

TATA STEEL



Advantica®

Pre-finished steel for controlled environments



WHAT IS A CONTROLLED ENVIRONMENT?

Controlled environments are designed to enable safe and efficient production, processing or service delivery inside a building.

Each controlled internal environment has specific needs related to the functionality of the building. In some cases, the consequences of contamination inside a controlled environment can be disastrous.

All controlled environments demand the highest standards when it comes to construction materials and need to be built to last. Building owners need to be confident that internal surfaces including walls, ceilings and doors are reliably:

- Efficient
- Durable
- Easy to clean
- Safe to use in food contact areas

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About Tata Steel's European operations

Tata Steel is one of Europe's leading steel producers, with steelmaking in the Netherlands and the UK, and manufacturing plants across Europe. The company supplies high-quality steel products to the most demanding markets, including construction and infrastructure, automotive, packaging and engineering. Tata Steel works with customers to develop new steel products which give them a competitive edge. The Tata Steel group is among the top global steel companies with an annual crude steel capacity of 33 million tonnes. It is one of the world's most geographically-diversified steel producers, with operations and a commercial presence across the world.

TYPICAL CONTROLLED ENVIRONMENT APPLICATIONS

The Advantica® range of pre-finished steel from Tata Steel includes a choice of proven products for applications in a variety of controlled environments. These are now supported with a guarantee on a project by project basis from Tata Steel.





Food processing

In areas where food is processed, packaged or stored, the safety and purity of the final product is obviously vital. Because walls, ceilings and doors are prominent sources and potential vectors for contamination, they must allow for regular and efficient cleaning. Surface finishes should not taint the food products inside controlled environments.

Advantica® food safe products offer good resistance to the type of cleaning agents typically employed in food processing environments. In environments that need to be dry-cleaned – such as powdered sugar and flour processing areas – the inert surfaces of our products ensure superior resistance to staining caused by environmental deposits.

The Advantica® food safe range comprises Advantica® L Control and Advantica® CL Clean products. These pre-finished steel products are ideal for:

- Use in insulated panels – providing an effective way to create temperature-controlled environments
- Dividing a production facility into high-risk and low-risk zones

Fully tested and certified, Advantica® L Control and Advantica® CL Clean are:

- Food safe
- Non-toxic
- Chemically inert
- Stain resistant
- Easy and robust to resist controlled environments typical cleaning regimes
- Fully REACH compliant and free of chromates including hexavalent chrome



Clean rooms

Pharmaceutical, data centres, IT facilities and micro-engineering clean rooms require environments which are easy to clean. Specialised cleaning regimes are often used to ensure sterile environments. Dust reduction is also an important factor in avoiding cross-contamination. Typical clean rooms have a high volume of air transfer and the air is usually filtered.

Advantica® L Control pre-finished steel provides anti-static properties to help minimise the risk of airborne particles contaminating the surface. The durability of Advantica® L Control means it provides excellent resistance to physical damage and chemical cleaning agents. Its robustness also makes it suitable for use in fully demountable panel systems that can be relocated.

Advantica® L Control for clean rooms is:

- Easy to clean
- Impact and scratch-resistant
- Anti-static
- Robust enough to relocate

Cold storage

Cold storage facilities are used for storage of perishable food or other perishable products. A facility can contain a number of compartments, each needing to be maintained at a specific temperature. All such refrigerated rooms have insulated doors.



Advantica® pre-finished steel products offer the properties vital to the construction of safe and efficient refrigerated buildings and controlled atmosphere facilities. Our products are suitable for walls, ceilings and insulated doors. They are:

- Corrosion-resistant
- Durable and scratch-resistant
- Approved for food contact
- Easy to clean

Medical environments

To help in the battle against secondary infections, environments such as hospital wards and operating theatres require durable surfaces that withstand stringent cleaning regimes.

In high-traffic healthcare zones, where equipment and trolleys are regularly moved around, wall surfaces are particularly prone to damage. Surfaces that are cracked or contain deep scratches are more difficult to keep clean.

Advantica® L Control has excellent robustness whilst being strong and durable, even in high traffic areas, ensuring that the product's surface remains intact, allowing it to be cleaned as normal.

Advantica® L Control:

- Has a surface that is easily cleaned using conventional cleaning techniques found in healthcare traffic zones
- Is suitable for the standard procedure of rotating the types of disinfectant used
- Is robust – with excellent scratch resistance



INTRODUCING ADVANTICA®

When it comes to pre-finished steel for controlled environments, our products set the benchmark for quality and innovation.

We have been producing Advantica® pre-finished steel for controlled environments for nearly 40 years and apply our technical expertise and market knowledge to ensure our products continue to meet evolving demands.

Our market-leading Advantica® range has been developed to meet the most stringent requirements of controlled environments. Advantica® provides the highest quality of pre-finished steel surfaces. These taint-free

surfaces help to maintain clean and safe environments that are cleanable and, where necessary, safe for direct food contact. Advantica® products offer excellent levels of resistance to corrosion, damage and scratching.

Furthermore, Advantica® L Control and Advantica® CL Clean are now available with market-leading guarantees which demonstrates their performance and provides peace of mind.

Advantica® products benefit from extensive testing and are well-proven in a wide variety of applications including:

- Food processing
- Cold storage
- Clean rooms
- Medical environments
- Pharmaceutical
- Data centres



Advantica® delivers benefits

Advantica® products for controlled environments provide exceptional levels of performance and a range of benefits including:

- Fast and efficient cleaning – through easy-clean surfaces
- Confidence that surfaces are food safe – resulting from rigorous testing and independent certification
- Operational flexibility – through the ability to relocate the robust pre-finished steel panels should the building configuration change

Meeting your needs

Not all controlled environments are the same. This means the demands on internal surfaces can vary enormously. We offer a choice of products to meet your needs:

- Advantica® L Control
- Advantica® CL Clean
- Advantica® GM

Our knowledgeable and experienced team is here to help you select the best product for your project. We will supply detailed advice on installation and maintenance.

ADVANTICA® L CONTROL

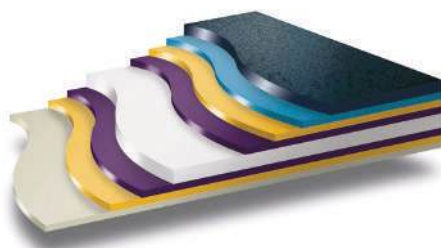
Developed for use in controlled environments demanding the highest levels of cleanliness and food safety

Advantica® L Control is a proven and highly durable pre-finished steel for use in demanding controlled environments. It has a PVC outer layer developed by Tata Steel in conjunction with leading film manufacturers. Advantica® L Control is:

- Food safe – meeting stringent requirements for continuous food contact
- Highly resistant to staining
- Excellent corrosion resistance
- Anti-static – reducing the attraction of dust and dirt
- Robust – for lasting performance in high traffic areas

The anti-static PVC film has a nominal 120µm thickness. We can also supply Advantica® L Control with a film thickness of 150µm on request for applications requiring higher durability. The food safe properties extend through the entire thickness of the film and are not limited to just the external surface. See **Figure 1** below.

Figure 1



Key

■ PVC film (120 µ)	■ Adhesive (8 µ)	■ Surface treatment
■ Metallic coating	■ Steel	■ Backing coat

Manufactured with quality built in

We manufacture Advantica® L Control using a hot-dip galvanised substrate to EN 10346. Following a pre-treatment, an adhesive is applied. The PVC film is bonded to this pre-treated substrate using a polyester-based adhesive, applied in a roller coat operation. The adhesive is applied at a thickness of 8µm and provides an additional barrier to protect against corrosion.

The reverse side of the product has a backing coat which provides excellent adhesion to most forms of adhesive and insulation.

Advantica® L Control complies with (EU) No.10/2011 and EN 1186-1 and is suitable for continuous food contact. However, as the product is typically used for the construction of walls and ceilings it is not advisable for direct food preparation.



Clean and taint-free

All Advantica® products have been subjected to rigorous industrial testing for volatile organic compounds (VOC).

Advantica® L Control has been tested in accordance with EN 16000-9 by an independent laboratory and achieved the highest rating, A+

The PVC food safe film on Advantica® L Control is phthalate-free – eliminating the risk of contamination.

Anti-static properties: The PVC film incorporates a polar antistatic agent which reduces the electrical resistance of the surface to 10¹³ohms which in turn reduces the attraction to dirt particles. Advantica® L Control prevents the attraction of dust and dirt by surface conductivity additive.

Typically food safe PVC films are white and have a light embossed pattern on the surface. Other colours may be available upon request – please contact us.

Guarantee

We can offer a comprehensive guarantee with Advantica® L Control up to a duration of 15 years. This is offered on a request basis and project by project. For further information please see the guarantees section.



Case study in action

Pre-finished steel for controlled environments

Key Foods - Widnes, UK

Client/Building Owner: Key Foods

System Manufacturer – Internal:

Hemsec Panel Technologies

System type: PIR composite panels

Installer – Internal: Heritage Hygienic

Tata Steel products used:

Advantica® L Control – Internal

Colours: White (interior)

Year: Refurbishment began in July 2012

“This is a wonderful product for meeting the needs of food processing facilities. We chose to use Hemsec panels using Advantica® L Control by Tata Steel because we have the reassurance of the quality, and more importantly the satisfaction of the client.” says Managing Director Greg Howell.

The building

This large ex-military building – 200 metres long by 40 metres wide – was the ideal place for Key Foods to expand its creamery operations. The internal work saw the creation of a wide range of rooms including the main creamery and areas for chilling, processing, and changing.

Advantica® L Control by Tata Steel, a laminate pre-finished steel product, was specified for its excellent food and fire safe qualities and was used throughout the entire interior of the processing and storage areas, including doors and ceilings.

The challenge

The interior of the building was constructed using Hemsec Panel Technologies Internal PIR sandwich panel system. As a closed cell product, this significantly enhances hygiene by stopping moisture absorption. It is also a well-insulated and completely fire-rated (FR30) product.

The composite panels were used to create the walk-on suspended ceilings, allowing access to the range of services such as plumbing and electricity above, as well as for ease of cleaning and maintenance. The panels have a maximum span of six metres and achieved a loading of 0.25/kN/m²

uniformly distributed over the whole area and a concentrated load of 0.9kN (BS 6399).

This facility requires a full range of doors – sliding, chill-slam, high-speed and personnel – and all have a PIR core lined with Advantica® L Control by Tata Steel. An additional challenge came when Key Foods added a garlic process –adding a requirement for a fully airtight room to prevent any odour tainting the products in the creamery side of the business.

The solution

The panel installation and room fit-out was completed by Heritage Hygienic, a specialist company in all kinds of hygienic installation for supermarkets, food processing and the National Health Service.



ADVANTICA® CL CLEAN

Suitable for a range of controlled environments including clean rooms, food processing and cold storage

Advantica® CL Clean is a high-performance pre-finished steel with very good corrosion resistance and flexibility. It has a PET (a type of polyester) outer layer which ensures that the product is:

- Food safe – meeting requirements for continuous food contact
- Highly resistant to staining
- Corrosion-resistant
- Smooth surface

Due to its inert properties, PET is commonly used in the manufacture of many items including soft drink bottles, frozen foods, salad dressings and oil. The PET outer layer on Advantica® CL Clean contributes to the product's durability and provides its food safe properties.

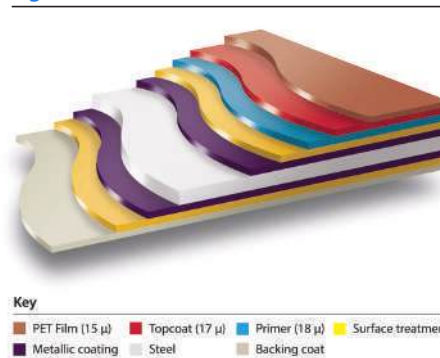
Manufactured with care

We manufacture Advantica® CL Clean using a hot-dip galvanised substrate to EN 10346. Following a surface treatment, a high-build primer is applied. The primer has a nominal coating thickness of 18µm. It gives the product its excellent corrosion resistance and flexibility. See **Figure 2** below.

A coloured topcoat – providing the colour of the finished product – is applied on top of the primer. The topcoat has a nominal thickness of 17µm and acts as an adhesive to bond to the PET outer layer.

The reverse side of the product has a backing coat which provides excellent adhesion to most forms of adhesive and insulation.

Figure 2



Advantica® CL Clean complies with (EU) No.10/2011 and EN 1186-1 and is suitable for continuous food contact. However, as the product is typically used for the construction of walls and ceilings it is not advisable for direct food preparation.



Clean and taint-free

All Advantica® products have been subjected to rigorous industrial testing for volatile organic compounds (VOC).

Advantica® CL Clean has been tested in accordance with EN 16000-9 by an independent laboratory and achieved the highest rating, A+

Reducing dust and dirt

The surface of the PET film provides an electrical resistance to minimise the build-up of static charge. The PET film properties help to repel dirt and dust particles.

Guarantee

We can offer a comprehensive guarantee with Advantica® CL Clean up to a duration of 10 years. This is offered on a request basis and project by project. For further information please see the guarantees section.

ADVANTICA® GM

A proven solution for non-aggressive controlled environments with low traffic and minimal food contact.

We have been producing Advantica® GM pre-finished steel over several decades. It is a popular choice in controlled environments where traffic is low and where there is little risk of damage occurring to the product and minimal routine cleaning. It is suitable for use in areas where there is intermittent food contact only.

Advantica® GM is:

- Easy to clean
- Safe for use where direct food contact is minimal

Manufactured with care

We manufacture Advantica® GM using a hot-dip galvanised substrate to EN 10346. Following a pre-treatment, an anti-corrosive primer is applied. A smooth polyester topcoat is applied on top of the primer. The nominal total organic coating thickness is 25µm.

The reverse side of the product has a backing coat which provides excellent adhesion to most forms of adhesive and insulation.

Choice of colours

We can supply Advantica® GM in a variety of colours to meet your needs and design aims. In many cases, we can even match our product to a specific colour – please contact us to find out more.





CAUTION
Potentially Hot Surface

BOILER



TECHNICAL CHARACTERISTICS AND TYPICAL PROPERTIES

The table below illustrates the technical characteristics of the Advantica® pre-finished steel product range.

Alternative products are also available from the Colorcoat® pre-finished steel range from Tata Steel should food safety not be a requirement for your particular application.

Typical properties table

Physical characteristics	Test standard	Advantica® L Control	Advantica® CL Clean	Advantica® GM
Nominal thickness (µm)	EN 13523-1	120 (150 on request)	50	25
Gloss (%)	EN 13523-2	8-15	15 - 30	20-60
Flexibility (minimum bend radius)	EN 13523-7	0T	1T	3T
Pencil hardness	EN 13523-4	>4H	2H	HB-F
Scratch resistance (g)	EN 13523-12	4000	4000	>1800
Salt spray resistance (hrs)	EN 13523-8	500	500	360
Humidity (hrs)	EN 13523-26	1500	1500	1000
Minimum continuous temperature (°C)		-40	-40	-20
Maximum continuous temperature (°C)		60	40	80
CPI Category	EN 10169	CPI 5	CPI 5	CPI 3
Complies with EU legislation for food safety and contact with food products		Yes	Yes	Yes (intermittent contact only)
Reaction to fire	EN 13501- 1	A2-s1,d0* (120µ) B-s1,d0* (150µ)	A1**	

*Advantica® L Control fire testing is based on nominal thickness of the steel sheet ≥ 0.40 mm.

**Advantica® CL Clean fire testing is based on nominal thickness of the steel sheet ≥ 0.45 mm.



IDEAL SOLUTIONS INSIDE AND OUT

The external weather side of the product is just as important to consider as the internal.

Other products are available from the Colorcoat® range of pre-finished steel for the external application.

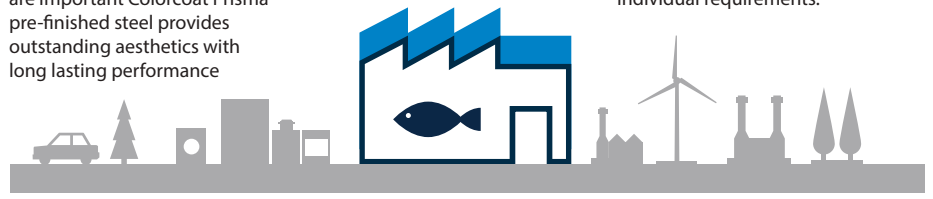
Furthermore Confidex® is the comprehensive guarantee for the weather side of the building, available when Colorcoat HPS200 Ultra® or Colorcoat Prisma® are used in a conventional building envelope application, namely roof and wall cladding in Zone 1 and Zone 2 areas. For further information on zones please refer to www.colorcoat-online.com

For further information please contact the Colorcoat Connection® helpline
T: +44 (0) 1244 892434
E: colorcoat.connection@tatasteelurope.com

Recommended specification for controlled environments

For demanding external environments, Colorcoat HPS200 Ultra® pre-finished steel is the ideal super durable solution, or if aesthetics are important Colorcoat Prisma® pre-finished steel provides outstanding aesthetics with long lasting performance

For the internal face of the building Advantica® L Control or Advantica® CL Clean are available to meet the controlled environment individual requirements.



Both external products are available with the Confidex® Guarantee from Tata Steel for the weather side of the building.



HOW CONTROLLED ENVIRONMENTS ARE DEFINED

Advantica® products have been developed to meet strictly-defined performance criteria.

applications. The table also provides a guide to the suitability of Advantica® products in various applications.

EN 10169 classifies internal ambience (based on corrosivity and humidity) from categories A1 to A6. The table below gives a summary of the classification criteria along with suitable

Please contact us to discuss the best solution for your project.

Internal environments table

	Defining criteria of atmosphere			Examples of building use	Tata Steel product		
	Corrosiveness	Cleaning	Humidity		Advantica® L Control	Advantica® CL Clean	Advantica® GM
A1	Non aggressive	Routine upkeep	Low hygrometry	Office buildings, schools, residential (except kitchens and bathrooms), dry storage buildings	✓	✓	✓
A2	Low aggressive	Routine upkeep	Medium hygrometry	Sports halls, cinemas, theatres, cold stores, supermarkets	✓	✓	✓
A3	Medium aggressive	Non intensive cleaning	High hygrometry	Kitchens and bathrooms, food processing, industrial buildings with dry processes	✓	✓	Consult Tata Steel
A4	Aggressive	Non intensive cleaning	Humid (risk of condensation)	Swimming pools, factory buildings with wet process (e.g. breweries, wine cellars)	✓	Consult Tata Steel	Not to be used
A5	Very aggressive	Intensive cleaning	Very humid (frequent risk of condensation)	Mushroom culture dairies, seafood processing, cheese factories	✓	Not to be used	Not to be used
A6	Very aggressive	Very intensive cleaning	Saturated atmosphere	Washing and soaking of tripe, leathers and hides, slaughterhouse	Not to be used	Not to be used	Not to be used

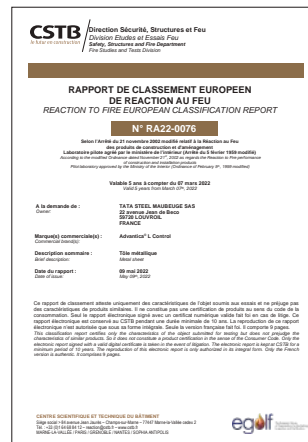
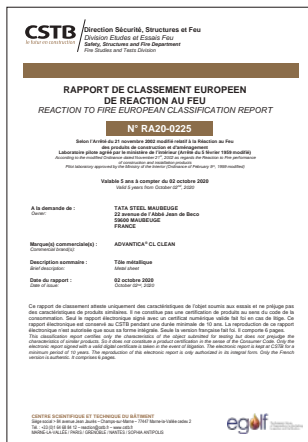
ADVANTICA® PRODUCTS ARE TESTED AND CERTIFIED

Our products have been subjected to stringent testing to prove their technical characteristics and performance

Independently certified

Advantica® L Control and Advantica® CL Clean have been tested by an independent, accredited laboratory to EN 1186, EN 13130 and CEN/TS 14234 standards. The tests are designed to measure the leeching of substances which might endanger health. Both Advantica® L Control and Advantica® CL Clean were found to be fully compliant for both overall and specific migration and deemed suitable for direct contact with moist, dry and acidic foodstuffs.

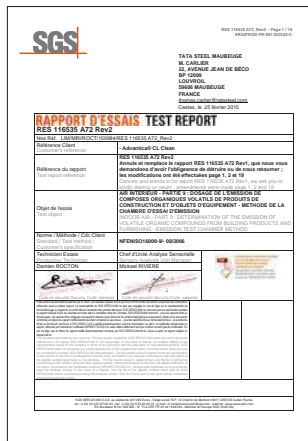
Copies of Certificates of Compliance are available upon request.



Advantica® products have been subjected to rigorous, independent testing for volatile organic compounds (VOC). Both Advantica® L Control and Advantica® CL Clean have been independently tested for liberation of VOCs against EN ISO 16000-9. Both products achieved an A+ rating.

Our products also comply with REACH regulations on the registration, evaluation, authorisation and restriction of chemicals.

Fire performance of Advantica® products has been tested against EN 13501-1+A1 and performance data is available upon request.



GUARANTEED PERFORMANCE

For added peace of mind, Advantica® L Control and Advantica® CL Clean are available with market-leading guarantees.

As a manufacturer we go beyond delivering our market-leading products. We support our customers with a guarantee from Tata Steel and offer a full range of technical support and guidance.

We offer a comprehensive guarantee with Advantica® L Control up to a duration of 15 years and Advantica® CL Clean up to a duration of 10 years. These guarantees are offered on a project by project basis and the duration of the guarantee offered will be based on our vast experience of the performance of these products, in 'real life' situations.

During the design stage or tendering process of a project, Tata Steel can provide technical support on a project by project basis.

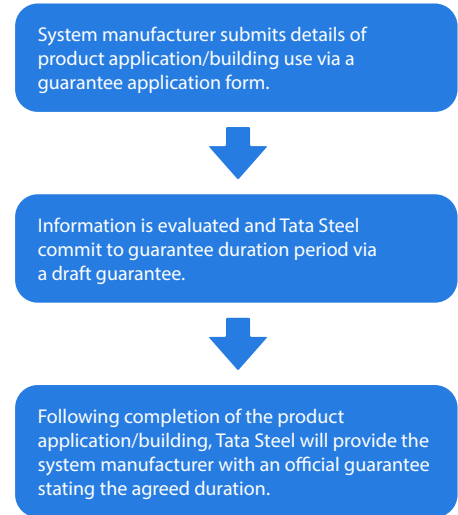
To find out what guarantee duration you can have for your project please complete an Advantica® Guarantee request form available from Tata Steel.

Tata Steel will issue a draft statement including length of guarantee for the project. When the product is ordered from Tata Steel, we will then issue the full guarantee via the system manufacturer with the same guarantee duration. Not only does it remove much uncertainty during the tendering process of a project, it also provides peace of mind that the product is fully supported by Tata Steel for the full length of the guarantee.

Only buildings designed or constructed in accordance with the current guidelines on the Tata Steel website: www.colorcoat-online.com will be covered by a guarantee.

The panel design should be such that no cut edges are exposed. Panels should be sealed with a neutral curing silicone sealant and all sealed joints, fixtures and fittings should be inspected periodically to ensure the integrity of the sealant is maintained.

The Tata Steel Guarantee process



CLEANING AND MAINTENANCE

Key points for efficient cleaning and preservation

As there are so many different sorts and sources of cleaning products on today's market, recommendations regarding use of the product is the responsibility of the end user based on information provided by the detergent manufacturer. However, we strongly recommend that you follow the advice given below, which is based on our experience.

The best way to ensure surfaces are free of microbes including viruses is regular intensive cleaning. Both Advantica® L Control and Advantica® CL Clean are sufficiently robust to withstand this.

- Use cleaning agents in concentrations indicated by the manufacturer
- The temperature of use should generally be 30°C (punctually at 50°C to dissolve fats)
- Contact time with the surface must not exceed 30 minutes
- The pH of the cleaning products must be between 5 and 9
- Use neutral cure silicon seals. Avoid sealants which contain acetic curing agents
- The panel design should ensure that no cut edges are exposed. Any exposed cut edges should be treated
- Seals between panels, plinths and accessories should be checked on a regular basis and replaced as required
- We strongly advise against detergents with high chlorine content or containing phosphoric acid
- Advantica® L Control and Advantica® CL Clean may be easily cleaned even with aggressive chemicals such as Hydrogen Peroxide (H₂O₂) and detergents containing vaporous hydrogen peroxide
- Advantica® GM must not be cleaned with Hydrogen peroxide as it will cause irreparable damage to the product
- Preference should be given to products formulated with a corrosion inhibitor when selecting cleaning products
- When selecting and using cleaning materials the end user must always follow the manufacturer's instructions for use
- After cleaning, rinse thoroughly to ensure the complete removal of detergent
- Grease can also be removed with a soft cloth and white spirit. Surfaces cleaned in this way must be immediately rinsed with clean water
- Use of organic solvents and abrasive cleaners must be avoided on the surfaces
- Rooms at a temperature of less than or equal to 0°C must not be flushed with water
- Only cleaning product suppliers are in a position to help the end user determine their hygiene plan and advise on the use of detergents and disinfectants

Approved by Bioquell

Bioquell, an Ecolab solution, is a well-established global leader providing validated and compliant surface and airborne bio-decontamination for the pharmaceutical, life science and healthcare sectors. Used globally, it eradicates biological contaminants including problematic bacteria, viruses and fungi on every exposed surface.

Viruses can contaminate and survive for long periods on surfaces. Therefore, effective disinfection is essential for stopping transmission.

Bioquell's Hydrogen Peroxide Vapour is a vapour-phase disinfection method. It achieves a level of efficacy unmatched by standard cleaning practices and other disinfection technologies.

They regularly conduct tests to determine the effect of hydrogen peroxide vapour on various commonly encountered materials. Food safe pre-finished steel products produced by Tata Steel have been tested for compatibility with Bioquell vaporous H_2O_2 (HPV-AQ).

Bioquell confirms that Advantica® L Control and Advantica® CL Clean were unaffected by the accelerated test demonstrating suitability for use with a vapour produced using a 35% concentration of Hydrogen Peroxide.



www.tatasteeleurope.com

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