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QUALITY

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ANTIMICROBIAL  
PROTECTION





# Proven Antimicrobial Protection in Real Life Applications

## What are Microbes?

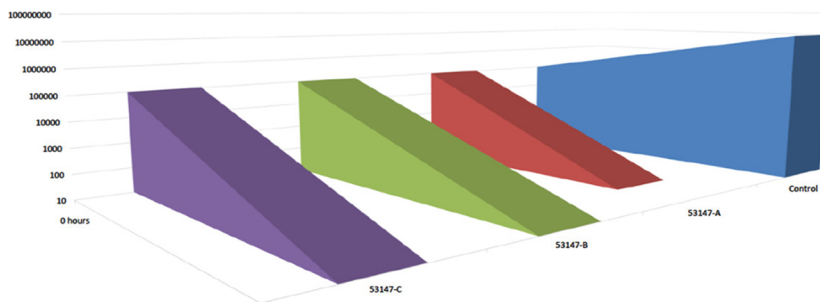
Microbes are organisms too small for the naked eye to see and are found everywhere on Earth. There are many types of microbes: bacteria, viruses, fungi and parasites. While most microbes are harmless and even beneficial to living organisms, some can cause disease among humans. These disease-causing microbes are called pathogens or germs.



Methicillin resistant Staphylococcus aureus (MRSA) is a very common bacteria that is resistant to many antibiotics. In a healthcare setting, such as a hospital or nursing home, MRSA can cause severe problems such as bloodstream infections, tuberculosis, pneumonia and surgical site infections.

## Antimicrobial Coating with Silver Ion Technology

Silver ions embedded in the material substrate are released via ambient moisture and enter the microbes through their cell membrane. The silver ions destabilize the cell, stop respiration and inhibit cell division. The main function of an antimicrobial product is to offer continuous and permanent protection against microbes which can cause contamination, odours, degradation as well as many diseases.



With over 40 years of experience in the Sultanate of Oman, **Building Supplies & Services** has always offered the highest quality of products for the construction industry. As of 2018, we have introduced a range of antimicrobial products to tackle the challenges faced in industrial health & hygiene.



## Antimicrobial Door Hardware

Frequently touched surfaces are regularly exposed to harmful bacteria. Many of these microbes can double in number every twenty minutes!

Antimicrobial Protection prevents hardware and surfaces from becoming sites of dangerous microbial contamination by disrupting the bacteria's ability to respire, metabolize, and reproduce.

Silver Ion Technology gives the **PURE** range of door hardware from **Western** the highest levels of continuous antimicrobial protection available in the market today. The performance of these products has been verified through independent laboratory testing in accordance with international standards (ISO 22196 / JIS Z 2801). The **PURE** range was designed to cater for the needs of hospitals, schools, food processing facilities, and any other areas where occupational hygiene is paramount.



## Antimicrobial Steel Doors

Stop microbes at the door with the certified range of **Antimicrobial Steel Doors** from **M&E**! Your doors are the primary access points to your buildings. Scientific surveys have shown that colonies of Staphylococcus, E. coli, and MRSA are frequently found on door surfaces when tested. **Antimicrobial Steel Doors** from **M&E** have been tested and certified for effective protection in accordance with international standards (ISO 22196 / JIS Z 2801).



## Antimicrobial Panels

There has always been demand for antimicrobial panels in industries where occupational hygiene is critical, such as the healthcare and food preparation sectors. **Antimicrobial Compact Laminate Panels** from **M&E** & **DEBO** introduce an additional layer of protection to the surface of the laminate that complies with international standards (JIS Z 2801 and ASTM G21).



## Antimicrobial Coatings for Metallic Surfaces

To address industry needs for protective coatings, **سنت** is introducing high durability water-based epoxy coatings that contain a broad-spectrum antimicrobial agent. Once applied, it protects the underlying substrate from over 650 strains of bacteria such as E. coli, Salmonella and Listeria. The coating also prevents the growth of fungi, such as mold and mildew. This coating can be applied directly to plant equipment, HVAC ducts, and any other metal surfaces to prevent harmful microbial contamination and propagation. Our experienced technical staff can advise you on the most suitable products for your applications.



**Report Reference:** M&T Oman - 0001a  
**Client:** Mechanical & Technical Solutions, Oman  
**Date:** 06/08/2018  
**Material tested:** White coated (RAL9010) steel door with ST2052

**Test Laboratory:** Anti-Microbial Test Division, Kyoto Biseibutsu Kenkyusyo  
 Yamashina-ku, Kyoto 607-8482, Japan

Evaluation of the antimicrobial performance of samples containing antimicrobial additives. All testing is conducted by an independent laboratory using the ISO 22196 / JIS Z 2801:2000 test method.

### Introduction

This report details the analysis carried out on the test samples, including an overview of the test method, the test results, an interpretation of those results and copies of the associated laboratory certificates.

### Test samples

Where possible, all test materials are taken from samples of the actual product. Samples typically measure 50mm x 50mm, as specified by the JIS Z 2801:2000 method, although where this is impractical it is permissible to use smaller samples with the method being modified accordingly.

### Test method

The samples were tested according to the JIS Z 2801:2000 method, briefly summarised as follows:

Each test sample is inoculated with a suspension of the test organism (for example, MRSA). The inoculum is held in contact with the test sample using a sterile polyethylene film. All test samples are inoculated in triplicate, with an additional three replicates of the control.

The bacterial population on three control replicates is evaluated immediately following inoculation. This is assumed to be the initial population on all test samples (i.e. the population at zero hours).

The remaining samples are incubated for the test period (24 hours) at 35°C, at which time the bacterial population is evaluated.



### Technical Data Sheet 07-2015

**Chemical resistance:** EN 438-2:2005  
 Group 1, 2, 3: Level 5, no visible change  
 Resistance to acids after 24h exposition:  
 Formic Acid 85%: No visible change  
 Acetic acid 99%: No visible change  
 Hydrochloric acid 36%: No visible change  
 Phosphoric acid 85%: No visible change  
 Nitric acid 65%: Slight change in gloss level  
 Sulfuric acid 96%: Slight change in gloss level

**Antimicrobial:** Accomplishment in dependence on  
 JIS Z 2801 and ISO 22196:2007

We tested the following microorganism: Germs:  
 ATCC 4157 Escherichia coli (gram-negative)  
 ATCC 6051 micrococcus luteus (gram-positive)  
 (Concentration: 1.5 x 10<sup>6</sup>CFU/ml in 400 µl)  
 After 2,3,4, and 5 hours we identified the number of living germs (CFU, colony forming unit) The reduction of CFU complied with quantitative antimicrobial effect.

**Scratch resistance:** EN 438-2:1991  
 Level 4, ≥ 5 N

**Abrasion resistance:** EN 438-2:2005  
 AT ≥ 250 turns

**Resistance to boiling water:** EN 438-2:2005  
 Level 5, no visible change

**Resistance to water steam:** EN 438-2:2005  
 Level 5, no visible change

**Product composition:** Substrate: Plain-coloured decor paper  
 Impregnation: Transparent EB-curable resins  
 Coating (White): Pigmented EB-curable resins  
 Coating (Grey): Transparent EB-curable resins  
 Release film: PP-film. Temperature stable <120° C (\*\*)  
 All used resins are solvent- and formaldehyde free

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**Report Reference:** WAH (U.K) - 0001a  
**Client:** Western Architectural Hardware (U.K)  
**Date:** 06/08/2018  
**Material tested:** Clear Coated stainless steel material (Door Hardware) for "PURE RANGE" with ST2052

**Test Laboratory:** Anti-Microbial Test Division, Kyoto Biseibutsu Kenkyusyo  
 Yamashina-ku, Kyoto 607-8482, Japan

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