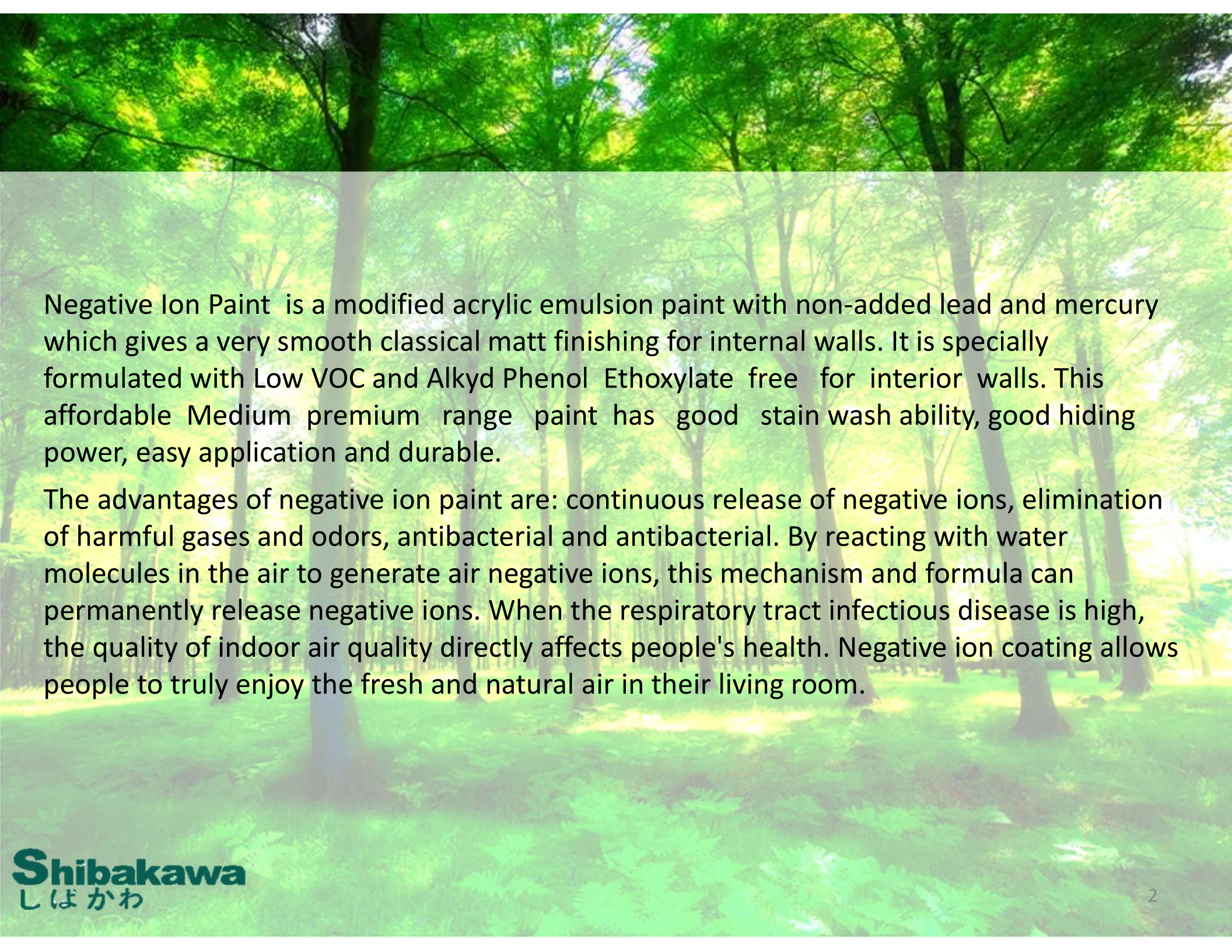




**Shibakawa**  
しばかわ

# NEGATIVE ION PAINT

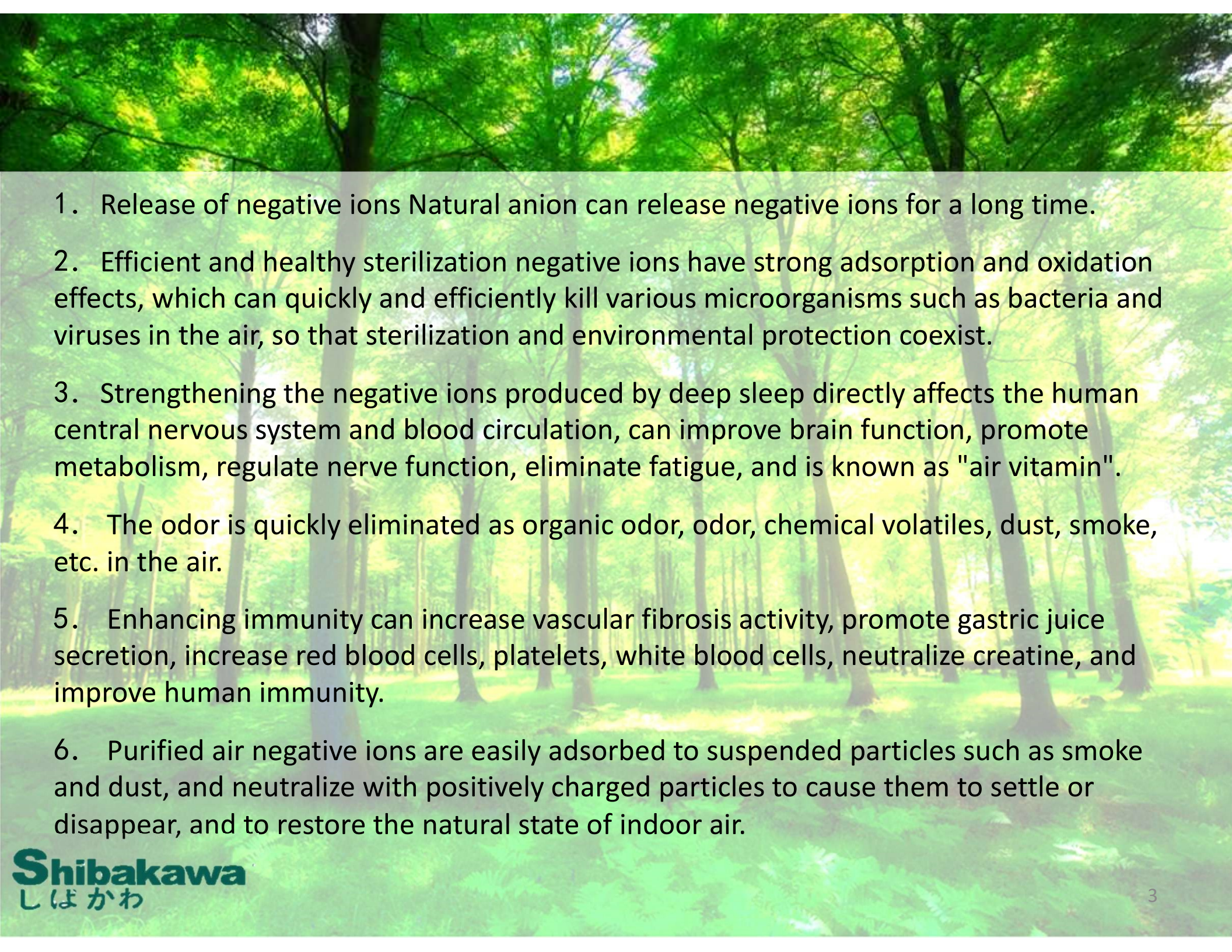




Negative Ion Paint is a modified acrylic emulsion paint with non-added lead and mercury which gives a very smooth classical matt finishing for internal walls. It is specially formulated with Low VOC and Alkyd Phenol Ethoxylate free for interior walls. This affordable Medium premium range paint has good stain wash ability, good hiding power, easy application and durable.

The advantages of negative ion paint are: continuous release of negative ions, elimination of harmful gases and odors, antibacterial and antibacterial. By reacting with water molecules in the air to generate air negative ions, this mechanism and formula can permanently release negative ions. When the respiratory tract infectious disease is high, the quality of indoor air quality directly affects people's health. Negative ion coating allows people to truly enjoy the fresh and natural air in their living room.



- 
1. Release of negative ions Natural anion can release negative ions for a long time.
  2. Efficient and healthy sterilization negative ions have strong adsorption and oxidation effects, which can quickly and efficiently kill various microorganisms such as bacteria and viruses in the air, so that sterilization and environmental protection coexist.
  3. Strengthening the negative ions produced by deep sleep directly affects the human central nervous system and blood circulation, can improve brain function, promote metabolism, regulate nerve function, eliminate fatigue, and is known as "air vitamin".
  4. The odor is quickly eliminated as organic odor, odor, chemical volatiles, dust, smoke, etc. in the air.
  5. Enhancing immunity can increase vascular fibrosis activity, promote gastric juice secretion, increase red blood cells, platelets, white blood cells, neutralize creatine, and improve human immunity.
  6. Purified air negative ions are easily adsorbed to suspended particles such as smoke and dust, and neutralize with positively charged particles to cause them to settle or disappear, and to restore the natural state of indoor air.





## **Eight Characteristics**

- 1) Promotes blood circulation and metabolism
- 2) Improve sleep performance
- 3) Enhance immunity
- 4) good hiding power, scrub resistance
- 5) sterilization, anti-oxidation
- 6) Eliminate odor, odor, low volatile organic compounds in the air
- 7) Continuous release of negative ions, decomposition and elimination of formaldehyde
- 8) Purify the air, deodorize and antibacterial, health and environmental protection

It is suitable for interior wall decoration and protection of various home buildings, sign buildings, luxury villas, high-rise buildings and other places.



## Principle of action

Negative ions in the air mainly through the three aspects of electricity, chemistry and physics, that is, the purpose of purifying air through electrical neutralization, chemical reaction and physical adsorption.

### 1) Electrical neutralization

The existence and form of trace harmful gases floating in the air are complex and diverse, some exist in the state of gas free molecules, some are surrounded by positive charges floating in the air to form positive ions, and some trace gases are in the air. A heterogeneous heterogeneous condensation process occurs in which gas molecules are deposited on the surface of existing particles and agglomerate to form a aerosol system.

When they meet negative ions in the air, they are electrostatically charged due to their fact that they are the most stable charged particles in the negative ions, so they have adsorption and electrical neutralization. Therefore, a part of the free trace gas floating in the air is adsorbed by the negative ions and falls to the ground due to its own weight. Another part of the positively charged pollutant gas is electrically neutralized when it meets the negative ion, forming an electroless neutral molecule and falling onto the ground, thereby achieving the purpose of eliminating harmful gases and purifying the air.



## 2) Chemical Reaction

In fact, while the above-mentioned electrical neutralization occurs, a variety of complex chemical reactions are still being carried out. The negative ions actually act on the hydroxyl radical ( $\text{H}_2\text{O}_2^-$ ), which is actually in the form of  $\text{H}_2\text{O OH}^-$ , which removes those toxic and harmful substances by chemical reaction.

The key component in the atmospheric chemical conversion process is the hydroxyl radical ( $\text{H}_2\text{O}_2^-$ ), a series of chemical reactions initiated by hydroxyl radicals that remove many reducing gases and volatile organic compounds.

## 3) Physical Adsorption

The additive capable of generating negative ions used in interior wall coatings is a nano-based fineness material with a microporous structure and a large surface area, and has strong adsorption properties. When in contact with air, it can adsorb harmful gases in the surrounding environment to the surface of the material and fix it to the pores on the surface of the material, and then neutralize and chemically react to achieve the purification effect.



## Prospects

Negative ion coating has broad application prospects. It not only has the basic properties of conventional coatings, but also has the functions of releasing negative ions, emitting far infrared, antibacterial and mildewproof and purifying air. It is becoming the first choice for building interior wall coatings.

Special occasions such as theaters, large stadiums, hospitals, basements, etc. also have potential advantages. Therefore, research and development of negative ion coatings should be vigorously carried out, and negative ion products with independent intellectual property rights should be developed to promote the development of negative ion industry in Malaysia.

## Construction method

First clean the surface with a suitable cleaning agent, remove the damaged or peeling coating on the surface, and repair the surface unevenness. The new surface of the concrete surface, the plaster surface, the cement mortar surface and the like must be cured for 30 days. The moldy surface is first washed with 1:3 bleaching water, then washed with water and allowed to dry thoroughly. Technical Parameters:

Color:	white and a variety of popular colors to choose from
Binder:	Acrylic copolymer, auxiliaries and water
Solids:	40±2% (solids by weight)



## **Drying time**

Dry: about 1 hour

Recoating time: at least 2 hours (condition: 25 ° C, 50% relative humidity)

Dry paint film thickness: 30 microns or more

Theoretical paint consumption: 12-14 square meters / liter / layer Storage conditions:

Avoid direct sunlight and store in a cool dry place. Use ratio:

Brushing, roller coating, high pressure airless spraying (if the viscosity is too high, add about 10% of water to mix and mix) Construction process:

The surface to be coated must be flat, firm, clean, moisture content below 10%, pH below 10, and not suitable for construction when humidity is too high.

## **Packing specification**

5L 18L construction precautions:

1. Read the instructions before use.
2. Stir well after opening the can.
3. to avoid paint brush or roller stained with excessive paint



## What is formaldehyde?

Formaldehyde may cause physical allergies, genetic mutations, etc.

The skin is directly exposed to formaldehyde can cause allergic dermatitis, pigmentation, necrosis, high concentration of formaldehyde can also be a genotoxic substance when absorbing high concentrations of formaldehyde. Experimental animals can cause nasopharyngeal tumors when inhaled at high concentrations in the laboratory.

## What harm does formaldehyde have on the human body?

We found that furniture, paint, wallpaper, toys and other household building materials all threatened to exceed the standard of formaldehyde. The harm of formaldehyde to the human body can not be underestimated, and light can cause dizziness, allergies and other adverse reactions, and a large amount of inhalation may even cause death. Children are the biggest victims of excessive formaldehyde pollution.

**What kind of harm does this indoor pollutant called "the number one killer" have on the human body?**



## Prevention of physical harm caused by acetaldehyde concentration



"Sanitary Standards for Formaldehyde in the Air of the Room", states that the maximum allowable concentration of formaldehyde in the living room air is 0.08 mg/m<sup>3</sup>. When the formaldehyde content in the indoor air is 0.30mg/m<sup>3</sup>, it will cause people to feel odor and discomfort.

When 0.50mg/m<sup>3</sup>, it can cause tearing in the eyes, 0.60mg/m<sup>3</sup> will cause throat discomfort or pain, and the concentration can be high. Causes nausea, vomiting, cough, chest tightness, gasping, and even emphysema. When it reaches 30mg/m<sup>3</sup>, it can die immediately.

So, is the formaldehyde concentration absolutely not safe, is it absolutely safe? This expert should remind the consumers that even if the amount of inhalation is very small, the accumulation of less is likely to cause chronic poisoning, allergic dermatitis, skin irritation, mucosal congestion, nail bed pain, nail angle Diseases such as vaginal and fragile diseases, such as fatigue, insomnia, headache, heart palpitations, weight loss, autonomic disorders, and stomach anorexia.





## Children are the biggest victims of excessive formaldehyde pollution in all populations



According to expert analysis, children are the biggest victims of excessive formaldehyde pollution in all populations. There are several reasons. First, the molecular weight of formaldehyde is larger than the average amount of air. Therefore, formaldehyde mainly accumulates in the space within 1 meter of the ground, and this is the main breathing zone of children. Compared with adults, children breathe in. The probability and quantity of harmful formaldehyde is more; in addition, because children's body cells are active,

metabolism is fast, and when quiet, children's air intake is twice as high as that of adults, so children inhale more formaldehyde than adults; The development of children's physical function is not yet mature, and the resistance is low, so it is also the most vulnerable to formaldehyde.

According to epidemiological statistics, the natural incidence of leukemia in China is about 4/100,000, and about 40,000 leukemia patients are added each year, 50% of which are children. Although the current evidence of formaldehyde-induced leukemia is not sufficient, a children's hospital revealed that 46.7% of the more than 1,800 leukemia patients admitted to the Institute of Hematology in the past 10 years have undergone renovations within six months of the onset of the disease. A bad indoor air environment can cause direct harm to children's health.





## Negative ion detection standard and method for measuring

### Basic understanding of negative ions

Air is one of the important conditions for human survival. Since the British scholar Wilson in the 1930s and the French scholars Elster and Getter confirmed the existence of free negative oxygen ions in the air, people have studied the negative ions of air. The development and application stage of nearly one hundred years. After continuous exploration by scientists, many functions of air negative ions in health are slowly changing people's lives. Air negative ions are also known as "air vitamins and auxins", which is very beneficial to human health.

Studies have shown that when the concentration of negative ions in the air When it exceeds  $10,000/\text{cm}^3$ , it has a good auxiliary therapeutic effect on various human health diseases. Therefore, the purification function of air negative ions on air pollutants has become one of the important indicators to evaluate the cleanliness of the air in the tourism environment. The World Health Organization also defines: when the concentration of negative ions in the air reaches  $1500/\text{cm}^3$ , it is considered as fresh air.



## Negative ion detection standard and method for measuring negative ion release amount of material

### Principle of formation of negative ions

When the air molecules are subjected to external conditions such as ionizers, sufficient energy is obtained, and the electrons around the nucleus are detached from the nucleus and jump out of orbit to become free electrons, causing the neutral molecules or atoms that lose electrons to become positive. Charged ions; and the free electrons that jump out quickly adhere to certain gas molecules or atoms (especially easily attached to oxygen molecules or water molecules) and become air negative ions (Aeroanion). Therefore, air negative ions are a general term for a single gas molecule and a light ion group with a negative charge.

### I How negative ions are generated

In general, negative ions are mainly produced in the following ways:

- 1) Ionization of radioactive materials in the earth's crust and atmosphere
- 2) Ionization of cosmic rays and solar ultraviolet rays
- 3) Lenard effect of water
- 4) "tip discharge" and "photoelectric effect" of plants

In addition, many physical processes in the atmospheric environment, such as lightning, thunderstorms, snow storms, volcanic eruptions, and other forms of discharge phenomena, cause ionization of air molecules, increasing the concentration of negative air ions to some extent.



Company Name : Shibakawa ion paint  
Address : No. 2, Taman Sri Rambai,  
Taman Binjai,  
14000 Bukit Mertajam,  
Pulau Pinang.  
Contact No. & Whatsapp : 6010-461 9328

**Shibakawa**  
しばかわ