**PIAJ (Photocatalysis Industry Association of Japan) mark**

MakMax photocatalytic tents are PIAJ certified products. PIAJ mark is given only to the products confirmed to have specific photocatalytic characteristics. MakMax photocatalytic tents are registered as 2009-0005 ~ 0008, 0012, 0013. For further details, please see MakMax website: [www.makmax.com/business/tio2.html](http://www.makmax.com/business/tio2.html)


**PVC accomplishments**

- Abudhabi Al-Sharq Tower, Saudi Arab (1981)
  - Architect: C.P. Co tread Co., Ltd.

- New World Park (Brazil)
  - Architect: I.P.A. Design Studio, LLC

- Dome Building (Korea)
  - Architect: Tong Byung Hong & Co., Ltd.

**PTFE accomplishments**

- Centre Pompidou (France)

- Dubai Sports City Stadium (UAE)

- YAS Marina Circuit (UAE)

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TiO2 Photocatalytic Membrane

**Fabric type**

- PVC/PE, PVC/Glass fiber
- PTFE/Glass fiber

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- Protection against bacteria absorption of self cleansing
- Protection against viruses absorption of self cleansing
- Protection against bacteria absorption of self cleansing

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**MakMax**

Global Network: Japan, USA, Mexico, Brazil, Germany, UAE, Australia, India, China, Taiwan, Korea, Thailand, Singapore

TAYO KOBYO CORPORATION
2-3-11, Inok, Setagaya ku, Tokyo 154-0001, Japan

Regular Member of Photocatalysis Industry Association of Japan

2010-0320157
TiO₂ Photocatalytic Membrane

PVC coated fabric with TiO₂

- TiO₂-coated fabric with TiO₂ is a combination of standard base cloth material coated in PVC, with TiO₂ photocatalytic treatment added to the fabric surface. Due to the oxidation decomposition and highly hydrophilic nature caused by the TiO₂, dirt can be easily washed off. As this photocatalytic coating lasts as long as the membrane life, the fabric structure will always appear clean and new. Also, its high heat reflectivity avoids solar heat gain inside the building or structure. There are variations of strength and light transmission. Custom-ordered colors are also available. Light reflectance and transmission are changed by the color.

Self-cleaning

1. Sunlight decomposes the dirt
2. Rain suspends and washes away the dirt

Exposure Test

PVC-coated fabric

- Non-TiO₂: 2 years old difference: 45°
- With-TiO₂: 2 years old difference: 90°

Results:

- Non-TiO₂: 1.2
- With-TiO₂: 2.4

NOx Reduction

- TiO₂-coated fabric with NOx reduction.
- NOx removal volume = 0.55 (μmol/50cm²·5h)

PTFE coated fabric with TiO₂

- PTFE-coated fabric with TiO₂ is a combination of standard base cloth material coated in PTFE, with TiO₂ photocatalytic treatment added to the fabric surface. It demonstrates PTFE membrane’s own strength and light transmission while removing dirt and contaminants by oxidation decomposition, the result of a photocatalytic action. The antifouling property also works on the vertical surface where traditional fabrics often show dirt and contaminants. The TiO₂ Photocatalytic effect lasts as long as the membrane life. This product with NOx removal performance is also available.

Self-cleaning

1. Sunlight decomposes the dirt
2. Rain washes away the dirt

Exposure Test

PTFE-coated fabric

- Non-TiO₂: 2 years old difference: 45°
- With-TiO₂: 2 years old difference: 90°

Results:

- Non-TiO₂: 6.9
- With-TiO₂: 11.5

NOTE:

Liner: TENSOTHERM

ETFE film with TiO₂

- ETFE film is a new membrane product; this highly translucent film is used for various purposes including greenhouses and indoor sports facilities. Because of this light transmission, ETFE is very flexible in design, making it ideal for architectural facades and features. MakMax also offers the TiO₂ coating on ETFE film, remaining the clean appearance and the material’s characteristics.

SCC-HS...heat shield type

- SCC-HS fabric has a higher infrared reflectance, and MakMax has a lower thermal gain rate. Our experiments show that the room temperature decreases by up to 5.1°C during summer time with SCC-HS, compared to the traditional membrane material. A high level of UV reflectance can delay the deterioration of fabric coatings and improve weather resistance.

New Products

- TENSOTHERM

NOTE:

- Even with self-cleaning surfaces, dirt can build up when the deposition of dirt is faster than the decomposition speed of the membranes whose ability depends on both the activity of the photocatalyst and the amount of light reaching the surface. Under self-cleaning button, light is enough to reach the FCC surface, thus making it impossible for the reaction to occur. Before attempting to implement a photocatalytic system, therefore, it is important to measure the amount of available light versus the actual amounts of dirt and grime in the environment. Although organic matter such as sweat, dust, metal dust, salt, etc., cannot be directly decomposed by photocatalytic reaction, it can be washed off easily.