sub> reduction at 3 min 5.82 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBi</b> stat at 99% conc	13
<b>Enterococcus faecium (MDR; VRE)</b>	6.27 log <sub>10</sub> reduction at 20 sec 6.27 log <sub>10</sub> reduction at 1 min 6.27 log <sub>10</sub> reduction at 5 min 6.27 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBi</b> stat at 99% conc	6
	6.06 log <sub>10</sub> reduction at 15 sec 6.06 log <sub>10</sub> reduction at 30 sec 6.06 log <sub>10</sub> reduction at 1 min 6.06 log <sub>10</sub> reduction at 3 min 6.06 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBi</b> stat at 99% conc	13

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Enterococcus faecium (VRE)</b>	6.22 log <sub>10</sub> reduction at 20 sec 6.22 log <sub>10</sub> reduction at 1 min 6.22 log <sub>10</sub> reduction at 5 min 6.22 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBi</b> stat at 99% conc	6
<b>Enterococcus hirae</b>	>6.18 log <sub>10</sub> reduction at 1 min >6.18 log <sub>10</sub> reduction at 3 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash- Bactericidal activity. Phase 2 Step 1.	3
	5.7 log <sub>10</sub> reduction at 15 sec 6.3 log <sub>10</sub> reduction at 30 sec 6.1 log <sub>10</sub> reduction at 1 min 6.4 log <sub>10</sub> reduction at 3 min 6.2 log <sub>10</sub> reduction at 5 min 5.7 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Methicillin Resistant Staphylococcus aureus</b>	6.21 log <sub>10</sub> reduction at 1 min 6.21 log <sub>10</sub> reduction at 5 min 6.21 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBi</b> stat at 50% conc	7
	7.6 log <sub>10</sub> reduction at 15 sec 6.3 log <sub>10</sub> reduction at 30 sec 6.2 log <sub>10</sub> reduction at 1 min 6.9 log <sub>10</sub> reduction at 3 min 6.6 log <sub>10</sub> reduction at 5 min 6.5 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Methicillin Resistant Staphylococcus aureus (NARSA strain NRS384) (USA 300)</b>	5.95 log <sub>10</sub> reduction at 15 sec 5.95 log <sub>10</sub> reduction at 1 min 5.95 log <sub>10</sub> reduction at 3 min 5.95 log <sub>10</sub> reduction at 5 min 5.95 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBi</b> stat at 99% conc	5

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Pseudomonas aeruginosa</b>	>6.06 log <sub>10</sub> reduction at 1 min >6.06 log <sub>10</sub> reduction at 3 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash-Bactericidal activity. Phase 2 Step 1.	3
	6.24 log <sub>10</sub> reduction at 15 sec 6.24 log <sub>10</sub> reduction at 30 sec 6.24 log <sub>10</sub> reduction at 1 min 6.24 log <sub>10</sub> reduction at 3 min 6.24 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	6.6 log <sub>10</sub> reduction at 15 sec 6.6 log <sub>10</sub> reduction at 30 sec 6.5 log <sub>10</sub> reduction at 1 min 6.3 log <sub>10</sub> reduction at 3 min 6.3 log <sub>10</sub> reduction at 5 min 6.5 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Pseudomonas aeruginosa (MDR)</b>	8.8 log <sub>10</sub> reduction at 15 sec 6.7 log <sub>10</sub> reduction at 30 sec 7 log <sub>10</sub> reduction at 1 min 6.4 log <sub>10</sub> reduction at 3 min 6.2 log <sub>10</sub> reduction at 5 min 6.4 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Serratia marcescens</b>	6.09 log <sub>10</sub> reduction at 1 min 6.09 log <sub>10</sub> reduction at 5 min 6.09 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 10% conc	7
	6.42 log <sub>10</sub> reduction at 15 sec 6.42 log <sub>10</sub> reduction at 30 sec 6.42 log <sub>10</sub> reduction at 1 min 6.42 log <sub>10</sub> reduction at 3 min 6.42 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Methicillin Resistant Staphylococcus aureus (VRSA)</b>	6.3 log <sub>10</sub> reduction at 15 sec 6.6 log <sub>10</sub> reduction at 30 sec 6.9 log <sub>10</sub> reduction at 1 min 6.4 log <sub>10</sub> reduction at 3 min 6.4 log <sub>10</sub> reduction at 5 min 6.4 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	6.1 log <sub>10</sub> reduction at 1 min 6.1 log <sub>10</sub> reduction at 5 min 6.1 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 50% conc	7
<b>Micrococcus luteus</b>	5.94 log <sub>10</sub> reduction at 15 sec 5.94 log <sub>10</sub> reduction at 30 sec 5.94 log <sub>10</sub> reduction at 1 min 5.94 log <sub>10</sub> reduction at 3 min 5.94 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	7.71 log <sub>10</sub> reduction at 20 sec 7.71 log <sub>10</sub> reduction at 1 min 7.71 log <sub>10</sub> reduction at 5 min 7.71 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	8
<b>Staphylococcus aureus</b>	>6.02 log <sub>10</sub> reduction at 1 min >6.02 log <sub>10</sub> reduction at 3 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash-Bactericidal activity. Phase 2 Step 1.	3
	7.07 log <sub>10</sub> reduction at 15 sec 7.07 log <sub>10</sub> reduction at 30 sec 7.07 log <sub>10</sub> reduction at 1 min 7.07 log <sub>10</sub> reduction at 3 min 7.07 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	6.3 log <sub>10</sub> reduction at 15 sec 6.9 log <sub>10</sub> reduction at 30 sec 6.5 log <sub>10</sub> reduction at 1 min 6.4 log <sub>10</sub> reduction at 3 min 6.6 log <sub>10</sub> reduction at 5 min 6.7 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Staphylococcus aureus</b>	6.3 log <sub>10</sub> reduction at 15 sec 6.3 log <sub>10</sub> reduction at 30 sec 6.3 log <sub>10</sub> reduction at 1 min 6.3 log <sub>10</sub> reduction at 3 min 6.3 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Staphylococcus aureus MRSA</b>	3.07 log <sub>10</sub> reduction at 1 hour 3.17 log <sub>10</sub> reduction at 4 hours 2.98 log <sub>10</sub> reduction at 6 hours	In Vivo pilot evaluation of persistent antimicrobial effects of antimicrobial formulations using <b>HiBi</b> Liquid Hand Rub+ undiluted test product versus placebo control (n=3). Measurement of test formulation effectiveness.	12
<b>Staphylococcus epidermidis</b>	6.69 log <sub>10</sub> reduction at 1 min 6.69 log <sub>10</sub> reduction at 3 min 6.69 log <sub>10</sub> reduction at 5 min 6.69 log <sub>10</sub> reduction at 6 min 6.69 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Staphylococcus haemolyticus</b>	5.73 log <sub>10</sub> reduction at 15 sec 5.73 log <sub>10</sub> reduction at 30 sec 5.73 log <sub>10</sub> reduction at 1 min 5.73 log <sub>10</sub> reduction at 3 min 5.73 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Staphylococcus hominis</b>	5.21 log <sub>10</sub> reduction at 15 sec 5.21 log <sub>10</sub> reduction at 30 sec 5.21 log <sub>10</sub> reduction at 1 min 5.21 log <sub>10</sub> reduction at 3 min 5.21 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Staphylococcus hominis</b>	5.2 log <sub>10</sub> reduction at 15 sec 5.2 log <sub>10</sub> reduction at 30 sec 5.2 log <sub>10</sub> reduction at 1 min 5.2 log <sub>10</sub> reduction at 3 min 5.2 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Staphylococcus saprophyticus</b>	6.03 log <sub>10</sub> reduction at 15 sec 6.03 log <sub>10</sub> reduction at 30 sec 6.03 log <sub>10</sub> reduction at 1 min 6.03 log <sub>10</sub> reduction at 3 min 6.03 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Klebsiella oxytoca (MDR)</b>	6.23 log <sub>10</sub> reduction at 15 sec 6.23 log <sub>10</sub> reduction at 30 sec 6.23 log <sub>10</sub> reduction at 1 min 6.23 log <sub>10</sub> reduction at 3 min 6.23 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Klebsiella pneumoniae</b>	6.42 log <sub>10</sub> reduction at 15 sec 6.42 log <sub>10</sub> reduction at 30 sec 6.42 log <sub>10</sub> reduction at 1 min 6.42 log <sub>10</sub> reduction at 3 min 6.42 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Klebsiella pneumoniae (ESBL)</b>	7 log <sub>10</sub> reduction at 15 sec 6.2 log <sub>10</sub> reduction at 30 sec 6.3 log <sub>10</sub> reduction at 1 min 6.5 log <sub>10</sub> reduction at 3 min 6.4 log <sub>10</sub> reduction at 5 min 6.3 log <sub>10</sub> reduction at 10 min	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
<b>Klebsiella pneumoniae subsp. Ozaenae</b>	6.39 log <sub>10</sub> reduction at 15 sec 6.39 log <sub>10</sub> reduction at 30 sec 6.39 log <sub>10</sub> reduction at 1 min 6.39 log <sub>10</sub> reduction at 3 min 6.39 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
<b>Neisseria meningitidis</b>	5.13 log <sub>10</sub> reduction at 20 sec 5.13 log <sub>10</sub> reduction at 1 min 5.13 log <sub>10</sub> reduction at 5 min 5.13 log <sub>10</sub> reduction at 10 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	4
<b>Proteus mirabilis</b>	5.97 log <sub>10</sub> reduction at 15 sec 5.97 log <sub>10</sub> reduction at 30 sec 5.97 log <sub>10</sub> reduction at 1 min 5.97 log <sub>10</sub> reduction at 3 min 5.97 log <sub>10</sub> reduction at 6 min	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13

## Meeting Standards

HiBi Liquid Hand Rub+ is effective against a wide range of Gram<sup>+</sup> and Gram<sup>-</sup> vegetative bacteria, yeasts, dermatophyte fungi and lipophilic viruses. Its ability to meet the rising standards of infection control expected in a modern health service is shown by standard test methods [prEN12054, EN1275:2005, EN1276:1997, EN12791, EN1500].

### HiBi Liquid Hand Rub+ is indicated for:

- Surgical Hand Disinfection
- Hygienic Hand Disinfection

## Bacteria – Gram Negative

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Acinetobacter baumannii</b>	6.54 log <sub>10</sub> reduction at 15 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	6.54 log <sub>10</sub> reduction at 30 sec		
	6.54 log <sub>10</sub> reduction at 1 min		
	6.54 log <sub>10</sub> reduction at 3 min		
	6.54 log <sub>10</sub> reduction at 6 min		
<b>Acinetobacter baumannii (MDR)</b>	6.7 log <sub>10</sub> reduction at 15 sec	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	6.5 log <sub>10</sub> reduction at 30 sec		
	6.6 log <sub>10</sub> reduction at 1 min		
	5.7 log <sub>10</sub> reduction at 3 min		
	6.2 log <sub>10</sub> reduction at 5 min		
	6.3 log <sub>10</sub> reduction at 10 min		
<b>Bacteroides fragilis</b>	8.04 log <sub>10</sub> reduction at 15 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	8.04 log <sub>10</sub> reduction at 30 sec		
	8.04 log <sub>10</sub> reduction at 1 min		
	8.04 log <sub>10</sub> reduction at 3 min		
	8.04 log <sub>10</sub> reduction at 6 min		
<b>Enterobacter aerogenes</b>	6.42 log <sub>10</sub> reduction at 15 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	6.42 log <sub>10</sub> reduction at 30 sec		
	6.42 log <sub>10</sub> reduction at 1 min		
	6.42 log <sub>10</sub> reduction at 3 min		
	6.42 log <sub>10</sub> reduction at 6 min		

## Mold/Fungi

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Aspergillus niger</b>	>5.28 log <sub>10</sub> reduction at 5 min	<b>In Vitro</b> EN1275:2005 using <b>HiBisol</b> at 80% concentration. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of basic fungicidal or basic yeasticidal activity of chemical disinfectants and antiseptics. Phase 1.	2
	>5.28 log <sub>10</sub> reduction at 15 min		
<b>Candida albicans</b>	>5.20 log <sub>10</sub> reduction at 5 min	<b>In Vitro</b> EN1275:2005 using <b>HiBisol</b> at 80% concentration. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of basic fungicidal or basic yeasticidal activity of chemical disinfectants and antiseptics. Phase 1.	2
	>5.20 log <sub>10</sub> reduction at 15 min		
	6.9 log <sub>10</sub> reduction at 1 min		
	6.9 log <sub>10</sub> reduction at 5 min	In Vitro time kill study using <b>HiBistat</b> at 50% conc	7
	6.9 log <sub>10</sub> reduction at 10 min		
	6.02 log <sub>10</sub> reduction at 15 sec		
	6.02 log <sub>10</sub> reduction at 30 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	6.02 log <sub>10</sub> reduction at 1 min		
	6.02 log <sub>10</sub> reduction at 3 min		
	6.02 log <sub>10</sub> reduction at 6 min		
	6.02 log <sub>10</sub> reduction at 6 min		
<b>Candida albicans (MDR)</b>	5.6 log <sub>10</sub> reduction at 15 sec	<b>In Vitro</b> EN1276:1997 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics. Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic, and institutional areas. Phase 2 Step 1.	14
	5.6 log <sub>10</sub> reduction at 30 sec		
	5.3 log <sub>10</sub> reduction at 1 min		
	5 log <sub>10</sub> reduction at 3 min		
	4.7 log <sub>10</sub> reduction at 5 min*		
	5 log <sub>10</sub> reduction at 10 min		
<b>Candida tropicalis</b>	5.7 log <sub>10</sub> reduction at 15 sec	In Vitro time kill study using <b>HiBistat</b> at 99% conc	13
	5.7 log <sub>10</sub> reduction at 30 sec		
	5.7 log <sub>10</sub> reduction at 1 min		
	5.7 log <sub>10</sub> reduction at 3 min		
	5.7 log <sub>10</sub> reduction at 6 min		

\*<5 log reduction means it has failed EN1276

## How to use this guide

The guide is intended to show the effectiveness of **HiBi** Liquid Hand Rub+ against a number of commonly encountered organisms.

These are organised in 5 groups under the tabbed headings

- Bacteria – Gram Negative
- Bacteria – Gram Positive
- Dermatophytes
- Mold/Fungi
- Viruses

The organisms within each section are listed alphabetically and those tested under the same methodology are grouped together.

### Example – Staphylococcus aureus

This can be found in the section

ORGANISM	RESULTS	METHODOLOGY	REF
<b>Staphylococcus aureus</b>	>6.02 log10 reduction at 1 min >6.02 log10 reduction at 3 min	<b>In Vitro</b> prEN12054 using <b>HiBi</b> Liquid Hand Rub+ undiluted. Chemical disinfectants and antiseptics-products for hygienic and surgical hand rub and hand wash-Bactericidal activity. Phase 2 Step 1.	3

- 1 Names appear in the extreme left hand column under the title 'Organism.'
- 2 Effectiveness is usually expressed as log reduction, MIC or % concentration to achieve eradication and is found in the middle column under the title 'Results'.
- 3 Test methodology is described in the right hand column under the title 'Methodology'.
- 4 The source of the data is indicated by the reference number on the extreme right. References in this case are '3. REPR0283; Bacterial Activity Testing of Hibi Liquid Hand Rub – 2007'. The reference listing is at the end of the booklet.

**Note:** All testing has been conducted using **HiBi** formulations containing 0.5% w/v Chlorhexidine Gluconate and 70% v/v Isopropyl Alcohol. Testing has been conducted using the marketed products registered as **HiBiSOL**, **HiBiStat** and **HiBi** Liquid Hand Rub+ which all contain the above stated concentration of active ingredients.

## References

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