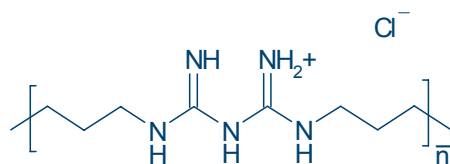


VANTOCIL™ IB Antimicrobial

TECHNICAL
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VANTOCIL IB is a broad spectrum, fast acting bactericide for the formulation of disinfectants and sanitisers, for use in industrial, institutional, agricultural, food, beverage and domestic disinfection applications. VANTOCIL IB is a 20% aqueous solution of poly(hexamethylene biguanide) hydrochloride, also known as PHMB.

PHMB can be represented by the general structure:-



$\bar{n} = 12$

Applications

VANTOCIL IB is effective in a wide range of industrial disinfection applications, primarily as a solid surface disinfectant. Application areas include:

- Hospitals
- Institutions
- Veterinary establishments
- Dairies
- Milking parlours
- Poultry hatcheries
- Food processing plants
- Breweries
- Pasteurisers in canned food & beverage bottling plants
- Yoghurt fermentation
- Air-conditioning units
- Cheese moulds
- Beer glass cleaners

Antimicrobial Properties

The levels of VANTOCIL IB needed to prevent the growth of problem micro-organisms are listed in Table 1.

MICs do not represent effective use levels but do indicate the intrinsic broad spectrum of activity of VANTOCIL IB.

VANTOCIL IB has a non-specific mode of biocidal action which means that bacterial resistance is very unlikely to occur. Detailed information on the mode of action of VANTOCIL IB is available on request.

Table 1: Minimum Inhibitory Concentrations (MICs)

Micro-organism	Strain No.	VANTOCIL IB (ppm product)
Bacteria		
<i>Bacillus subtilis</i>	NCIB 3610	1.5
<i>Enterobacter cloacae</i>	NCIB 8271	40
<i>Escherichia coli 0157:H7</i>	NCTC 12900	80
<i>Legionella pneumophila</i>	-	5
<i>Listeria monocytogenes</i>	ATCC 15313	30
<i>Proteus vulgaris</i>	NCTC 4175	40
<i>Pseudomonas aeruginosa</i>	ATCC 15442	40
<i>Pseudomonas putida</i>	-	25
<i>Salmonella choleraesuis</i>	ATCC 13311	120
<i>Salmonella typhimurium</i>	ATCC 14028	160
<i>Staphylococcus aureus</i>	ATCC 6538	30
<i>Streptococcus faecalis</i>	-	5
<i>Streptococcus lactis</i>	NCTC 7944	20
Yeasts		
<i>Candida albicans</i>	ATCC 10231	300
<i>Rhodotorula rubra</i>	NCYC 1659	7.5
<i>Saccharomyces cerevisiae</i>	ATCC 9763	300
Amoeba		
<i>Acanthamoeba polyphaga</i>	-	5

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VANTOCIL™ IB Antimicrobial

TECHNICAL
INFORMATION BULLETIN

Table 2: Typical Physical Properties

Composition	An aqueous solution of PHMB
Active agent	20% w/w
Physical form	Slightly opalescent colourless to pale yellow liquid
Viscosity at 25°C	5 mPa s.
pH at 25°C	4.0-4.5
Boiling Point	102°C
Storage stability	Stable under normal conditions of storage down to 0°C. If frozen, allow to thaw at room temperature and stir thoroughly before use. Active agent is heat-stable and non-volatile.
Flash point	Boils without flashing
Density at 25°C	1.04
Odour	No strong odour
Foaming/Surface Tension	Has significantly less tendency to tension foam than quaternary ammonium compounds. PHMB is not surface active.
Compatibility	Effective and stable over pH range 1-11. Compatible with nonionic surfactants, glycols, glycol ethers, most strong acids and common chelating agents such as EDTA, NTA, IDS. Limited compatibility with anionic surfactants, strong alkalis, complex phosphates and strong oxidisers.

Amount to Use

VANTOCIL IB can be used alone or in combination with other biocides to create products for a wide range of disinfection applications.

Considerable data exists which provides a measure of the intrinsic anti-microbial activity of **VANTOCIL IB**, generated via European suspension test protocols relevant to application in Food, Industrial, Domestic and Institutional Hygiene.

Its activity has been further demonstrated under conditions representative of practical use, and a range of use concentrations is provided in Table 3. However, it is recommended that field tests under practical conditions be undertaken to determine the most cost-effective dose for your application.

This data and information on the compatibility of **VANTOCIL IB** with a range of formulating chemicals is available on request.

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VANTOCIL™ IB Antimicrobial

TECHNICAL
INFORMATION BULLETIN

Table 3: Applications

Application Area	% VANTOCIL IB (w/w) in sanitiser use solution
Disinfection of pre-cleaned solid surfaces:	
Hospitals	
Food Processing	0.1-0.2
Veterinary establishments	
Poultry hatcheries	
Water treatment applications:	
Air conditioning	0.01-0.1
Fermentation equipment:	
Yoghurt	0.3-0.5
Cheese moulds	
Acid descaler sanitiser:	
Milking parlours	0.4-0.7
Breweries	
Tunnel pasteurisation:	
Canning and bottling plants	0.005-0.01

Technical Service

Arch Biocides technical laboratories can provide a range of testing as part of our customer support programme. Please contact your nearest Arch sales office to take advantage of these customised services.

Risk Assessment and Management

Highly qualified Arch Safety, Health and Environment (SHE) professionals are available to help define and manage any potential risks to human health or to the environment when using VANTOCIL disinfectant products. In addition, Arch Biocides is committed to understanding the suitability of VANTOCIL IB for specific applications. Please contact your local Arch sales office should you have questions in this area.

Health and Safety

Arch Biocides maintains Material Safety Data Sheets on all of its products. These are regularly updated to incorporate new data under our continuous programme to improve our health and safety advice needed to protect your employees and customers.

The VANTOCIL IB Material Safety Data Sheet is provided with every sample and product shipment. It is also available upon request. It should be read and understood by all supervisory personnel and employees before using this product. If there are any questions, please contact your local Arch sales office for advice.

Total Quality

Arch Biocides has ISO 9002 registration at its Business Centre and manufacturing sites.

Regulatory Information

VANTOCIL IB has many worldwide regulatory approvals, including approvals for use as a sanitiser for food handling equipment, in breweries, and in dairies. Since approvals are regularly being gained, we are constantly updating our records. A full, up to date list is available on request.

The components of VANTOCIL IB are listed on the following inventories:

EINECS	(European Union)
TSCA	(USA)
ACQIN/AICS	(Australia)
ENCS	(Japan)
DSL	(Canada)
Korean Inventory	

Enquiries for further information and samples should be addressed to your local sales office.

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VANTOCIL™ IB Antimicrobial

TECHNICAL
INFORMATION BULLETIN

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

Some Arch Chemicals, Inc. biocides may not be registered for certain uses in your country.

Any data relating to test organisms included in this publication relates to standard laboratory test species and is provided for information only. No claim of controlling organisms in public health applications is made by the inclusion of such data nor should it be implied.

VANTOCIL is a trademark, the property of Arch UK Biocides Ltd., a subsidiary of Arch Chemicals, Inc.

SAFE HANDLING INFORMATION

Refer to the Material Safety Data Sheet (MSDS) available from Arch Chemicals, Inc. for information on the safe use, handling and disposal of this product.

FOR YOUR PROTECTION

Arch Chemicals, Inc. ("Arch") warrants that this product conforms to the chemical description on the label and that it is reasonably fit for the purposes stated on the label when used in accordance with Arch's directions under normal conditions of use. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal use conditions, or under conditions not reasonably foreseeable to Arch, and the buyer or user assumes the risk of any such use. ARCH DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY. Statements herein, therefore, should not be construed as representations or warranties.

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