MATRIX® is a breakthrough, revolutionary step forward in validated cleaning protocols
A biofilm is a thin layer of micro-organisms adhering to a surface. These adherent cells produce a matrix of Extracellular Polymeric Substance (EPS), a sticky type of glue like material. The cells then become embedded within the EPS which protects viable bacteria and viruses.

Biofilms can be found everywhere in the environment. Biofilms are present on teeth as dental plaque. They are found in water supplies, air conditioning, ship hulls, paper manufacturing, oil recovery, food processing and many other applications including healthcare.

Biofilms in Healthcare

Medical devices are prone to biofilm growth and are responsible for a wide range of health related infections.

Biofilm growth has been reported on:
- Environmental healthcare surfaces
- Catheters
- Endoscopes
- Medical Devices (Breast, Orthopaedic, Cardiac and other implants)

Biofilms protect potentially colonising bacteria and viruses. Micro-organisms embedded in a biofilm can be up to 1,000 times more resistant to antibiotics and it is estimated by the US FDA that up to two thirds of all healthcare infections are related to a biofilm.

Scientific studies on reusable flexible endoscopes showed that 100% of patient ready endoscopes had biofilm present in their air/water channels.

Biofilms differ from conventional biological soils as they adhere to a surface and "protect" themselves from both thermal and chemical attack.
WHAT IS A BIOFILM?

**MATRIX® CLEANING ACTION**

- MATRIX® breaks the surface adhesion causing the biofilm to ‘peel-back’ and collapse on itself
- MATRIX® dissolves the complex carbohydrates - EPS (Exo Poly Saccharide)
- MATRIX® impacts 100% of viable bacteria within the biofilm
- MATRIX® has demonstrated cleaning efficacy - institute testing and simulated soil tests have proven MATRIX® to be the world’s most effective medical device cleaner.

**MATRIX®** is a patented formulation of surfactants specifically designed for removing conventional biological soils, bacterial biofilms and other microorganisms on medical devices.

MATRIX® is a breakthrough in validated cleaning protocols. MATRIX® has been scientifically proven to remove conventional biological soils and bacterial biofilms. Bacterial biofilms in which both bacteria and other micro-organisms may be embedded are more difficult to remove than conventional biological soils alone. Disease causing organisms have been proven to be transferred when protected within biofilms on improperly cleaned Medical Devices. Traditional cleaning solutions, most notably enzymatic detergent cleaners, have been demonstrated to be ineffective against bacterial biofilm soiling.

**SCIENTIFIC DATA**

**RESULTS OF UNIVERSITY TESTING**

MATRIX® outperformed enzymatic detergents in every measure, in every test. Cleaning of Medical Devices has been identified as the critical first step in any effective instrument reprocessing system.

It is not always possible to see the accumulation of soils and bacterial biofilms in narrow lumens and on complex medical instruments due to their design. Bacterial colonies require microscopic examination by Scanning Electron Micrograph’s (SEM’s) as they are not visible to the naked eye. Thus, even when internal and inaccessible surfaces can be visually inspected, contamination with biofilms may not be readily visible.

Biofilms are tenacious and subject to regrowth if they are not removed. Scientific testing on multiple processing cycles has shown Matrix should be used continuously at normal dilutions to ensure both Biofilm removal and to stop regrowth.
HOW ENZYMATICS WORK

It is an important scientific finding that enzyme cleaners as a class of product, regardless of brand tested, failed in these worst case simulated models to remove biofilm.

ENZYMATIC CLEANERS

- Enzyme cleaners attempt to digest biological contaminants.
- Enzymatic detergents fail to sufficiently remove biofilms and associated viable bacteria found on medical devices.
- Enzymatic detergents have demonstrated to be ineffective against bacterial biofilms in simulated soil tests and institute research.
- Enzymatic detergents that use highly active enzymes are classified as chemical sensitizers and are a hazard to human health.
- MATRIX® does not contain enzymes.

PROVEN STUDIES

MATRIX® is the first documented and proven solution to the complex problem of validated cleaning of modern medical devices.

MATRIX® is formulated to effectively clean medical devices in both normal and worst case applications. MATRIX® will rapidly solubilise blood, proteins, body tissue, carbohydrates, lipids and mucopolysaccharides. The patented formulation of MATRIX® is specifically intended for use on endoscopes (rigid and flexible), ultrasound probes, complex medical devices and all other medical instruments.

As biofilm research in healthcare is a new scientific frontier many countries Regulators have not yet set appropriate standards for testing. As such some companies claim “Biofilm” removal with dubious data and no supporting scientific publications. Whiteley Medical strongly recommend all customers request to see International, Peer Reviewed Scientific Publications from respected Journals when evaluating products.

Outlined below is a list of scientific publications on MATRIX® and Biofilms:

- *Biofilm in Duodenoscope: hospital infection by pan-resistant aeruginosa pseudomonas related to Endoscopic Retrograde Cholangiopancreatography (ERCP).* S.Muller, I.Magulnik, L. Konkewicz, A. Barth, R. Kuchenbeker. J.GENCA, 01 January 2010, vol./is. 20/1(13-14), 1444027X.
- *A study of the efficacy of bacterial biofilm cleanout for gastrointestinal endoscopes.* Ying Fang, Zhe Shen, Lan Li, Yong Cao, Li-Hing Gu, Qing Gu, Xiao-Qi Zhong, Chao-Hui Yu, You-Ming Li. World J Gastroenterol 2010 February 28; 16(8): 1009–1014.
- *Evaluation of detergents and contact time on biofilm removal from flexible endoscopes.* Wei Ren MD, Xiaoyan Sheng, Xi Huang, Fachao Zh, Wenshi Cai. AJIC. American Journal of Infection Control Volume 41, Issue 9 , Pages e89-e92, September 2013.
ABOUT MATRIX®

PATENTED. ARTG: 125529.

DIRECTIONS FOR USE
MATRIX® can be used safely in Ultrasonic Cleaning devices in place of existing enzymatic cleaning products.

Manual Cleaning:
For normal instrument cleaning with regular usage dilute MATRIX® 1:100 in potable water (10mL/Litre). Worst case cleaning for heavily soiled instruments with dried surgical soils, use MATRIX® diluted 1:20 (50mL/Litre). Use at room temperature (20˚C - 25˚C) is recommended. Use below 35˚C.

Automated Endoscopic Reprocessors:
For normal use dilute MATRIX® at rate of 1:100 (10mL/Litre). REFER TECHNICAL BULLETIN FOR DETAILED INSTRUCTIONS PRIOR TO FIRST USE.

Ultrasonic Use:
MATRIX® is the only cleaning solution shown to repeatedly and reliably remove conventional biological soils and bacterial biofilms. Dilute MATRIX® 1:100 in potable water (10mL/Litre).

PRECAUTIONS FOR USE:
Refer to the Material Safety Data Sheet (MSDS) for Personal Protective Equipment (PPE) recommendations. Please read the MSDS prior to first use. Non hazardous and free rinsing when used as directed. Store below 30˚C, out of direct sunlight. Do not mix with detergents or other chemicals.

SAFETY
It is imperative that those using MATRIX® should read the Material Safety Data Sheet prior to first use. MATRIX® should ONLY be used in a well ventilated area. MATRIX® should only be used in cold/warm water (less than 35˚C).

HEALTH STATEMENT
Whiteley Medical makes every effort to ensure that its products are always safe to use, however products can affect individuals differently and the company cannot predict individual responses. Therefore careful reading of the MATRIX® MSDS is essential prior to first use.

ENVIRONMENTAL STATEMENT
Whiteley Medical manufactures products that comply with Australian and International environmental policy. Whiteley Medical aims to ensure that every product is 100% biodegradable, whilst achieving optimal performance and benefit to customers.

All Whiteley Medical products are supplied in 100% recyclable containers.

Packsizes available:
- 5L Matrix®
- 5L Mint Matrix®
- 15L Matrix®

Whiteley Medical
MATRIX® WIPES:
Unique biofilm removing detergent wipes for pre-cleaning endoscopes, TOE probes, Ultrasound probes and other medical devices.

- Apertured wipe to ensure sufficient density for removing gross organic soiling.
- MATRIX® Wipes contain MATRIX® biofilm removing solution - a patented formulation of surfactants specifically designed for removing biological soils and biofilms.

PACKSIZE:
- Flatpack (80 Wipes)
  - 190x200mm

**EDUCATIONAL VIDEOS**
The Gastroenterological Nurses College of Australia (GENCA) offer an educational DVD on ‘Manual Cleaning Process for Flexible Endoscopes’. This is a useful training tool for Endoscopy Staff as it demonstrates correct applications and procedures for cleaning endoscopes using MATRIX®. For more information or to request a copy visit www.genca.org

Whiteley Medical offer a training video on ‘How to clean an Ultrasound Probe using Matrix Wipes’. To obtain a copy contact marketing@whiteley.com.au or to view the dvd online visit http://www.whiteley.com.au/Education/Educational_Videos

**DISTRIBUTED BY:**

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ABN No. 24 000 906 678
PO Box 1076, North Sydney NSW 2059
Product Support Hotline: 1800 833 566
www.whiteley.com.au

NZBN: 9429041224243
PO Box 204149, Highbrook, East Tamaki, Auckland 2161
Product Support Hotline: 0800 257 352
www.whiteley.co.nz

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