



## **The Ultimate Enhancer of Interior Air Quality**

### **Long-Lasting – Safe Natural Process**

#### **Double Strength Catalyst Combines**

**1. The Advanced Photocatalyst Zinc-Doped Titanium Dioxide and**

**2. The Non-Photocatalyst Titanium Phosphate**

- **Targets Sick House Syndrome and VOCs**
- **May reduce allergens and help manage eczema**
- **Long-lasting deodorizer that also fights mold and bacteria**

#### **Constant stream of new nanotech products with unprecedented functions**

With the introduction of our new ZefirPro™, you can improve your indoor air quality for a full year with the application of a single coating. ZefirPro™ was specially formulated to respond to sick house syndrome by reducing the VOCs produced by other coatings or sources. ZefirPro™ reduces unpleasant odors, mold and mildew, and breaks down some chemical substances. By including previously unavailable ingredients we have been able to take significant strides in enhancing the deodorizing and anti-bacterial strength of our Zefir™ series.

#### **The Development of ZefirPro™**

ZefirPro™ combines the immediate deodorizing effect of phytoncides (the plant extracts that provide the sense of well-being you enjoy walking through a forest) with the long-lasting deodorizing and anti-bacterial effect of titanium phosphate that requires no

light to be an effective catalyst and zinc-doped titanium dioxide which is a strong visible-light photocatalyst. The anti-bacterial power of ZefirPro™ is rounded out by the addition of highly effective silver ions.

1. F118 – Reduces Active Oxygen and Acts as an Anti-Oxidant. F118 is the result of 15 years of study and is composed of 118 different plant extracts. F118 has been proven as an effective scavenger of free radicals and breaks down nearly any organic odor. F118 is effective against a wide range of odors from tobacco odors, pets and garbage to toilet odors and the musty odors of inadequately ventilated living. It also helps break down volatile organic compounds (VOCs) such as formaldehyde, toluene and xylene. The reason forests do not have unpleasant odors despite the deaths of animals is the working of phytoncides.

Reduction of Active Oxygen	Percent Reduced	41.3%
Antioxidant Activity (DPPH Reduction)	Percent Reduced	95~100%
Secured a high score in reducing radicals that is comparable to the 95% score received by the well-reputed a-tocopherol (vitamin E).		
Based on the rate of reduction of active oxygen (above 40%), we have found a new scavenger.		
When phytoncides were analyzed, 136 ingredients were evaluated.		
June 29, 2004 Kinki University Engineering Department, Organic Chemistry Professor Nomura		

2. Titanium Phosphate Compound - Breaking down the sources of unpleasant indoor odors, allergic reactions and eczema. Titanium phosphate is a moisture and air triggered catalyst that wields the demonstrated power to actively break down organic matter that is the cause of unpleasant household odors and to fight odor, bacteria and mold for extended periods of time. Titanium phosphate will not wash out easily; even after 10 washings efficacy is not reduced. The applications of titanium phosphate include oxidizing Volatile Organic Compounds (VOCs) like formaldehyde, toluene and xylene as well as fighting toilet and pet odors and tobacco smells. Indeed, any organic odor is vulnerable to this product. Sketch is now selling this product widely throughout Japan and also starting sales in China, Taiwan, Korea and the United States.

3. Zinc-doped Titanium Dioxide – Power to Eliminate Tobacco, Toilet and Pet Odors with Standard Electric Lighting. In just 2-6 hours, with only the visible light from indoor lighting, a wide variety of organic indoor odors can be eliminated. Until now, photocatalysts required the ultraviolet light of sunshine to be effective, now any visible light will trigger this powerful photocatalyst. This too will not wash out even after 10 washings.

TEST DATA FOR ZEFIRPRO™

1. Substance tested
  - a. ZefirPro
  - b. ZefirPro after 10 washings
2. Testing method
  - a. Odors
    - i. Hydrogen sulfide      20 ppm
    - ii. Ammonia                52 ppm
    - iii. Formaldehyde        8 ppm
  - b. Test Method: Place the treated surface inside a 2 liter container and insert 2 liters of air with odor source. Subject the container to florescent light. Measure the results after 2 and/or 6 hours.

3. Test Results

- a. Hydrogen sulfide      -      initially 20 ppm

	ppm after 2 hours	Odor reduction
Air	18	10%
ZefirPro	0	100%
ZefirPro after 10 washings	0	100%

- b. Ammonia                -      initially 52 ppm

	ppm after 2 hours	Odor reduction
Air	40	23%
ZefirPro	0	100%
ZefirPro after 10 washings	0	100%

- c. Formaldehyde        -      initially 8 ppm

	ppm after 2 hours	Odor reduction
Air	7.2	10%
ZefirPro	0.2	97.5%
ZefirPro after 10 washings	0.2	97.5%
	ppm after 6 hours	Odor reduction
Air	6.4	20%
ZefirPro	0.1	98.75%
ZefirPro after 10 washings	0.1	98.75%