



## Data sheet

of



## Protection

### **Eradication of Bad Odors and Offensive Gases:**

*These coatings can eliminate offensive gases such as methane and ammonia, along with other noxious volatile organic compounds (VOCs).*

### **Effective Pathogen Eradication:**

*They effectively eradicate pathogens, bacteria, viruses, and moulds.*

### **Self-Cleaning Properties:**

*Additionally, these coatings possess self-cleaning qualities, making hygiene maintenance more environmentally friendly and cost-effective*

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**HygieniaTouch® is a brand name of IngeniaTouch Ltd**

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## Product Name: HygieniaTouch<sup>®</sup>, a Tio2 water -based coating

### How HygieniaTouch<sup>®</sup> works:

**HygieniaTouch<sup>®</sup>** is a crystalline water-based coating which acts as a semiconductor, whereby the electron transfer process is a fundamental aspect of its photocatalytic activity. When **HygieniaTouch<sup>®</sup>** is exposed to light with energy equal to or greater than its bandgap, electrons in the valence band can absorb this energy and become excited to the conduction band. This process creates pairs of electrons and holes (electron vacancies in the valence band). The excited electrons have higher energy and can participate in reduction reactions, while the holes can oxidize substances. Click here for [more details](#)

The electron transfer process in **HygieniaTouch<sup>®</sup>** can be described in more detail as follows:

**Photon Absorption:** When HYGIENIATOUCH absorbs a photon with sufficient energy, an electron in the valence band is excited to the conduction band, leaving behind a hole in the valence band.

**Charge Separation:** The excited electron and the hole must be separated quickly to prevent recombination. The crystalline structure of HygieniaTouch helps facilitate this separation due to its electronic properties.

**Electron Transfer:** The excited electron can transfer to an acceptor molecule or atom on the surface of HygieniaTouch or within the semiconductor structure. This transfer is driven by the potential difference between the electron in the conduction band and the electron acceptor.

**Hole Transfer:** Similarly, the hole in the valence band can receive an electron from a donor molecule or atom, leading to oxidation reactions.

**Catalytic Reactions:** The transferred electrons and holes can initiate a series of redox reactions on the surface of HygieniaTouch, leading to the degradation of pollutants or the splitting of water molecules in photocatalytic applications.

**Recombination:** If the electron and hole do not find suitable reaction partners, they may recombine, releasing the absorbed energy as heat or light.

The efficiency of electron transfer in HygieniaTouch is influenced by several factors, including the crystalline phase, the presence of defects, doping with other elements, and the surface area. Modifications to **HygieniaTouch<sup>®</sup>**, such as doping with metals or non-metals, can enhance its photocatalytic activity by improving charge separation and extending light absorption to the visible range. Click here for [more details](#)

This electron transfer mechanism is what makes HygieniaTouch an effective photocatalyst, allowing it to be used in various applications, from environmental remediation to the development of solar cells. Click here for [more details](#)

The creation of holes and the transfer of electrons are key to the semiconductor's ability to interact with its environment and drive chemical transformations.

## Functional Specifications:

### 1. Pathogen Protection:

- **HygieniaTouch**<sup>®</sup> acts as a barrier against pathogens, including bacteria and viruses, on various surfaces.
- It reduces the risk of cross-infections by inhibiting microbial growth.

### 2. Fungal Spore Prevention:

- The coating effectively prevents the proliferation of fungal spores & algae, maintaining a hygienic environment.

### 3. VOC Reduction:

- **HygieniaTouch**<sup>®</sup> actively reduces volatile organic compounds (VOCs) present in indoor air.
- It contributes to improved indoor air quality and occupant health.

### 4. Touch Surface Protection:

- Applied to touch surfaces (e.g., door handles, switches, countertops), **HygieniaTouch**<sup>®</sup> minimises the transfer of pathogens.
- It enhances hygiene and safety in high-traffic areas.

## Technical Specifications:

### 1. Composition:

- Water-based formulation containing titanium dioxide (TiO<sub>2</sub>).
- Photosensitive to visible, UV, and UVC light.

### 2. Application Method:

- Apply using standard coating techniques (brush, roller, or spray).
- Ensure even coverage on the target surfaces.

### 3. Drying Time:

- Allow sufficient drying time (as specified by the manufacturer) before the surface becomes fully functional.

### 4. Activation:

- **HygieniaTouch**<sup>®</sup> requires exposure to light (visible, UV, or UVC) for activation.
- The photocatalytic properties of TiO<sub>2</sub> enhance its effectiveness.

### 5. Durability:

- The coating forms a durable, long-lasting protective layer.
- Resistant to wear, cleaning, and environmental factors.

### 6. Surface Compatibility:

- Suitable for various surfaces, including walls, floors, furniture, and touchpoints.
- Ensure proper surface preparation before application.

### 7. Maintenance:

- Regular cleaning with damp microfiber cloth maintains the coating's efficacy.
- Avoid abrasive cleaners that may damage the coating.

#### 8. Safety and Compliance:

- **HygeniaTouch**® is non-toxic and complies with relevant safety and environmental regulations.
- Ensure proper ventilation during application for fast drying.

#### 9. Coverage:

- Coverage area per liter (as specified by the manufacturer).

#### 10. Efficacy:

- **HygeniaTouch**® when activated by light and moisture at the nano level, helps maintain sterile hygiene status. It detoxifies surfaces 70,000 times a second, surpassing the efficacy of traditional disinfectants. Its continuous photocatalytic action contributes to enhanced hygiene and pathogen reduction

#### 11. Certifications:

- Verify certifications related to antimicrobial efficacy, VOC reduction, and safety.

### Recommended Applications in FM:

#### 1. Healthcare Facilities:

- Hospitals, clinics, and nursing homes benefit from pathogen protection and reduced cross-contamination risks.
- Apply to high-touch surfaces, waiting areas, and patient rooms.

#### 2. Commercial Buildings:

- Offices, hotels, and public spaces can enhance hygiene.
- Use on elevator buttons, doorknobs, and shared workstations.

#### 3. Educational Institutions:

- Schools, universities, and daycare centers.
- Apply to classrooms, restrooms, and common areas.

#### 4. Transportation Hubs:

- Airports, train stations, and bus terminals.
- Coating on handrails, seating, and ticket counters.

Remember to follow the manufacturer's guidelines for proper application and maintenance. **HygeniaTouch**® contributes to a safer and healthier built environment, aligning with sustainable FM practices.



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