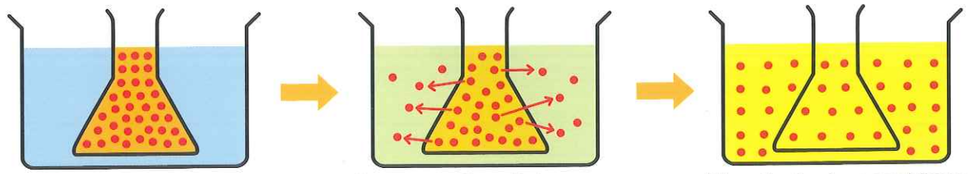
GAINA makes comfortable living possible by "balancing heat"!

Everyone wants to live comfortably all year around,
but we are living with a lot of stress — from the hot summer
and the cold winter to noises and odors.
GAINA's original new technology can adapt to not only the weather,
but noises and odors as well.
Summer and winter, day and night, GAINA can make
your life easier and give you the comfort you've always wanted.

● Heat moves from higher to lower.

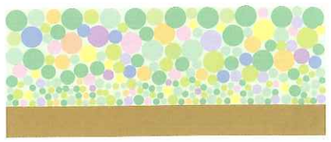


Put a glass with hot water in a pot of cold water.

Heat moves from higher temperature to lower temperature.

When the heat escaped from the glass, the temperature of the water surrounding the glass gets higher. When both water's temperature equals, heat's movement stops.

● The ceramic bead layering technique brings "heat equilibrium."



GAINA is made of special ceramic bead layers.
This special ceramic is designed to adapt to
the surrounding temperature,
resulting in heat equilibrium and
keeping heat transfer to a minimum.

Against cold ▶ Insulation/Heater

Heat can escape from the walls and ceilings even when room temperature gets high. GAINA can keep the heat's movement to a minimum and equalize the temperature throughout the house.

Against heat ▶ Insulation/Interception

GAINA's ceramic beads reflect the sun's infrared rays, which makes GAINA's surface adapt to surrounding temperature and keeps heat transfer to a minimum.

Against noise ▶ Soundproofing

The painted surface of GAINA is covered with many ceramic beads, which can reflect and reduce sound.

Against odor ▶ Air Freshener

GAINA has electrification 0.0 quality, so it prevents dirt from sticking to surfaces. Also, the ion water in the air combines with the dirt, and prevents dirt from floating around.

More Advantages ▶ Prevent condensation, Endurance, Safety, Fireproofing

GAINA has many more varieties. GAINA can prevent condensation; it can make a house or a building more durable; it can fireproof. It will make your home safer.

GAINA's Development

GAINA, which uses aerospace technology, can be used not only in houses and apartments, but in large-scale constructions such as factories, and for campers and portable toilets, and we expect more developments from GAINA.

GAINA data guide

We introduce you to GAINA's various effects such as dissolving summer heat and winter cold, eco effects, and cutting costs.

Against Cold
Insulation/Heater

At night, the cold room is now always 10C (75F)+ even after you turn the heater off!

"Now I know from my experience that GAINA has an insulation effect," says the I family from the Nagano prefecture. Until now, they used an air-conditioner with intense heater system, plus an oil heater during the day. They kept the oil heater going while they were asleep, but the room temperature still dropped below 0C (32F) by the morning. "But after we painted GAINA, this spacious room only needs one heater. And if we keep the heater on until right before bedtime, in the morning the room temperature doesn't go below 10C (75F.)"
As a result, the I family saved a lot on their electric bills and gas bills.

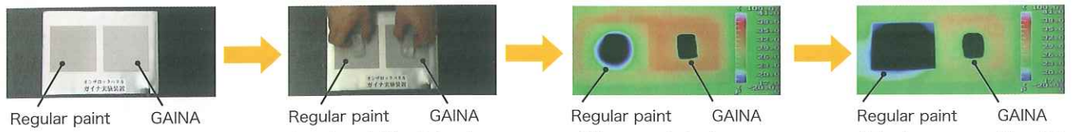
Painted area
Interior / ceiling about 175㎡ (about 1,884sqft)　Exterior about 173㎡ (about 1862sqft)

The room the cold floor gets warm, and it is effective to prevent condensation

The H family bought an apartment in suburban Tokyo, which was very cold in the winter. Because the concrete foundation of their apartment gets very cold, the north side of the room had a cold floor, even with insulation, and the walls were wet with condensation. Mr. H was thinking "We have to break down the walls and add more insulation in order to keep the heat inside the room," but when he heard that he can just paint GAINA, he decided to paint the walls, ceilings, and the inside of the closets. Soon after, they saw the result.
The room is warm even in the winter, and they do not see condensation anymore. "Before, we used to spend most of our time on the south side of the room, but now that it is comfortable, we spend more time on the north side of the room," says the H family.

Painted area
Interior / ceiling / inside of the closet about 115.1㎡ (about 1,239sqft)

●【Calorific Value Experiment】GAINA has small calorific values



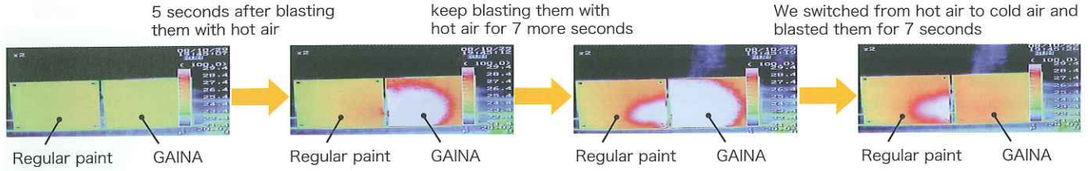
▲We placed two iron plates on top of a heat sheet. On the right, we painted GAINA, and on the left we painted a regular paint. The temperature of both plates is 45℃ (112℉).

▲ In the middle of the plates, we placed 3㎝ (1.2 inches) ice cubes.

▲We started, the ice on top of the plate with regular paint started to melt.

▲The ice on top of the plate with regular paint melted completely. On the other hand, the ice on top of GAINA painted plate did not melt.

●【Temperature Adaptation Experiment】GAINA adapts to surrounding temperature



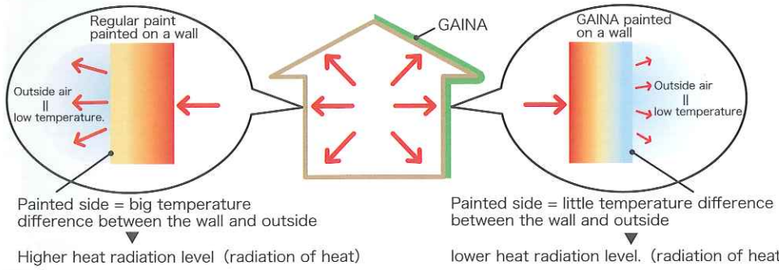
▲We placed two iron plates side by side. The right one is painted with GAINA, and the left one is painted with regular paint. We blast them with hot air from front.

▲The temperature of GAINA painted plate started to rise by hot air, according to the thermo meter. (Screen change red to white.)

▲The temperature of GAINA painted plate kept rising, while the temperature of regular paint plate just started to rise.

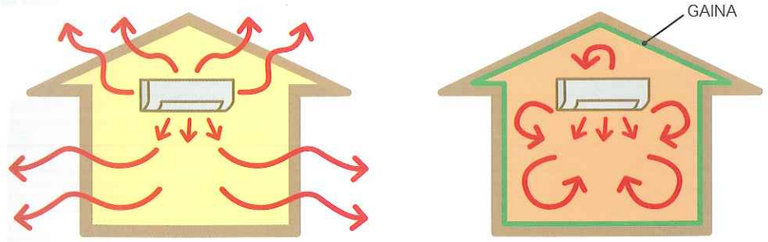
▲After we switched from hot air to cold air, the temperature of GAINA painted plate dropped significantly. It shows how GAINA adapts to surrounding temperature.

●Paint the exterior to prevent the heat from escaping



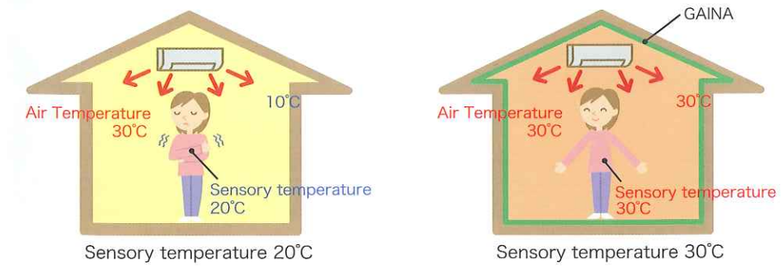
Heat moves from higher to lower. With GAINA painted on the exterior, the surface adapts to the surrounding temperature and the heat balances out,resulting in minimum movement of the heat. Because of this, GAINA keeps the cold outside, and the heat inside.

●Paint the interior to improve heating effect



Even when the temperature inside the house is high, the heat can escape if the walls and ceilings have lower temperature. With GAINA painted on the interior, the temperature of the air and surface of the wall balance out, and minimize the heat's movement.

●GAINA helps improve your sensory temperature



On the left, the temperature of the air is 30℃(86℉), the temperature of the walls and ceiling surface is 10℃(50℉), and the sensory temperature is 20C (68F). On the right, with GAINA painted on the interior, even when the air temperature is the same 30℃ (86℉), the walls and ceiling surface adapt to the air temperature, which also makes the sensory temperature 30℃ (86℉).

Against Heat
Insulation/Interception

The air is not humid, and comfortable in the summer

The Y couple built a house that resembles a resort cottage in Aichi prefecture. They painted GAINA on the exterior, the interior and the ceiling. The first thing the couple noticed in the new house was how the air is so refreshing.
"The air is not at all humid even without the air-conditioner, and it is so comfortable. The damp courses in the closets do not even get water in them, " says Mr. Y. GAINA's permeation of humidity and the fresh woods combined to produce a refreshing effect. Also, the insulation effect is greater than they expected. When the Y's lived in their previous house, it always felt hot and humid in the summer.Now, they do not have to use the air-conditioner often. "Every day is so comfortable, thanks to GAINA," says the satisfied couple.

Painted area Interior /ceiling about 415㎡ (about 4,467 sqft) Roof (water shield roofing paper) about 160㎡(about 1722sqft) Exterior about 175㎡(about 1,884sqft)

The houses that depended on an air-conditioner is now cool

There are many people who have noticed GAINA's insulation power. "It was so hot we needed the air-conditioner 24 hours a day," says Tokyo resident Mr. M. When a friend recommended GAINA, which has a big effect on insulation yet does not need complicated construction, he decided to paint it on the roof and the exterior walls. Now his house is surprisingly cool.
Mr. K, who resides in Shizuoka prefecture, says, "I do not feel the heat as much during the summer."
Mr. T, in Aichi prefecture, could not stand the heat on the second floor of his house. He says "There is no big difference in temperature between the first floor and the second floor anymore. I can just open the window and it feels cool."
Mr. S, in Ibaraki prefecture, measured the temperature of the roof after painting GAINA, and says, "I was surprised to see that the temperature dropped more than 28ºC(82ºF)

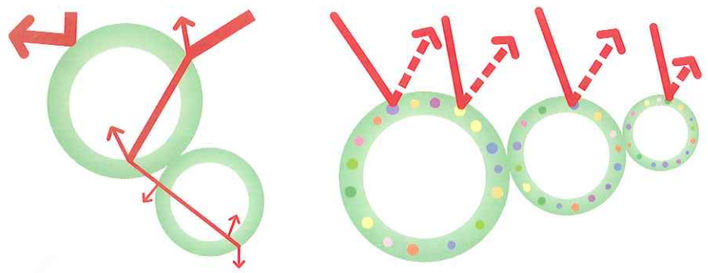
Mr. M's House Painted area
Roof about130㎡(about 1400sqft)
Exterior 140㎡(1,507sqft)

Mr. K's House Painted area
Interior s/ceiling about 40㎡(about 430sqft)
exterior about 260㎡(about 2,800sqft)

Mr. T's House Painted area
Roof about 300㎡(about 3230sqft)
Exterior about 180㎡(about 1,938sqft)

Mr. S's House Painted area
Roof about 94㎡(about 1012sqft)
Exterior about 140㎡(about 1,507sqft)

●GAINA's heat prevention mechanism



The Sun's infrared rays reflect, bend and move on GAINA's ceramic beads repeatedly, and it reduces the energy entering the house (see the graphic on the left). Also the heat prevention materials in the ceramic beads reflect infrared rays.

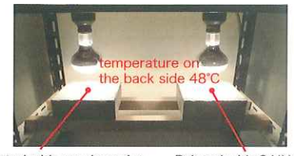
●GAINA prevents the heat's occurrence outside the building and cools down the temperature inside

▲We compared two patches between where we painted one with GAINA and the other without GAINA.
Tested date :September 3rd, 2008
Outside temperature is 33°C (91°F).

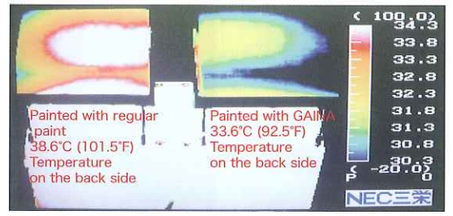
▲The patch without GAINA became 48°C (118°F), and the patch with GAINA is 35°C (95°F)

With the information on the left, we calculate the room temperature.

▲We have two concrete blocks with a thickness of 50mm (2inches), one with regular paint, and the other with GAINA.



▲We place both on the test machine, heat them up until the surface temperature is 48°C(118°F), and measure the temperature on the back side.



◀The block with regular paint's back side is 38.6°C (101.5°F), the one with GAINA is 33.6°C(92.5°F).

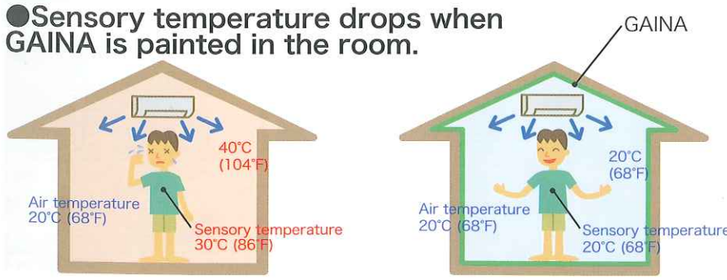
Surface temperature with GAINA dropped 13°C (23°F)

The room side dropped about 5°C (9°F)

●Air conditioning effect improved when interior was painted.

Even when the air temperature of the room is low, if the temperature of the ceiling and walls are high, heat can get inside. When you paint GAINA inside of the room, the air conditioner's cool air and GAINA's painted surface adapt right when you turn the air conditioner on, and it keeps heat transfer to a minimum. (The same mechanism as "Paint the interior to improve insulation" on page 5)

●Sensory temperature drops when GAINA is painted in the room.



Sensory temperature 30°C (86°F)

Sensory temperature 20°C (68°F)

On the left, when the room temperature is 20°C (68°F), the surface temperature — walls, ceiling — is 40°C(104°F), sensory temperature is 30°C (86°F) [(20°C (68°F)+ 40°C(104°F)) ÷ 2 = 30°C (86°F)]
On the right, the room is painted with GAINA, the room temperature is the same 20°C (68°F)but the surface temperature — walls, ceiling — adapt to room temperature, and sensory temperature is 20°C (68°F). The difference is minus 10°C (18°F). [(20°C (68°F) + 20°C (68°F)) ÷ 2 = 20°C (68°F)]÷

Against Noise -
Soundproofing

Now that we have less car noises, the family conversation is much easier.

"We used to turn the volume on the TV way up so we can hear it," says the K family who lives in the suburb of Hamamatsu City, Shizuoka prefecture. The street in front of the house has heavy traffic, and cars run very fast there. Also, there is a truck and heavy machinery rental company across the street, and their engine noise was very loud. GAINA solved the K family's trouble. Painting GAINA on the house's exterior reduced the noise a lot. Even in the living room that faces the street, they can enjoy TV with normal volume. "Our conversations disappeared in the noise before, but now we talk more because we can hear one another very well", says smiling Mr. K.

Painted area
Interior /ceiling = about 40㎡(about430.5sqft), exterior = about 260㎡(about2,800sqft))

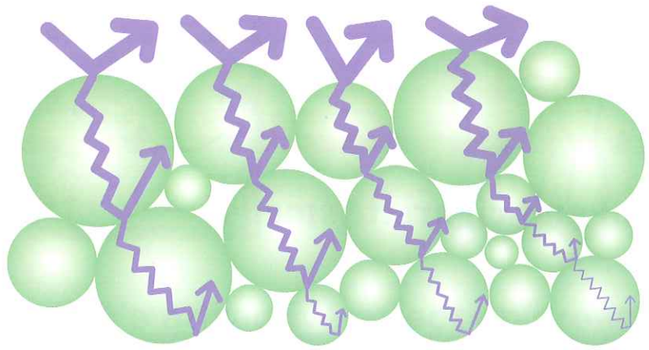
The room is so quiet, they don't notice the sound of rain.

O family in Kanagawa prefecture chose GAINA because every year their children complained that "Our room on the 2nd floor is so hot."After painting GAINA, not only did the temperature drop significantly, but also they noticed less noise. "It's quiet even when it's raining. Sometimes we have to hurry to get our laundry from outside because we don't notice the sudden rain,"says Mr. O.
T family in Souka city, Saitama prefecture had trouble with noise because their house is in a noisy shopping district, and there is a lot of traffic. "After we painted GAINA, we realize how quiet it is in the house. We don't even notice the noisy cars and people that we used to hate" says satisfied T family.

O house Painted area
Roof: about 90.0㎡(about 970sqft), exterior: about 156.95㎡(about1,690sqft))

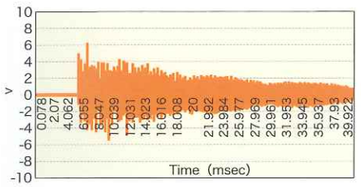
(T house Painted area - Interior: about 39.6㎡(about 426sqft),
ceiling: about 19.8㎡(about 213sqft), exterior: about 82.5㎡(about 888sqft))

●GAINA's special ceramic reflects sound and controls vibration

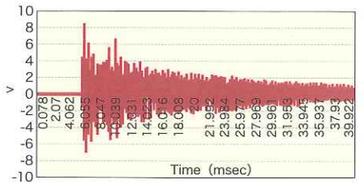


GAINA's membrane is made of many hard ceramic beads with air inside. The sound is repeatedly reflected by the ceramic, and absorbed by the air. Also, because of the effect of layered ceramic within the membrane, it controls vibration, and the sound that entered the membrane became quieter.

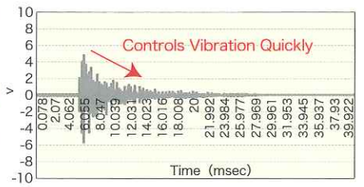
●[Vibration Control Test] GAINA absorbs vibration quickly



Nothing painted: SS400



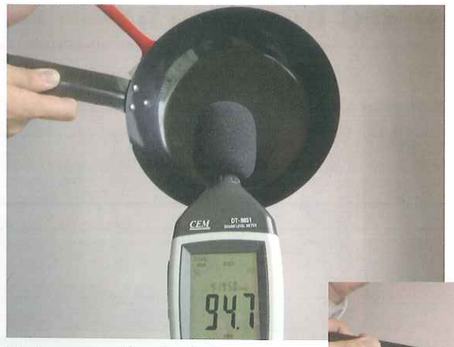
Phthalic acid Painted: SS400



GAINA: SS400

Sound occurs by vibration and travels through vibration. GAINA controls vibration and makes soundproofing possible. These 3 waveform data are from GAINA's vibration control test at Hamamatsu Industry Experiment Station. It is obvious from the data above that GAINA controls vibration.

●[Impact Sound Test] GAINA prevents occurrence of sound



Frying pan without paint

We measured the sound when we hit a regular frying pan and GAINA coated frying pan with a hammer.
A regular frying pan: 94.7dB
GAINA coated frying pan: 74.9dB
Differences: 19.8dB

The 20dB difference means sound energy is 1/100.
For example, the 6dB difference means sound energy is 1/4, which means you are hearing the sound twice the distance from the sound source.

Frying pan painted with GAINA

Against odor
Air Freshener

A store with less alcohol and cigarette smells

"The food and drinks taste better when the air is clean. I wanted to make a restaurant where the customer can spend a refreshing time," says Mr. S who chose GAINA prior to opening a Japanese restaurant in front of Fujisawa train station in Kanagawa prefecture. He painted GAINA on interior walls and made them look like plaster covered walls to make it feel relaxing. What surprised him most after painting GAINA, he says, was "there is no residue smell of alcohol and cigarettes from the day before. I might accidentally forget to ventilate the room" Also, they worry about cigarette smells and dust that stick to walls, but with GAINA's ability to prevent dirt from sticking, it is easy to clean. He cannot hide his surprise about GAINA's more-than-expected effects.

Painted area Interior, about 55㎡(about 59sqft))

It feels like living in the woods - realized how much the air quality improved

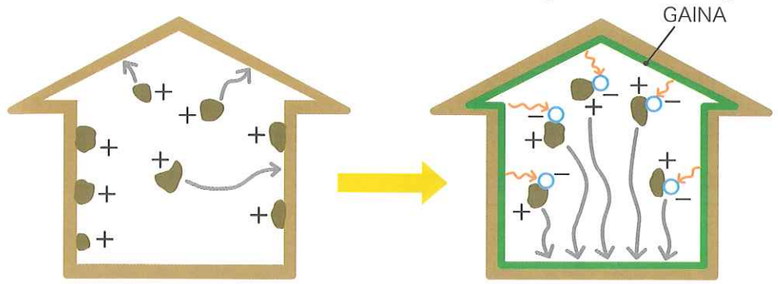
T family in Fukushima prefecture painted GAINA on their new house because their previous home felt dusty. After they started living in their new house, they say "It feels like we live in the woods."
Mr. M, who renovated his apartment in Tokyo, used to have trouble with the room's smell. He is pleased, saying " After GAINA, there is no bad smell and it is so comfortable."
Also, the director of a F dentist in Fuji city, Shizuoka prefecture, used GAINA to improve air condition and to make patients feel relaxed. Now he gets a good reputation from patients saying that "it's comfortable."

(T house - Painted area /Interior 168㎡(1,808sqft), Ceilings 174.9㎡(1,883sqft))

(M house - Painted area /Interior: 45㎡(484sqft), Ceiling: 35㎡(377sqft))

(F dentist - Painted arelnterior and ceilings, 168㎡(1,808sqft))

●Prevents odor and dust from floating and sticking.



In general, dust, dirt, and pollen in the air float around containing positive electric energy. And they electro-statically adhere on walls and ceilings. GAINA has electrification characteristic 0.0 it is harder for dust, dirt, and pollen to stick, and ionized moisture combines with dust, dirt, and pollen and prevents them from floating around.

GAINA's attractive effect on creating air that makes you feel good

◉—— By Doctor of Education (Preventive Medicine), Dr. Teruo Iwasaki

Special ceramic beads in GAINA emit extreme infrared radiation because of its excellent extreme infrared radiation emission capacity. Extreme infrared radiation works on water molecules in the room air and makes it negative ion.

The water in the air that turned to negative ion has an effect to purify dust, dirt, and pollen in the air. Also, the negative ion water molecule in the air can be consumed in our body by breathing.

Because of this effect, the room air within GAINA painted room brings ideal air to human bodies. It becomes "the air that makes you feel good," so to speak, and creates comfortable living situation.

It is important to evaluate the balance between positive ion and negative ion. I hear it all the time that the positive ion is the bad one and the negative ion is the good one, but it is important to have a good balance between the positive ion an d the negative ion under advantage of the negative ion. It is verified by air quality control inside spaceships.

Under ideal balance of two kinds of ions, they will restraint the growth of toxic substances and germs by oxide and restore process, and create good quality air.

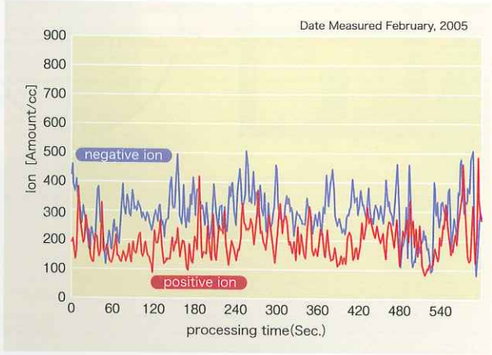
We measure the room air ion balance in the room that was painted with GAINA, the room with positive ion, dust, and dirt pre-painting now has advantage of the negative ion and much less dust and dirt post-painting, and we got close to ideal data.

We appraise GAINA's effects of improving room air quality and making comfortable living situation, and we would like many people to feel its capability in their lives.

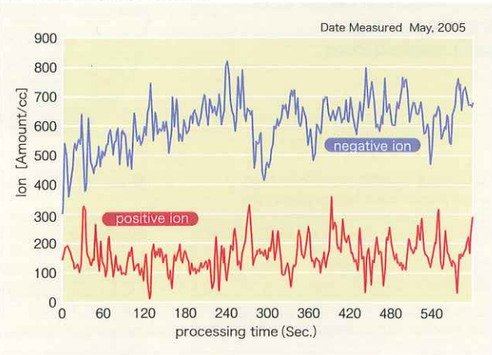
Dr. Teruo Iwasaki

Ph.D in Education (Hokkaido University). Born in Matsue city, Shimane prefecture. Proposed, planned, and administrated "Cure-house" as a Balneo therapy (hot spring therapy), and"Forest Bathing" as a forest therapy while he worked as a complement for the Ministry of Welfare, the Ministry of Agriculture, Forestry and Fisheries, and the Ministry of the Environment. He also measured distribution of negative air ions all over Japan by the forest which has many Centenarians. He is distributing Japan Negative Air Ions Map now. He directs his attention to the deoxidize sterilization of negative air ions and he is working for Legionella pneumophila measures and sick- house syndrome.

● Before measuring ion data



● After measuring ion data



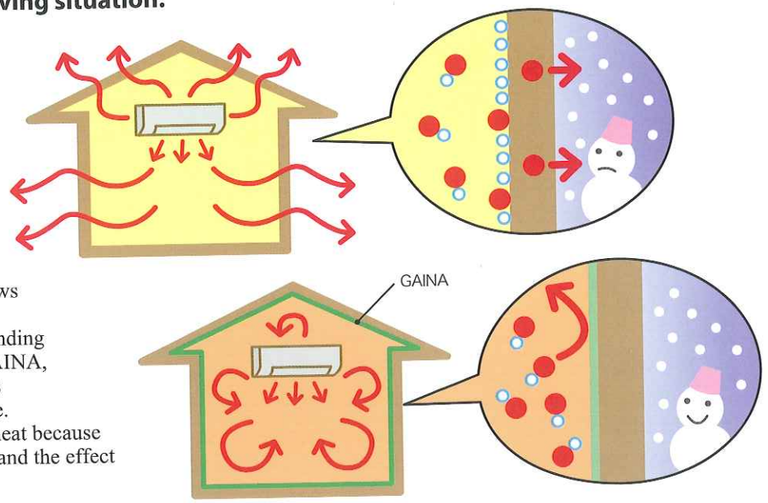
More effects

Dew prevention, Endurance, Safety, Incombustibility

Dew prevention

To prevent condensation by restraining heat's movement that causes condensation, which creates a comfortable living situation.

There are many places – ceilings, walls, windows, in the closet – in our homes where condensation occurs.Condensation happens in general when the heat of the air moves through windows and walls.
Heat moves from higher places to lower places when there is difference in temperature. That is why condensation happens in the lower temperature areas such as windows and walls.
GAINA's coating film adjust to surrounding temperatures, so when painted with GAINA, the surface area's temperature becomes comparable to the room air temperature.
As a result, there is less movement of heat because there is less difference in temperature, and the effect of preventing condensation happens.

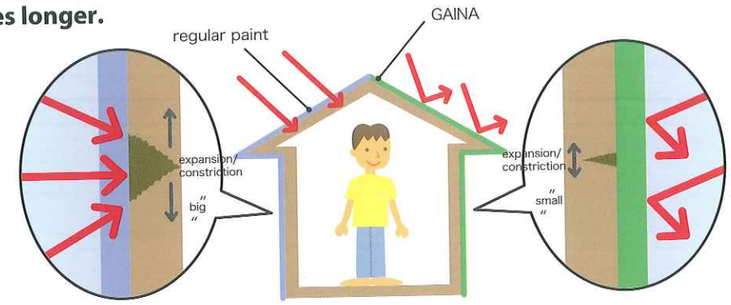


➡ (The same mechanism as "Paint the interior to improve insulation" on page 5)

Endurance

GAINA can make buildings' lives longer.

GAINA has many ceramic layers that are the strongest against ultraviolet rays, and is 2 to 3 times more durable than regular paint. Also, its insulation/thermal barrier effects restrict the building's expansion/constriction.



● Endurance against ultraviolet rays by ultraviolet rays' absorption rate

	Absorption Rate
Finely Divided titanium oxide (sunblocks)	87-90%
Carbon Black (tires, electric wires etc.)	95-97%
GAINA	93-95%

● Xenon 2000 hours compound cycle test (color: light gray)

Carbonate	No splits, peelings, frosts, color changes	
Carbonate Dioxide	Same as above	
Adhesion Strength (N/mm_)	After Carbonate 0.57	After Anticorrosion 0.69
Near Infrared Rays Reflectance (780-2100nm)	Standard Training (1 week later)	89.5%
	Xenon compound cycle test 2000 hours later (about 14 years)	87.1%

Safety

Water-based GAINA is safe. Interior GAINA received grade F☆☆☆☆

Water-based GAINA does not use hazardous materials such as organic solvents. Interior GAINA received F☆☆☆☆ (four star) for the room air quality safety measurement (see the table on the right).
Also, GAINA can be used as exterior paint, so it cannot receive F☆☆☆☆ for it but it holds the same level of safety evaluation for aldehydes and Volatile Organic Compound (VOC) as seen in the table on the right.

● Emission rate analysis result of Aldehyde and Volatile Organic Compound (VOC) from sample

Sample name: Interior GAINA

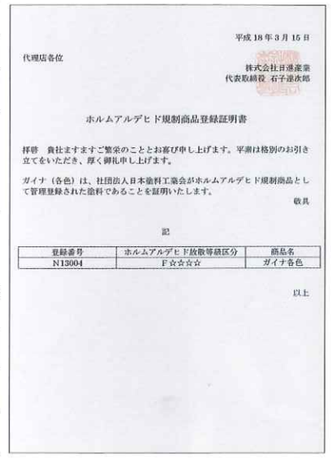
	Measurement Method	Emission Rate (ug/㎥·h)
Aldehydes	Formaldehyde	ND
	Acetaldehyde	ND
VOC	Toluene	ND
	Xylene	ND
	Paradichlorobenzene	ND
	Ethylbenzene	ND
	Styrene	ND

● Emission rate analysis result of Aldehyde and Volatile Organic Compound (VOC) from sample

Sample name: GAINA

	Measurement Method	Emission Rate (ug/㎥·h)
Aldehydes	Formaldehyde	<5
	Acetaldehyde	ND
VOC	Toluene	ND
	Xylene	ND

Registration Number: N13004
(Interior GAINA)



平成18年3月15日

代理店各位

株式会社日進産業
代表取締役 石子達次郎

ホルムアルデヒド規制商品登録証明書

拝啓　貴社ますますご繁栄のこととお喜び申し上げます。平素は格別のお引き立てをいただき、厚く御礼申し上げます。

ガイナ（各色）は、社団法人日本塗料工業会がホルムアルデヒド規制商品として管理登録された塗料であることを証明いたします。

敬具

記

登録番号	ホルムアルデヒド放散等級区分	商品名
N13004	F☆☆☆☆	ガイナ各色

以上

Incombustibility

GAINA is certified incombustible by Ministry of Land, Infrastructure, Transport and Tourism

Registration Number: NM-1194
Substrate
(Incombustible (excludes metal plates))

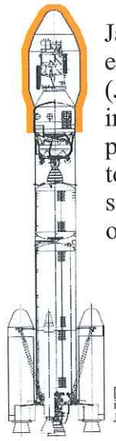
Registration Number: NM-1904
Substrate (Incombustible (metal plates))

To ordain incombustibles by the government ordinance, there are 3 ranks of building materials to fit in the engineering standards for incombustibility: Incombustibles, Quasi-incombustibles, Fire retarding materials. GAINA is certified as an incombustible, the highest rate, by Ministry of Land, Infrastructure, Transport and Tourism.

Evolution of GAINA

GAINA, which uses aerospace technology, can be used not only in houses and apartments, but in large-scale constructions such as factories, and for campers and portable toilets, and we expect more developments from GAINA.

●Bringing aerospace technology to our lives



Japan Aerospace eXploration Agency (JAXA) developed insulation paint to paint the tips of rockets to protect the rockets and satellites from the heat of the atmosphere.

[Data provided by independent administrative corporation, Japan Aerospace eXploration Agency]

Converted to civil use

GAINA®

GAINA is a product for consumer developed and manufactured by Nissin Sangyo Inc, using aerospace technique.

[Photo provided by independent administrative corporation, Japan Aerospace eXploration Agency]

[GAINA Data Guide]

GAINA has many capabilities, such as preventing summer heat and winter cold. These performances have data to prove how ecological and cost effective GAINA can be.

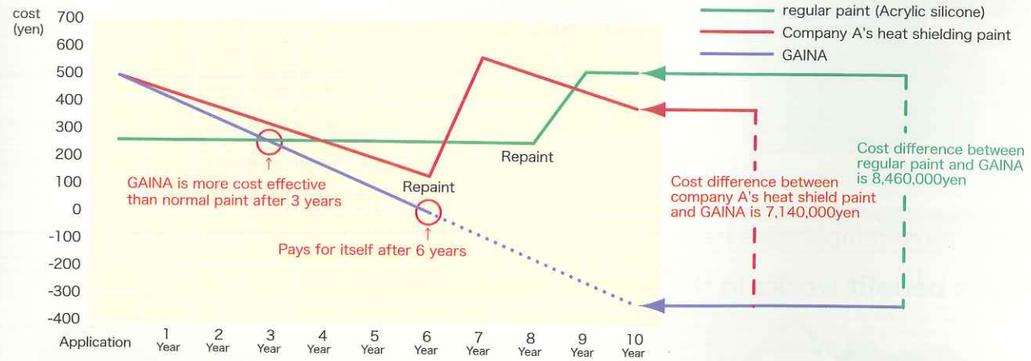
●Data of Physical Property

Test Content	Test Method	Test Result	Remarks
Hardness or Solidity Value of Scratch Test by Pencil	JIS-K5600 5.4	B	Mitsubishi Uni
Shock Test	JIS-K5600 5.3	No breaking, no peeling	Du Pont 500g/50cm
Erichsen Test (m/m)	JIS-K5600 6.2	No breaking, no peeling	30f/mm/6.0mm
Cross-cut Adhesion Test	JIS-K5600 5.5	100/100	Cutter Guide
Alkali Resistance Test	JIS-K5600 6.1	No breaking, no peeling	Sodium Hydroxide 5% NaOH, 20°C(68F)/24hrs
Acid Resistance Test	JIS-K5600 6.1	No breaking, no peeling	Sulfuric Acid 5% Solution, 20°C(68F) /24hrs
Heat-Resisting Property Test	JIS-K5600 6.1	No change	Electric Furnace 150°C(302F) /60mins
		Slight yellowing, swelling	Electric Furnace 200°C (392F)/60mins
Salt Spray Resistance Test	JIS-K5600 6.1	No Rust except Rust around cross cut bur	5% Saline, 86hrs

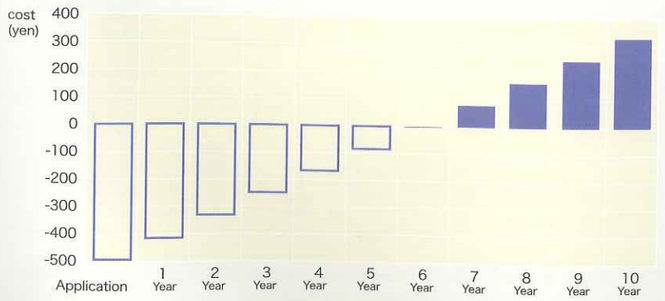
●10-year total cost difference (paint cost minus energy saving effect)

Paint Cost		Useful Life	Summer Time Energy Saving Effect	Winter Time Energy Saving Effect	Whole Year Energy Saving Effect	10-year Cost Difference
GAINA	4940000 yen (3,800 yen x 1,300m²(1400sqft)	15 years	600000yen	220000yen	820000yen	plus 3260000yen
Heat Shielding Paint	4940000 yen (3,800 yen x 1,300m²(1400sqft)	8years	600000yen	0yen	600000yen	minus 3880000yen
Regular Paint	2600000 yen (2000 yen x 1,300m²(1400sqft)	10years	0yen	0yen	0yen	minus 5200000yen

*First line, page 18, calculated by when paint for warehouse batten seam roofing in Saitama prefecture, Shiki city (1,300㎡/ 14,000sqft)



●Economic benefit of GAINA



The initial cost of painting GAINA is higher, but it reduces the maintenance costs of facilities (warehouses, buildings, etc.) over time because of its eco-friendly effect. Also, as a hidden economic benefit, this warehouse now uses fewer air-conditioners and no longer needs sprinklers on the roof in the summer, resulting in less damage to the building. Amount of CO_2 cutback in 10 years by the eco effect is the same as the amount 40 families produce per year, about 189.6t (424,704lbs). [Source: National Institute of Environmental Studies]

[GAINA Data Guide]

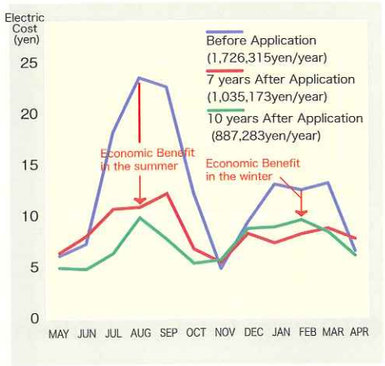
●When you paint it once, it is effective even after 10 years.

[Time Applied] May, 2010
[Place] Shiki- city, Saitama prefecture
[Paint Part] Batten Seam Roofing
(1,300㎡ / 14,000sqft)
[Paint color] Light Blue (69-70L)

Effects
- Temperature lowered 15°C (59°F) on the second floor
- No need for sprinklers on the roof during summer
- Need for air-conditioner is now down to 1 from 4
- Heat efficiency is up during the winter
- Repainting cycle is longer

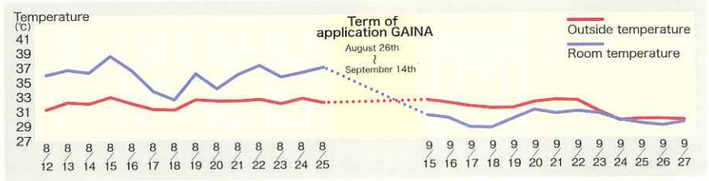
Total cost saving is about 8,200,000yen in 10 years

Electric Cost Transition



●Cool rooms without air-conditioners

Comparison: Before and after GAINA application in the summer



[Time Applied] August, 2010
[Place] Ginowan- city, Okinawa prefecture
[Paint part] roof, exterior, interior
[Paint color] White (N-90) Yellow-Green (32-90D)

Effects
- Room temperature used to be higher than outside, but now, it is lower.
- Cooking odor in the kitchen is less obvious.

Room temperature was about 4°C (7.2°F) higher than outside, but after application of GAINA, room temperature became lower than outside.

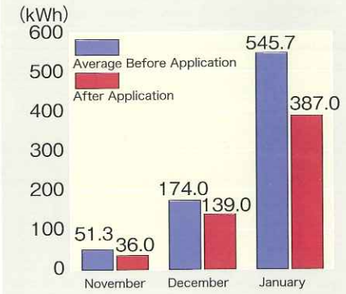
●GAINA's benefit works in the winter, too!

[Time Applied] August, 2008
[Place] Shibuya-ku, Tokyo prefecture
[Paint part] roof (about 193㎡ / 2,077sqft) exterior 193㎡ / 2,077sqft
[Paint color] White (N-95) Beige (17-60H)

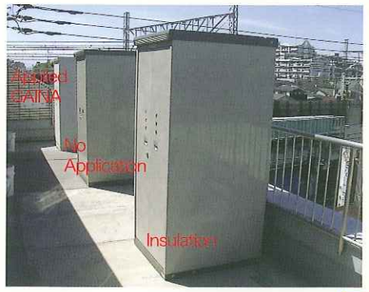
Effect
- Old looking house became beautiful (white wall image)

Electric cost for heating reduced by 27.1%

Electric Usage Comparison



●Improved effect over other insulations

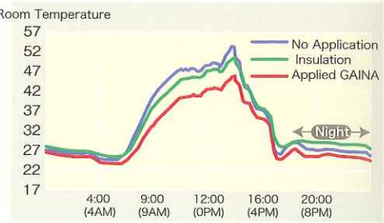


Test Outline
We compared inside temperature transitions for the 3 sheds in the summer
[Measured Term] July 20th, 2005 to August 31st, 2005

Shed Specifications
Size: Height 1920mm (6'4") × Width 800mm (2'8") × Depth 900mm (2'11")
1, Shed without any paint
2, Shed with styrofoam insulations (25mm / 1") on walls and the ceiling
3, Shed with GAINA applied (exterior)

Lower temperature during day and night

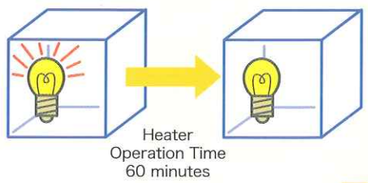
Temperature transition of day



	No Application	Insulation	Applied GAINA
Highest Temperature of the Day	53.3℃	50.7℃	45.4℃
Highest Temperature of the Night	28.9℃	29.9℃	28.2℃

*Insulations can not lower temperatures quickly because of its temperature keeping effect, but because GAINA is different from normal insulations, it can lower temperatures during day and night. (Night: between 19:00 / 7pm to 5:00 / 5am)

●Air temperature rises when the heater is in operation

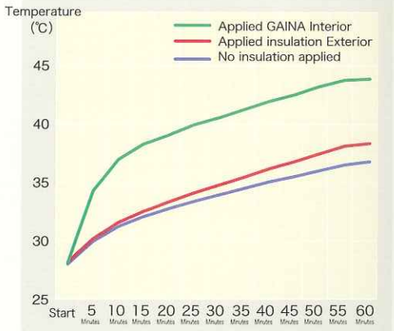


Test Outline
Compare inside temperature's rising transitions for the 3 boxes when heater is operating

[Box Specification]
Size: 400mm (1.3') cube
1, Box without any insulations
2, Box with polystyrol insulation (20mm (3/4")
3, Box with GAINA applied (interior)

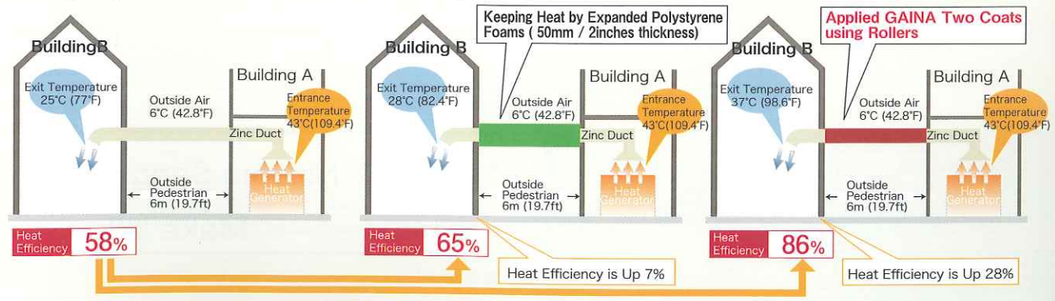
By painting GAINA, the heating effect starts immediately after the heat source started operating, so it is possible to warm up the room temperature very quickly.

Transition of Inside Box Temperature



*Tested in Construction Quality Measurement Center, Liaoning Sheng, China

●Keeping heat in a hot air conveyance duct



GAINA makes effective insulation possible by creating even layers of heat shielding, no matter what the object's shape is.