

CEILING SYSTEMS

[Between us, ideas become reality.]

SYSTEMS & APPLICATIONS:

Orcal Bioguard can be applied to any of the Orcal metal ceiling tiles and systems, full details of which are in the Armstrong Orcal brochure. Depending on the exact nature of the application and its use will determine the most applicable solution to it. It should be noted that when an **Orcal Bioguard** coating is applied to a perforated tile, then only the painted areas of the tile possess active anti-bacterial properties.

Currently **Orcal Bioguard** is available in RAL 9010 and Global White, however other colours and shades are available on request.

For areas where there is a need for a higher level of performance an **Orcal Bioguard** un-perforated Clip-in system would be recommended. This system has the advantage of a clean visual appearance and downward demountability so that the tiles can be removed for inspection cleaning and maintenance. For the highest level of performance that also meets with HTM 60 Category 1 to 6 requirements, using an **Orcal Bioguard** Clip-in system with a back coat and installed with sealed joints (done by the installer) would be recommended.



ORCAL BIOGUARD



Typical applications where Orcal Bioguard would be suitable would include:

- Hospitals - Where there is a need to have an active infection control regime.
- Schools - Where because of the high levels of human traffic/high use environment there is a risk to children from cross contamination.
- Other Public Buildings- (offices, transport infrastructure, washrooms, etc) - Again with these environments there are dangers of cross contamination due to the numbers of people using them.
- Food Preparation - To avoid potential sources of contamination.
- Laboratories - To assist with active cleaning programmes that these areas would have.

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ORCAL BIOGUARD

Recently there has been an increase in the awareness of the public, and of professionals, to the dangers that bacteria in the environment can pose. As a result of these concerns the need to manage and minimise this threat has become an issue for designers and specifiers. This is true for healthcare buildings but is also applicable for the food preparation and education sectors as well as other public buildings.

Bacteria may build up on almost any surface where the conditions are right for them to survive and prosper, i.e. where it is moist, warm and un-clean. When this invisible build up takes place then it can spread throughout the environment by:

- Air conditioning and ventilation systems
- Through poor hygiene and cleaning practices
- Through human interaction

In the case of human interaction this can be a particular issue in areas that have a high level of human traffic and that are open to the public.

Orcal Bioguard is a range of metal ceiling tiles designed for applications where a suspended ceiling is required and hygiene and cleanliness are of the utmost importance. In these types of applications hygiene becomes the prime consideration. It is also important to be able to gain access to the plenum where regular servicing is required. **Where Orcal Bioguard differs from conventional metal ceiling tiles is that the special finish applied to it has active anti-bacterial properties.** Orcal Bioguard tiles can be used as an independent system or in conjunction with other standard Orcal ceiling tiles and Armstrong Bioguard Mineral Fibre tiles, depending on the exact performance and properties that the designer and specifier wish to achieve.

CLEANING & HTM 60

One of the keys to controlling bacteria in an environment is to have an effective cleaning and hygiene schedule. For this to happen regularly, the ceiling must be easy to clean and robust enough.

In the UK **HTM 60** has been developed to provide specification and design guidance on ceilings for health buildings. It has established 6 performance categories relating to user requirements for ceiling membranes in the various activity spaces used in health buildings. These criteria include:

- Smooth
- Unperforated
- 100% RH
- Daily wet mop clean by hand or mains pressure water spray
- Class 0 flame spread
- Joint less

The table below shows how Orcal ceiling tiles perform against these criteria:

Products:	HTM 60 compliance		Edge details			
	Cat 1	Cat 2 - Cat 6	Board	Tegular	MicroLook	Clip-in
Orcal Plain with back coat		x	✓	✓	✓	✓
Orcal Clip-in Plain with back coat & sealed joints	x	x				✓

Nb. for Board, Tegular and MicroLook these products should be used with an NC grid.

Plain Orcal ceiling tiles with a back coat meet these requirements to achieve a HTM 60 Categories 2 to 6 performance level, and Orcal Clip-in plain with a back coat installed and with sealed joints (done by the installer) can even be used in HTM 60 Categories 1 to 6 performance areas.

Plain **Orcal Bioguard** tiles with a back coat, as well as meeting the requirements of HTM 60, have a special surface paint finish that gives them active anti-bacterial properties. The nature of the coating means that it effectively inhibits the development and growth of bacteria. It should also be emphasised that **Orcal Bioguard** products have been designed to complement and enhance an effective cleaning and hygiene schedule and not to replace it.



BENEFITS & PROPERTIES

The coating on **Orcal Bioguard** tiles uses a special powder coating developed, initially for use in the white goods sector, by Akzo Nobel's Interpon Powder Division. This powder has a special biocide incorporated into it at the time of manufacture, which means that the active agent is fully bonded into the matrix of the paint. The active agent is a listed product in accordance with the European Biocidal Directive.

The agent is fully micro-distributed throughout the paint film. Any bacteria that lands on the painted surface then comes into contact with the agent contained within the paint. The agent works by affecting the bacteria's cell wall, stopping it from multiplying and also bringing about its death. Because the agent is an integral part of the coating and acts as a catalyst, i.e. it is not consumed, then the product maintains efficacy over time.

Other key points are:

- **Orcal Bioguard** is more effective in the control of bacteria than a standard powder coating because it has active anti-bacterial properties.
- The product has been independently tested to show its efficacy in killing a number of bacteria types.
- The bacteria types it has been shown to be effective against include: *Listeria monocytogenes*, *Escherichia coli* 0157, *Salmonella enteritidis*, *Staphylococcus aureus* (resistant strain), *Pseudomonas aeruginosa*, *Bacillus subtilis*, *Salmonella typhimurium*, *Streptococcus faecalis*, *Legionella pneumophila*, *Vibrio parahaemolyticus*. The testing against the above organisms shows that the coatings on **Orcal Bioguard** meet the requirements of the internationally recognised test standards ASTM E2180-01 and JIS Z 2801:2000.

- **Orcal Bioguard** does not replace the need for an effective cleaning schedule. To maintain maximum efficiency the painted surface needs to be clean.

- The cleaning schedule required would depend on the exact application and the environment it is being used in. We would recommend that to maintain maximum efficiency the ceiling should be cleaned with either a mains pressure washing system (plain Clip-in tiles only, suitably installed) or using hot soapy water & mild non-abrasive chemicals.

- **Orcal Bioguard** ceilings are totally recyclable with no special disposal requirements over a standard metal ceiling. The product has the same re-cycled content as for standard Orcal tiles (20% for the steel and 95% for the packaging).

- The efficacy of the coating will remain as long as there is a paint coating on the tile because the active agent is not "consumed" in the process. Small surface scratches will not affect performance providing they do not expose bare metal.

- **Orcal Bioguard** ceilings are part of the wider Armstrong Bioguard range of ceiling products giving the designer a wide range of visuals and performance characteristics depending on the exact application. These products are suitable for use in PPC projects.

- Accelerated aging tests show that the coating has the same life as the tile providing it is maintained correctly and installed in accordance with all applicable Armstrong specifications in effect at the time of installation. Orcal ceiling tiles come with a 25 year product life.

