

Creating Healthy Indoor Environment by the Use of Liquid Charcoal and Electrons

SUMI PLUS ELECTRONICS



Sumi Health Protect
SUMICAS



ARTECH CO., LTD
www.arteck-c.co.jp

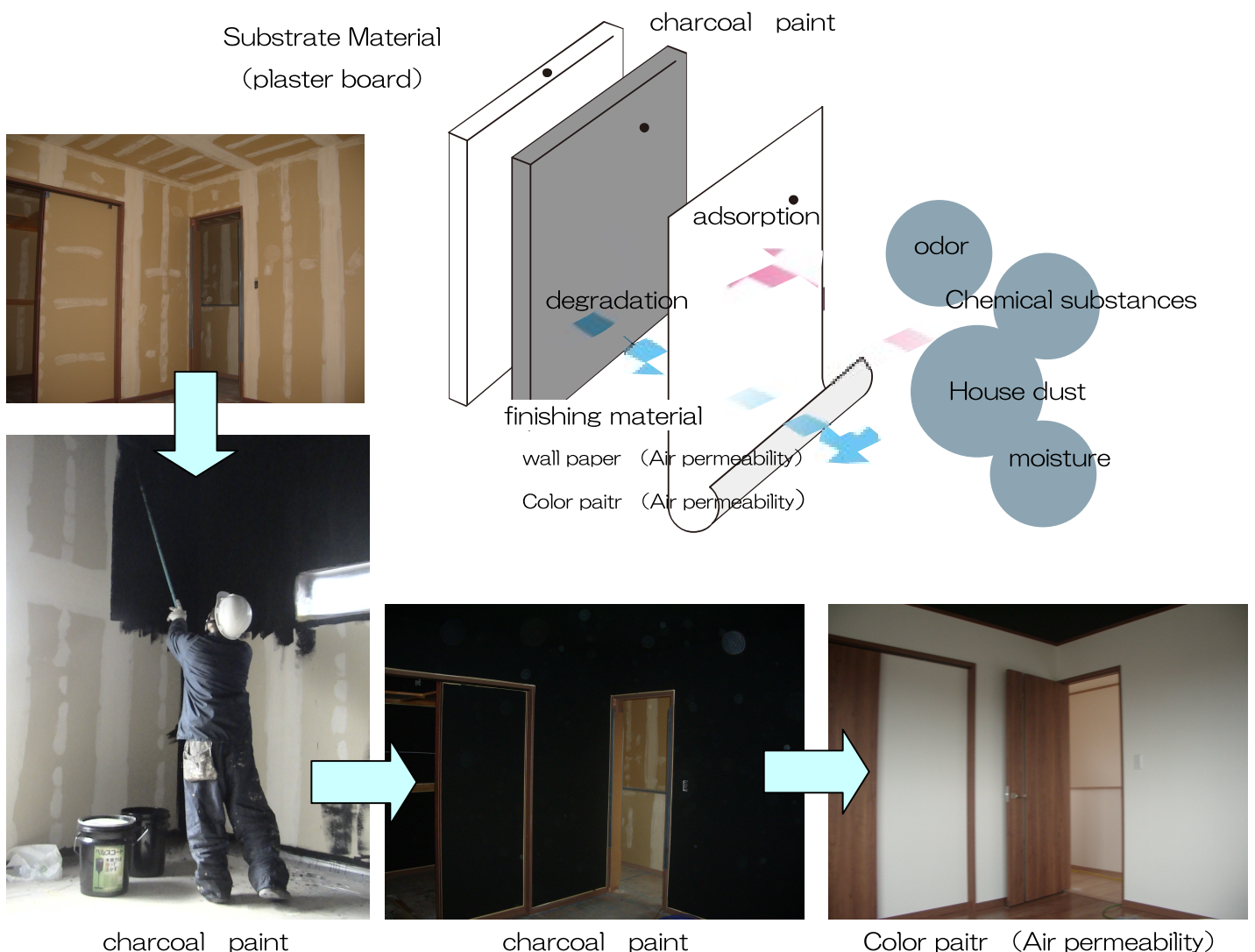
World's Premium Indoor Environment

Traditionally, charcoal has been used in Japanese culture to purify indoor air.

"SUMI health protect" is a functional charcoal paint made by the use of modern technology in burning "raw charcoal" at a temperature of 1,000°C, or even or higher.

Purifying Indoor Environment through Adsorption Process

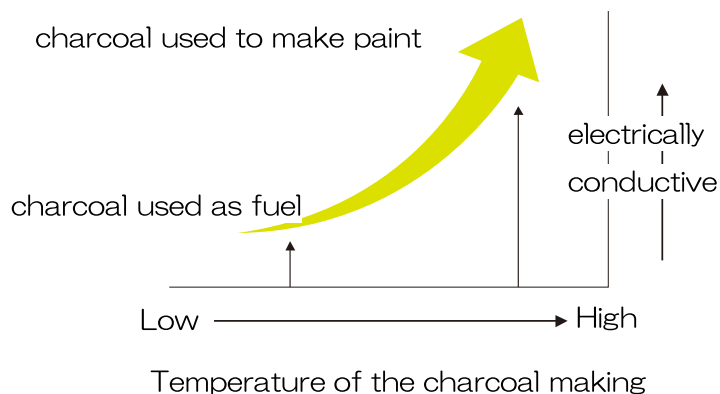
"SUMI Health Protect" is a functional paint made into a paint by crushing charcoal into micron units using modern technology. Chemical substances, including tobacco aehyde generated from furniture. Health Protect painted walls and ceiling contains numerous holes on its surface which adsornd pet odor, body odor, and other unpleasant smell generated from the kitchen, moisture, adhesives and building materials, and formaldh and decompose these chemicals with the power of charcoal electrons, which changes the stagnant room air to clean air and create a body-friendly indoor environment.



Sumi Health Protect

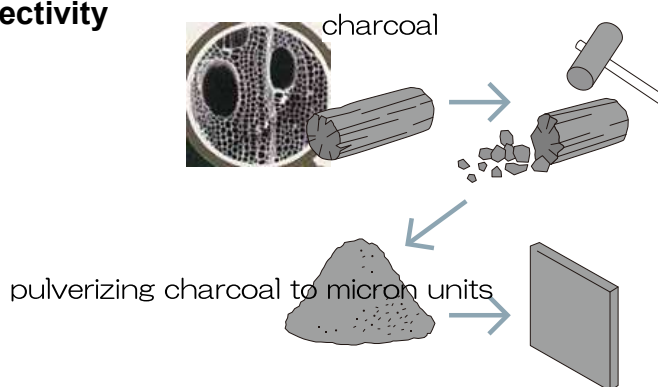
●Long-term Purification through the Catalytic Function of Charcoal

The raw charcoal used in creating SUMI health protect paint is burned at a high temperature which enables it to have the characteristics of passing electricity, unlike charcoal burned at low temperature. This electricity passing characteristic, not present in other adsorbents, can decompose adsorbed chemical substances and can purify indoor air for a long time.



●Maximizing Surface Area and Charcoal Effectivity

Charcoal's surface has numerous small holes, like a sponge. By pulverizing charcoal to micron units, it can create a surface area that is 1,000 times or even more compared with solid charcoal. Health protect's adsorption capacity is several ten times or even more compared with the same amount of solid charcoal.



●Tests Demonstrating the Effectivity of SUMI health protect

"Health protect" is a functional charcoal paint that is developed through years of research to maximize the power of charcoal and demonstrated in various tests. "Health protect" can be used in bedrooms, children's rooms, schools, hospitals, restaurants, and houses to solve various problems in indoor environments such as chemical substances, offensive odors and moisture.

●Characteristics of "Health protect" that has been verified in various in-house tests.

Effect on the odor-causing substances: adsorption effect of bad odor causing substances such as ammonia

Effect to chemicals · VOC: formaldehyde adsorption effect or toluene

Effect on the moisture absorption-desorption: humidity change suppressing effect of absorption and desorption of moisture

Test for electrical conductivity: the electrical properties of the coating

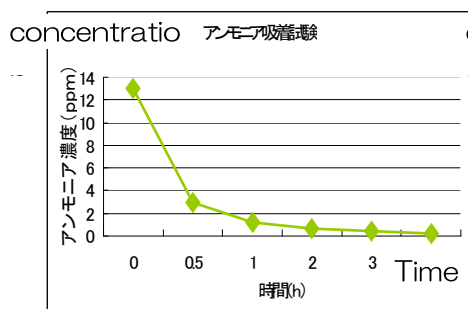
Testing for coating adhesion strength: adhesion of the coating film and the base

Test on the decomposition function: the functionality of the persistence repeatedly empty clothes

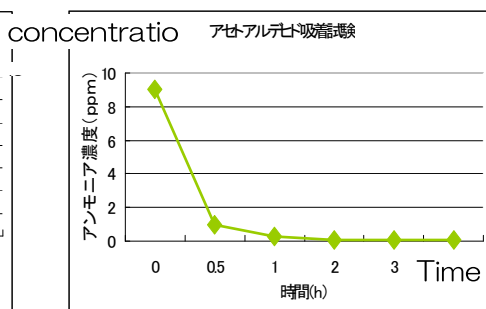
Formaldehyde emission grade: Formaldehyde concentration emanating from paint

Test for coating workability: evaluation of the physical properties of the coating film

ammonia adsorption effect



formaldehyde adsorption effect



SUMI PLUS

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●To create an indoor air environment in which immunity is activated by SUMICAS system.

The current air is dirty due to various environmental pollutions.

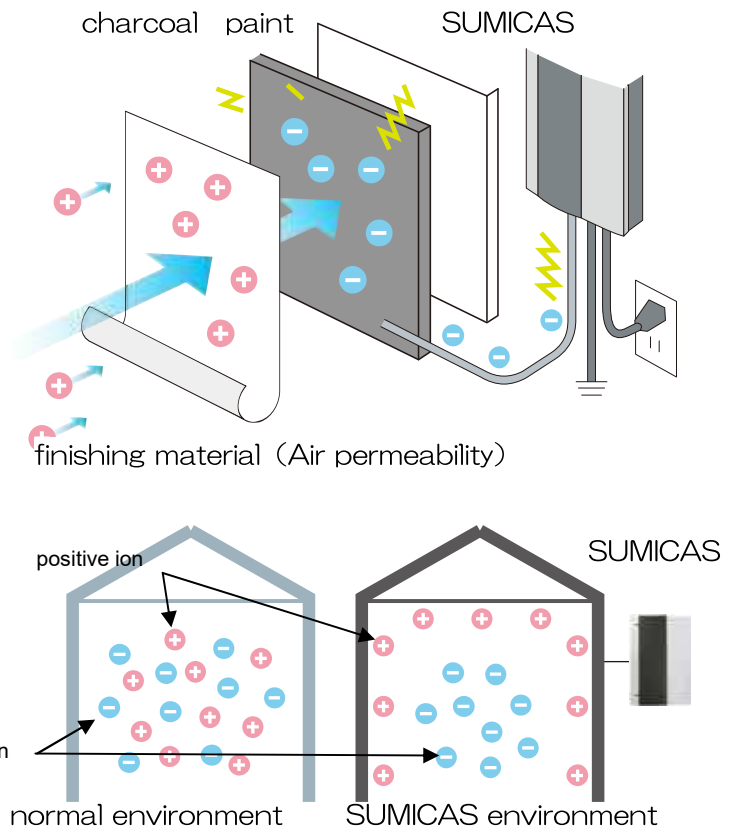
Diseases peculiar to houses such as sick house syndrome caused by chemical substances and allergies in contaminated indoor air are increasing year by year.

Furthermore, the increase in cancer and other deaths as a person's immunity declines due to aging has also become a major social problem.

SUMIcas is a system that creates indoor air which activates immunity by the power of electricity, as an addition to the air-cleaning effect of SUMI health protect.

"SUMICAS" adsorbs and removes plus ions that have an adverse effect on health, which is increasing due to various air pollutions by adding negative electric power to health protection with excellent electric characteristics.

SUMIcas creates air with a lot of negative ions that will encourage human immunity.



●Air created by Sumicas System

The change in the number of positive ions and the number of minus ions in indoor air before and after the introduction of SUMICAS system is measured by an air-ion measuring instrument.

Fig1 shows the results of the test comparing the number of positive ions in the normal environment and in the SUMICAS environment. In addition, Figure 1 shows the indoor air ion ratio in the SUMICAS environment

By introducing SUMICAS, you can see that it has turned into an air with less positive ions and more negative ions.

Note: The number of ions varies depending on the indoor environment

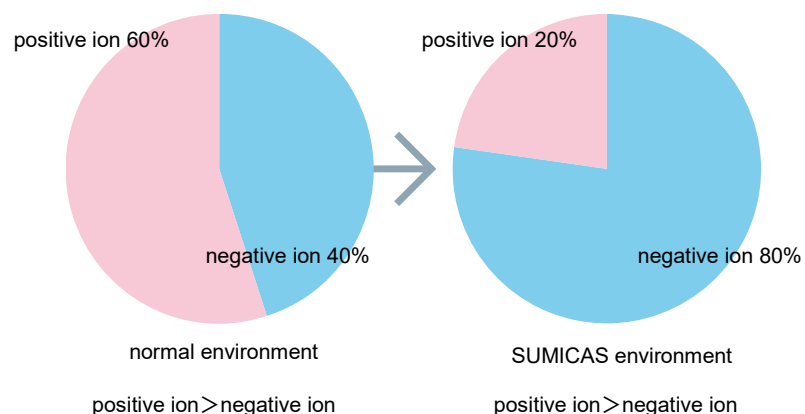


Fig1: the indoor negative ion ratio



●Effectivity of SUMICAS System Demonstrated in Clinical Trials

Here are the results on the biological effects of staying for 2.5 hours, middle-term stay of 4 weeks, and long-term stay of 2 years in a SUMIcas environment. It recorded the effect of **SUMIcas** environment on NK (Natural Killer) cells, immunity and cancer cells. Clinical tests are done locally (Japan) and overseas.

2006 Indoor Environment Society

There is an increase in interleukin 2 in a 2.5-hour stay in the SUMICSA environment.



In the SUMIcas environment, stress reduction, immunity activation, stabilization of the nervous system, an increase of interleukin-2, which is the basis of NK activity, was observed.

2007 Indoor Environment Society

Activation of NK cells is observed for 2 weeks stay in a SUMIcas environment.



In the SUMICAS environment, activation of NK cells that attack cancer cells and virus-infected cells was observed.

PLOS ONE

Activation of NK cells are found in the long-term stay of two months



The SUMICAS witch was turned ON / OFF every 3 months, and the activation of NK cells was observed when SUMIcas was switched ON.

NK cells play a particularly important role in the system to protect the body "immunity." NK cells attack the virus that has invaded the body and as well as the malignant cells present in the system.

Interleukin 2 promotes the proliferation of T-cells. It also works to increase the function of NK (natural killer) cells that destroy cancer cells in the body.

Sumicas

Construction example

“Sumi Health protect” and “SUMICAS” can be used in bedrooms, children's rooms, schools, hospitals, restaurants, and houses to solve various problems in indoor environments such as chemical substances, offensive odors and moisture.

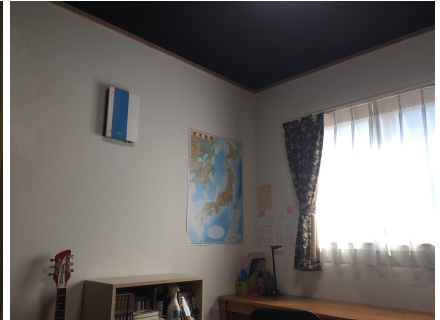
living



Bedroom



Child's room



Nursery school



Primary school



University



Dialysis hospital



Nursing home



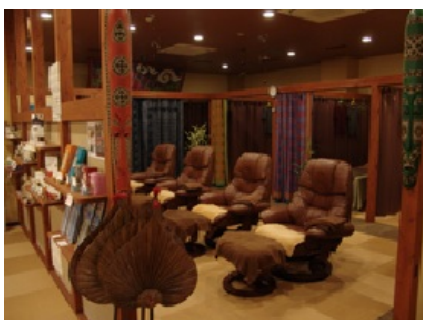
Hospital



Rest home



Chiropractic



Osteopathic clinic



Sumi Health Protect

SUMICAS

Beauty parlor



Beauty salon



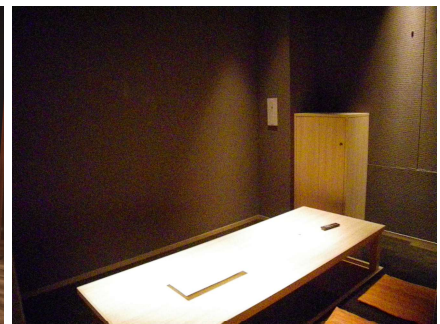
Hotel



Jewelry store



Restaurant



Pet hotel



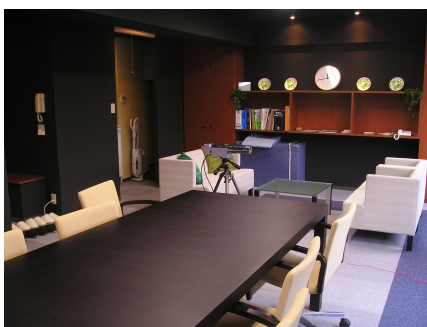
Grooming shop



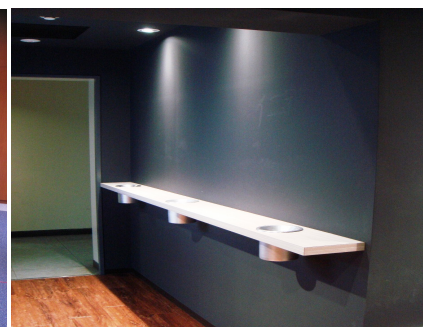
Dog café



Drawing room

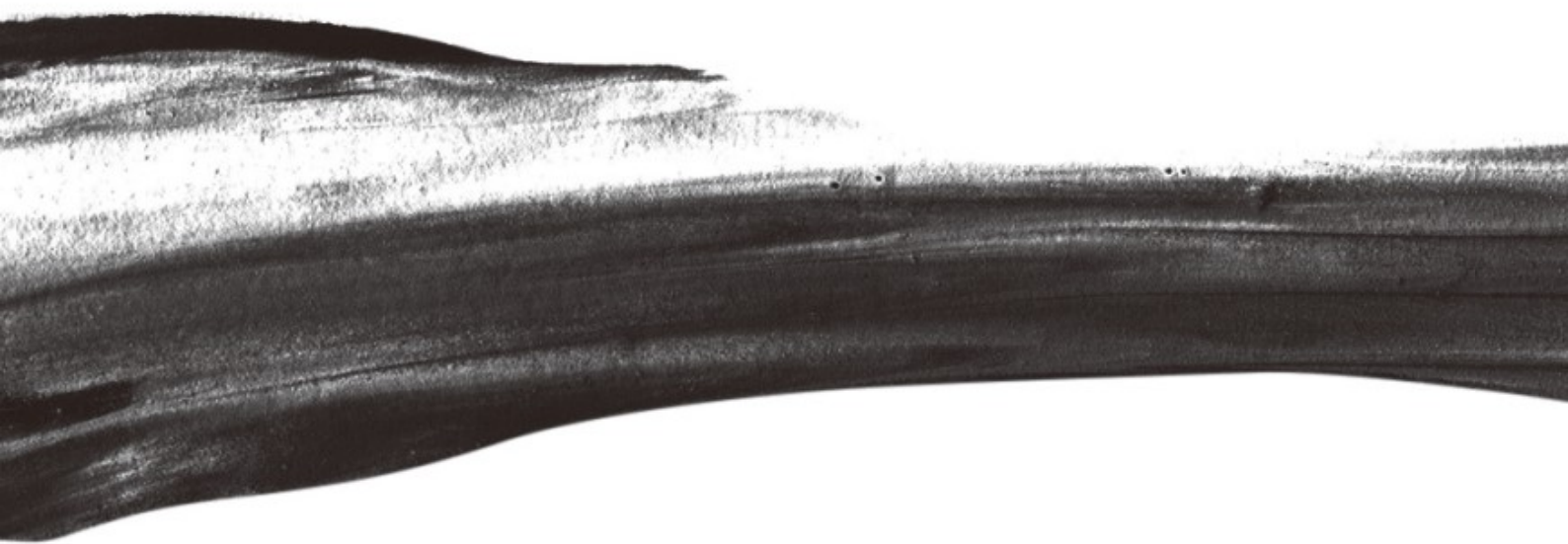


Smoking room



Karate school





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