

Photocatalyst Module

光触媒模組

**Electronic Components
and Devices Division
B to B Business Promotion Center**

Photocatalyst Reaction 什么是光触媒的反应

When, as for the photo-catalyst reaction, light consults an oxidation titanium layer catalytically; such as smell or bacteria or virus It is action to break down a toxic substance into.

光触媒是将氧化钛作为触媒，光线照射后将有机物体物或细菌等有害物质分解的作用。

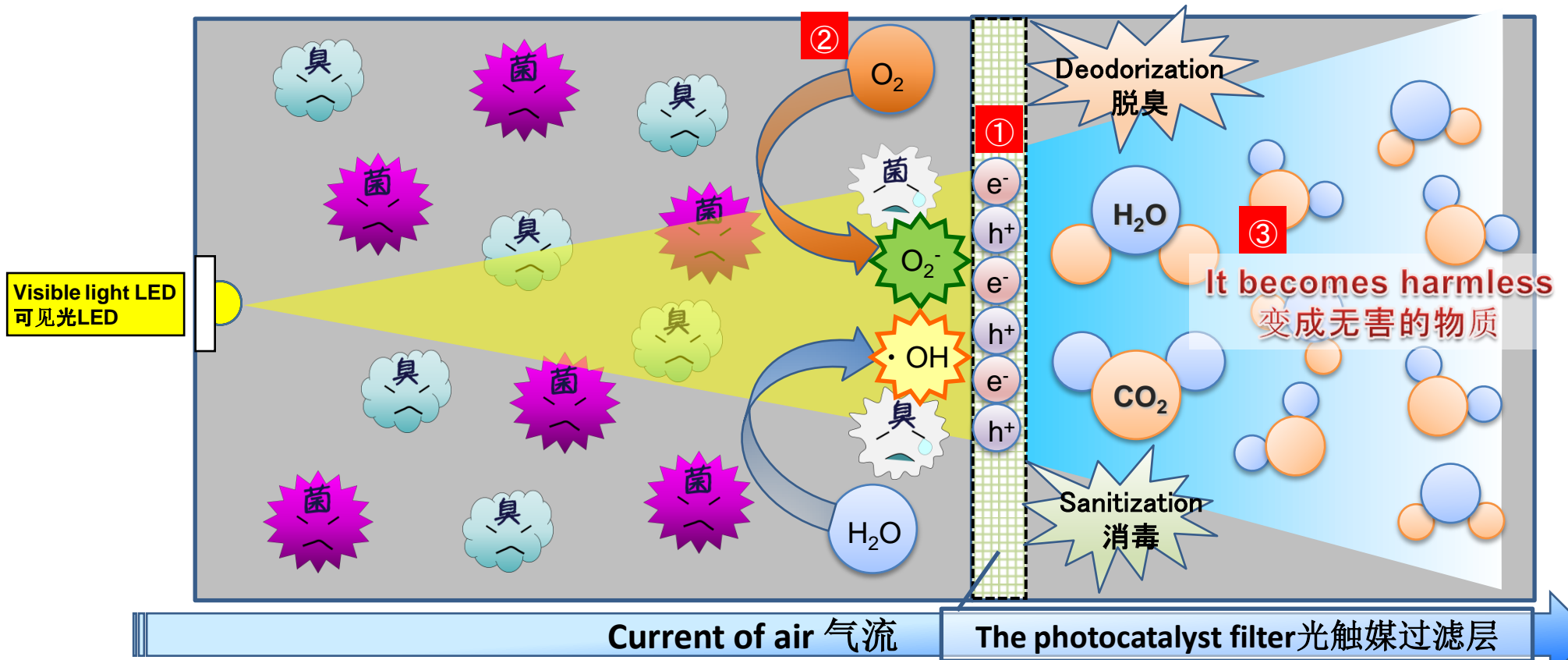
① When light is titanium oxide(TiO_2), free electron(e^-) and positive hole (h^+) are made .

光照二氧化钛 (TiO_2) 时，释放出 e^- 及 h^+ 。

② Generate superoxide anionic (O_2^-) and OH radical($\cdot\text{OH}$) from atmospheric oxygen and water.

与氧及水中中和形成超级负离子氧化物 (O_2^-) 和羟基自由基($\text{OH}\cdot$)。

③ O_2^- and $\cdot\text{OH}$ with a strong oxidation power break down organic matter or various germs into carbon dioxide and water, and they become harmless. 有机物和细菌接触到氧化物 O_2^- 和 $\text{OH}\cdot$ 后分解成无害物质二氧化碳和水，



Features of SHARP Photocatalyst Module 夏普光触媒模組的特征

The harmful organic removal, the resolution are possible by visible light

使用可见光源将有害有机物去除、分解

- **SHARP cope with the visible light that is harmless to a body and resin.**
- 夏普使用对身体和树脂均无伤害的可见光光源。

The small size that unified LED sources of light, longer life design.

将LED光源集成在一个小型模组，长寿命设计。

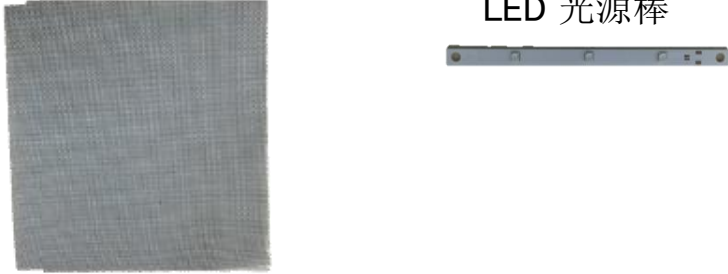
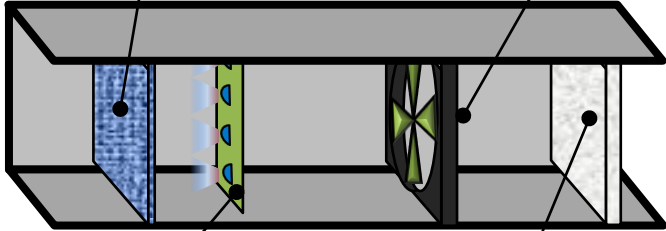
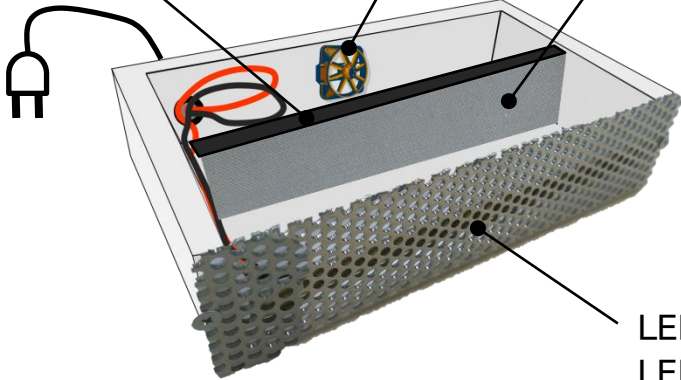
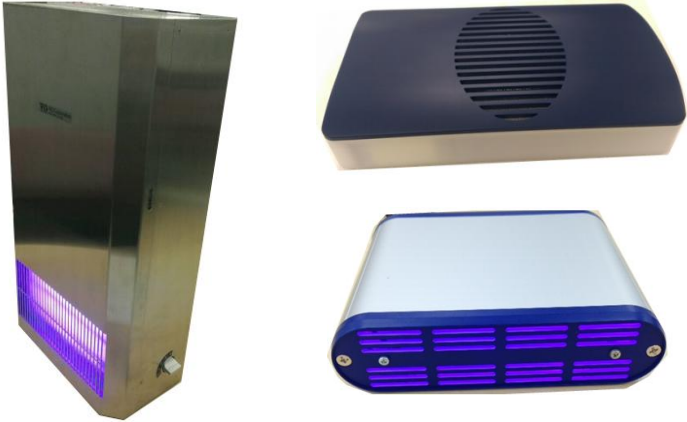
- **Adopted the visible light LED source of light of the high efficiency.**
- 採用高效率的可见光LED光源。
- **Life is about 40,000H.**
- 寿命约为40,000小时。

The correspondence to a custom shape is easy by a mesh type filter.

便于定制的网状滤层设计。

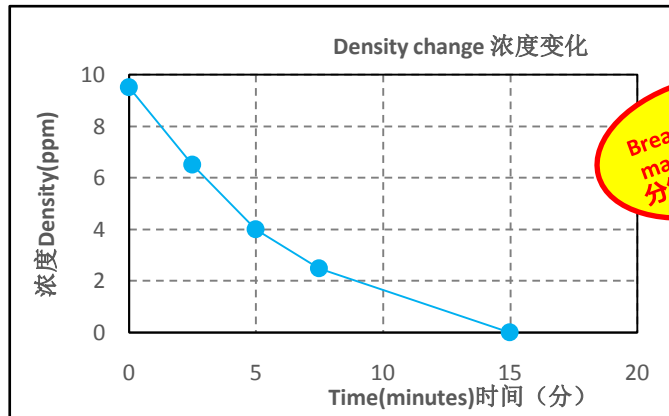
- **Processing is easy by a filter with less than 1mm of thickness.**
- 便于加工成1mm厚度以下的过滤层。

Lineup产品阵容

Proposal type类型	Product name 品名	Proposal product 建议产品
Module 模组	<p>Photocatalyst Module 光触媒模组</p> <p>Photocatalyst filter 光触媒过滤层</p> <p>LED bar LED 光源棒</p> 	<p>Ventilation system、Indoor circulation duct 通风系统、室内循环管</p> <p>Photocatalyst filter 光触媒过滤层</p> <p>Fan 风扇</p>  <p>LED bar LED 光源棒</p> <p>Pre-filter 预备过滤层</p>
Finished product 成品	<p>Photocatalyst BOX 光触媒盒子</p> <p>Fan 风扇</p> <p>Photocatalyst filter 光触媒过滤层</p>  <p>LED bar LED 光源棒</p>	<p>Deodorizer 除臭器</p> 

Resolution data of the toxic substance 有害物质的分解数据

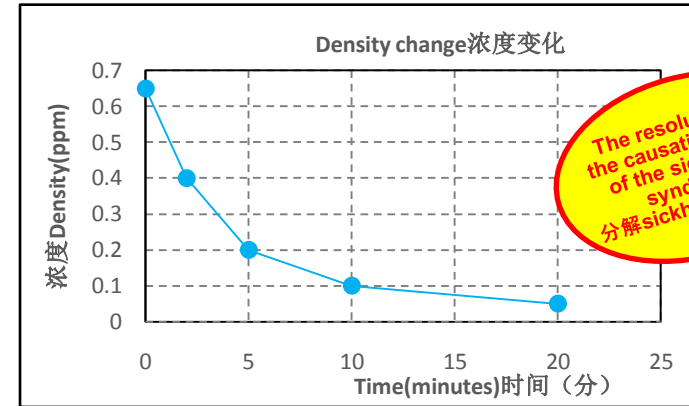
【acetaldehyde 乙醛】 <Internal evaluation内部评价>



Break a cigarette
main smell
分解烟味

* Space of 30 liter, Mesh filter : 100×100×0.4mm [Evaluation machine]
30升空间, 网格过滤层: 100×100×0.4mm 【测试机】

【Formaldehyde 甲醛】 <Internal evaluation内部评价>

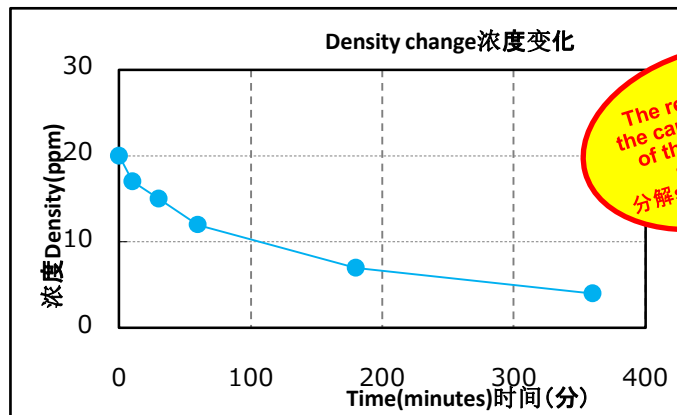


The resolution of
the causative agent
of the sickhouse
syndrome
分解sickhouse致因物

* Space of 1000 liter, Mesh filter : 290×240×0.4mm (One side of LED light)
1000升空间, 网格过滤层: 290×240×0.4mm (单侧LED光源)

【Toluene 甲苯】

<Japan Food Research Laboratories' test data 日本食品分析中心>

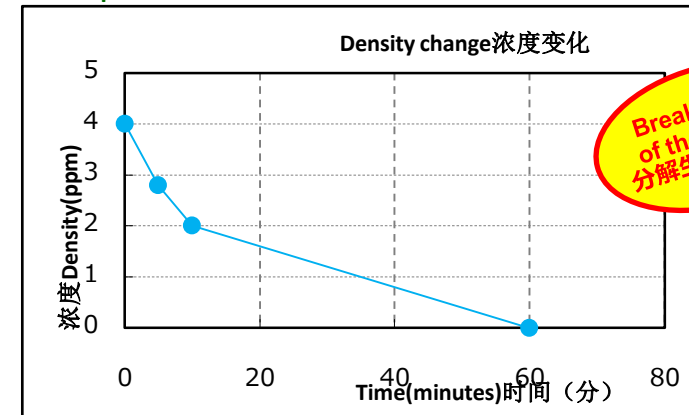


The resolution of
the causative agent
of the sickhouse
syndrome
分解sickhouse致因物

* Space of 109 liter, Porous filter : 100×100×10mm [Evaluation machine]
109升空间, 多空过滤层: 100×100×10mm 【测试机】

【Methyl mercaptan 甲硫醇】

<Japan Food Research Laboratories' test data 日本食品分析中心>



Break a smell
of the garbage
分解生鲜垃圾臭味

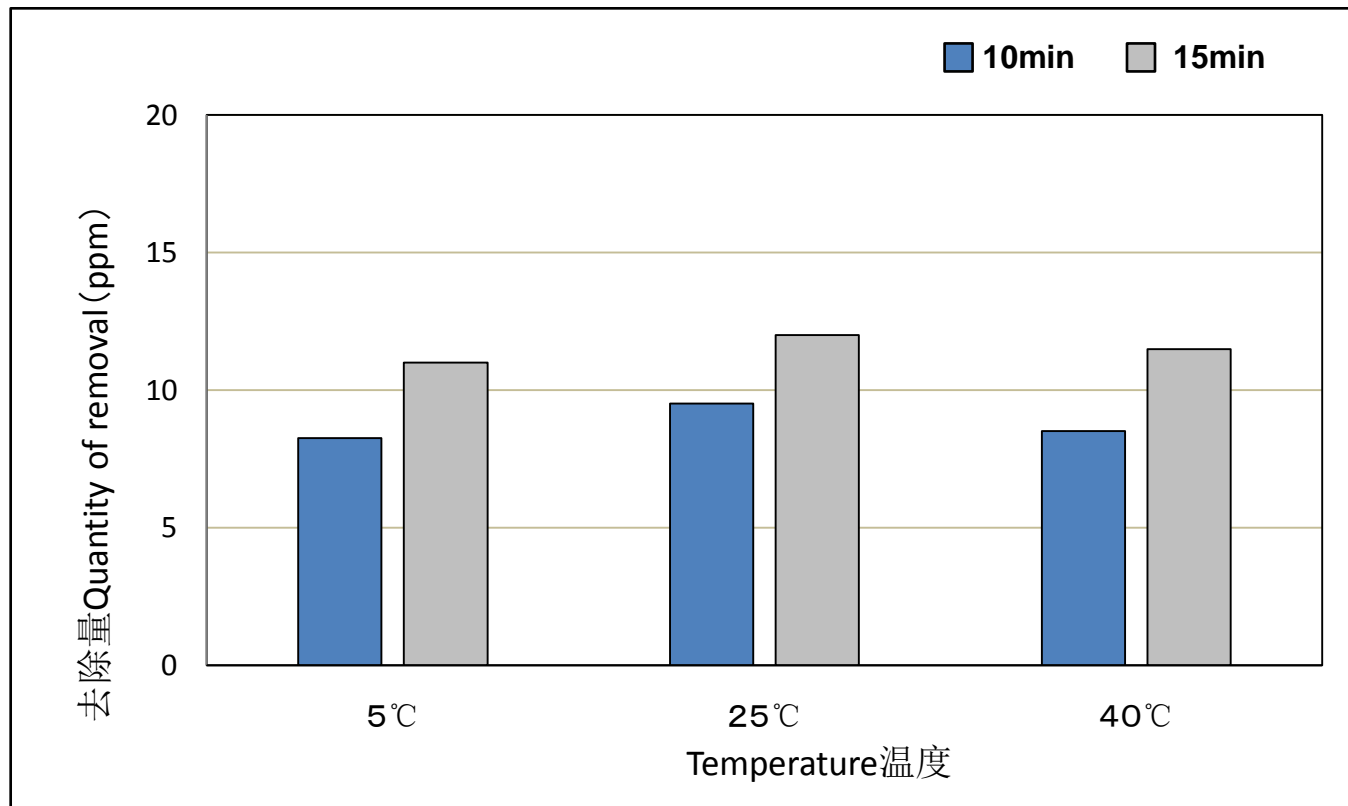
* Space of 109 liter, Porous filter : 100×100×10mm [Evaluation machine]
109升空间, 多空过滤层: 100×100×10mm 【测试机】

※ It is a reference level, and the data mentioned above are not things guaranteeing this performance with all products.

上述数据为参考值, 并不能保证所有的制品的为此特性。

Evaluation results of temperature dependency 温度属性的测试结果

Quantity of acetaldehyde removal does not have the difference between 5°C and 40°C.
温度在5°C 和 40°C之间时, 乙醛去除量无差异。



* Space of 30 liter, Mesh filter : 100×100×0.4mm [Evaluation machine]
30升空间, 网格过滤层 : 100×100×0.4mm 【测试机】

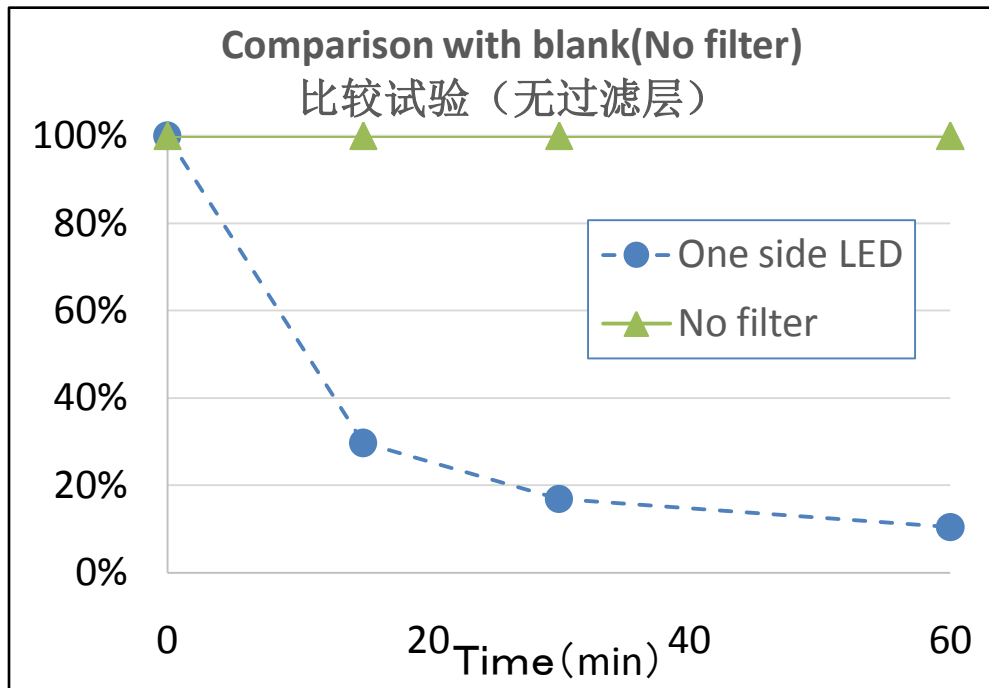
※ It is a reference level, and the data mentioned above are not things guaranteeing this performance with all products.
上述数据为参考值, 并不能保证所有的制品的 为此特性。

The decomposition effect over a virus 病毒的分解效果

Testing institution 检测机构: Kitasato Research Center for Environmental Science 北里环境科学中心
 "Virus 病毒: Influenza A type A 型流感"

Evaluation conditions 测试条件

- Filter size 过滤层尺寸: $95 \times 95 \times 0.4\text{mm}$
- Light 光源: The visible light LED to one side 单侧可视光LED
- Wind velocity 风速: 0.3m/sec on the filter 在过滤层
- Space volume 空间体积: 200 liter 升



Test method 试验方法

- 1) An examination product is installed in an examination chamber.
将试验产品安装在试验室内。
- 2) Virus liquid is sprayed in an examination chamber.
将病毒液体喷洒在试验室内。
- 3) An examination product is moved regulation time.
在规定的时间内, 让试验产品工作。
- 4) Air is collected and infectivity titer is measured.
收集空气并测量传染性滴度。

It decreases to 1/10. 降低到 1/10.

(Time 时间: 60min, 无过滤层的比较
Comparison with No filter)

※ It is a reference level, and the data mentioned above are not things guaranteeing this performance with all products.
上述数据为参考值, 并不能保证所有的制品的为此特性。

SHARP