

Thermal insulation coatings UBIGRUND®

UBIGRUND® - is designed to be a multiple purpose coating, which solves **thermal insulating** and painting **problems**. This thermal insulation coating product fulfills niche market areas of temperature from – 60° C up to + 200°C on all types of substrates.

UBIGRUND® thermal insulating coating has been used successfully for walls, buildings, heat exchangers, boilers, bag houses, rail cars, tanks, condensation lines, HVAC, personnel protection, radiant barrier control, among countless other applications. The insulating coating works to provide thermal insulation and personnel protection, to reduce temperatures.

Since the product **UBIGRUND®** is applied in **1 mm** thickness directly to the substrate or primer, its provide excellent thermal insulation protection as well.

UBIGRUND® employs only the best materials and has been specifically engineered in scientific-production association formulation lab for thermal insulating performance and long lasting durability (10 -12 years).



UBIGRUND® is excellent for:

Walls, ceilings, roofs – home, office building (out and internal surfaces).

Heat exchanger protection - used for **personnel protection**.

Boiler protection and heat retention - used to protect personnel and provide more energy efficiency for boilers.

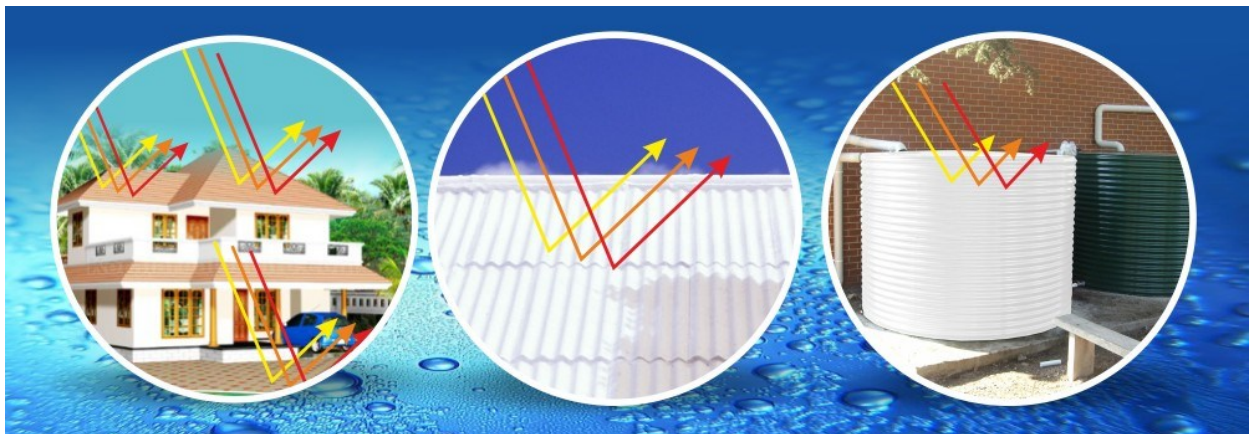
Personnel Protection - used to lower substrate temperatures within HSE guidelines.

HVAC - used to control and eliminate condensation in plant areas, as well as substantially decreasing solar heat gain.

Tanks - used to reduce thermal shock and increase control condensation. Also used

Extruders - used to help insulate and protect molds in plastic applications

Substrate protection and insulation - used in various industrial equipment to help insulate equipment against radiant heat gain.



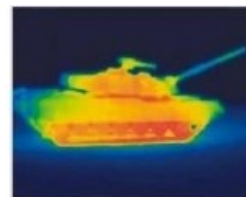
By using UBIGRUND® products, additional benefits include:

- Saving total installation time when compared to conventional insulation methods.
- No cutting, tapping or special hangers.
- No special fabrications needed.
- The coating is a non-combustible, non-flammable (Class 1 (A) fire rated products).
- Stops or reduces the possibility of condensation.
- Lightweight (6 – 6,5 kg per 1 Liter).
- Usage approx. 1 L / 1 sq .m. (1 mm).
- Can be easily "touched up" after minor structural repairs.
- Contains no harmful chlorides, VOC.
- Environmental friendly product.
- Successive coats will increase insulating capabilities.

Recommended substrates:

**All metal surfaces*.
Concrete or Brick wall
PVC**

**Steel surfaces may require primer systems.*



Heat Transfer and Standard Insulation

All the materials that are used in the construction of your home or business buildings absorb and transfer Heat.

UBIGRUND® will greatly reduce heat gain in the walls, ceilings and roofs.

UBIGRUND® will absorb the AMOUNT of heat that you are either trying to keep in or out.

UBIGRUND® will reduce heating cost during the winter months in your facilities (home).

It will reduce cooling cost during summer months.

Standard insulation works by slowing down the RATE of transfer of the heat that has been absorbed by the walls and roof. About 80% to 95 % of all heat is transferred. Heat ALWAYS flows from the warmer side to the cooler side by one or more of the following ways:

Conduction - Conduction is the transfer of heat through a solid object. When one part of an object is heated, the molecules within begin to move faster and more vigorously. When these molecules hit other molecules within the object they CONDUCT heat through the entire object. They cause heat to be transferred through the entire object.

Convection - Convection is the transfer of heat by the movement of a fluid such as water or in the air. Inside of a wall cavity, air removes heat from a warm interior wall, and then circulates to the colder exterior wall where it loses the heat.

Radiation - Any object will radiate heat to cooler objects around it by giving off "heat waves". This is a direct transfer of heat from one object to another, without heating the air in between. This is the same process in which the Earth receives heat from the Sun or a wood stove supplies heat to its surroundings.



How do we stop this transfer?

Insulation such as **Fiberglass, Cellulose, Styrofoam**, etc. have commonly been used to reduce heat gain and resist R value¹, the heat transfer by way of conduction only; they do nothing for the heat transfer by way of radiation.

Mass insulation products work by trying to "trap" the heat in air pockets contained between the fibers in the product. Air is a good insulator against conduction but cannot stop radiant heat. Once the insulation becomes saturated with all the heat it can absorb, the heat is then transferred on to the wall or ceiling.

UBIGRUND® will reduce heat gain and will reduce those costs.

Standard insulation reduces the RATE of heat transfer but not the AMOUNT of heat transfer.

In fact standard insulation can actually work against you in the summer since your home actually stores up the heat absorbed during the day.

In the winter time your interior walls and ceilings actually absorb a great deal of the heat that you generate with your heater.

This absorbed heat then flows outward through the walls and ceilings of your home into the colder outside air.

UBIGRUND® is the Answer

UBIGRUND® will reduce heating cost and reduce cooling cost by decreasing the insulation demands placed on conventional insulation.

The ability of UBIGRUND® to be easily and inexpensively applied to walls, ceilings, roofs, pipeline and etc., in the form of a paint additive **creates a thermal barrier**.

Upgrading the inner - wall or ceiling insulation in older or poorly insulated buildings can be an expensive and sometimes impossible task.

UBIGRUND® is the economical choice.

What does UBIGRUND® Do?

UBIGRUND® will greatly **reduce heat loss** (heat absorption) and heat gain by decreasing the AMOUNT of heat.

UBIGRUND® has been successfully used for such diverse applications as on a Research Vessels, Oil storage tanks, Metal shipping containers, factories and warehouses.

UBIGRUND® can reduce heat absorption and has proven to be able to save more than 20% off their normal heating and cooling costs!

How It Works?

UBIGRUND® is a series of ceramic coatings that provide greatly enhanced insulation through a complex blend of microscopic hollow ceramic spheres. The ceramic spheres in UBIGRUND® have a rarefied air inside similar to mini-thermos bottles. Their ability to reflect heat lets these products block heat loss from and heat gain into of your facilities.

Where the microscopic hollow ceramic spheres are produced?

All types of the microscopic hollow ceramic spheres are produced in Russia by special order from United Business Group Co., Ltd Novosibirsk (Siberia part of Russia).

UBIGRUND® has unique properties that reflect heat providing a unique and highly effective radiant barrier.

The hollow ceramic microspheres reflect heat from sources such as direct sunlight or your homes heater and causes you to feel warmer in the winter and cooler in the summer. The ceramic particles in UBIGRUND® improve your home insulation by adding a thermal barrier.

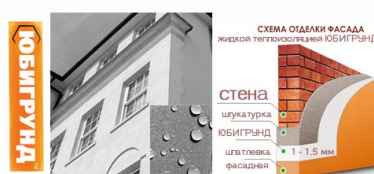
The particles inside Thermal insulation coatings UBIGRUND® refract, reflect and dissipate heat.



SUGGESTED PRODUCT USE

Applications of UBIGRUND® adds significant thermal insulation to new and existing surfaces on a wide range of substrates such as:

- * Piping & Pipelines
- * Steam pipes
- * Hot water pipes
- * Cold water pipes (stops condensate)
- * Refrigerant lines
- * A/C Ducts
- * Heating Ducts
- * Boilers
- * Machinery
- * Farm Equipment
- * Feed Storage Silos
- * Shipping containers
- * Appliances
- * Ferrous Metals
- * Cryogenic Tanks
- * Gas and Oil storage tanks
- * Non-Ferrous Metal
- * Galvanized Metal
- * Metal buildings



UBIGRUND® - Benefits and Uses:

Benefits:

- Creates a more energy efficient facilities
- Reduces energy demands
- Creates a more comfortable living environment
- Simple and easy to use
- Safe and Non-Toxic
- Helps keep you warmer in the winter
- Helps keep you cooler in the summer
- Never stops working
- Pays for itself through increased energy efficiency
- Reduces heat transfer into and out
- Reduces utility bills
- Easy field overhaul

Uses:

- Commercial
- Residential
- Industrial
- Pipelines
- Interior Walls
- Exterior Walls
- Ceilings
- Attics
- Basements
- Roofs
- Mobile Homes
- Sheds
- Metal Buildings

Environmental Issues

There are some basic environmental issues that connect us all.

Everyone wants to do their part to help the environment and using UBIGRUND® thermal insulation is a great way to start because it creates a more energy efficient utilities.

When heat escapes utility during the winter or unwanted heat enters during the summer, there is an impact on the environment because the utilities are using more energy for heating and cooling that it needs to and is wasting energy.

The use of UBIGRUND® will save energy because it acts as a radiant barrier and blocks unwanted heat loss the cold winter months and unwanted heat gain in warm months.

A common topic that we hear about concerning our environment is air pollution.

We have markedly altered our environment during the last decade by our ever increasing use of fossil fuel burning for electrical generation and transportation.

The stress that we place upon our environment and the effects of this stress are common daily topics in our media. Please do your part to protect and help the environment.



Surface Prep

Surface should be dry and free of dust or foreign matter.

Ferrous Surfaces

Since the coating is distilled water based, it is important to have a boundary layer of protection to prevent flash rusting.

Should be primed prior to application UBIGRUND® directly on to rusty surface and new metal surface.

Non-ferrous Surfaces

The coating can be applied directly to nonferrous surfaces. Surface should be clean and free of any oil, dirt or other foreign matter. Use primer for concrete, bricks and woods surfaces before.

Application Equipment

Rolling: Not recommended.

- Airless Sprayer (ask additional recommendations to choose best equipment)
- Small Airless Spray
- Application Brush

Brushing is recommended for small area surface.

Package & Storage

UBIGRUND® Classic wet 12 – 12.5 kg. per 20 L pail (without pail/lid).

UBIGRUND® Facade wet 12 - 12.5 kg. per 20 L pail.


Storage Product should be kept in a storage area above + 5°C.

Product can be reused if sealed correctly.

Keep the container out of direct sunlight for sustained periods of time.

One year shelf life from manufacture date.

Brief Tech Data UBIGRUND®

Container size: 20 liters	Coat thickness: 50 mils (1 mm) dry	Coverage: 1 m ² / liter at 1 mm
Weight: approx. 0.6 - 0.65 kg/liter	Volume solids: 75 – 85 %	Base: High-grade silicon acrylic Water-based
Components: One part (inclusive) Sheen: Flat Solvents: Water	Chlorides: Low to none VOC content: 0.0 lbs/gal	Color: UBIGRUND® Classic – White stone UBIGRUND® Facade - White Stone to Light Gray
Elongation: Mandrell blend of 180° at 1/8"	Permeability: Extremely low	PH value: 8,5 – 9,5
Emissivity: 0.32 Reflectivity: 0.85 Transmittance: 0.0 Absorptance: 0.15 UV reflection: 99 %		Conductivity: 0.0012 W/m °C (Method) 0/0131 W/m/oK @ 1.0 mm* 0.091 Btu-in/ft ² -oF-hr* Please see description
Abrasion resistance: 1 mm. Moderate to High (ГОСТ 6806-73)	Adhesion characteristics: 1 (high) (ГОСТ 15140-78)	Vapor transmission rate: 0,03
Operation temperatures: - 60°C to + 200°C (up to peak + 230°C)	Flame spread: A Smoke developed: 5 Fire rating: Class A	Application temperatures: +7 - +60°C (ГОСТ P 51691-2000)

Accelerated aging: Excellent (2,100+ hrs without any deviation from design tech data).

Airless Sprayer: An airless sprayer is the best applicator.

Brushing: Brushing is recommended for small areas or for use as a touchup. Apply first coat thinly. Successive coats will cover surface and build more rapidly. Make sure to allow coating to become dry to touch before starting next application.

Rolling: Not recommended.

Mixing: Only mud mixing paddles should be used. Use 1/2 inch drill motor to stir. Make sure drill is set to reverse setting to insure that the paddle will not mar the bucket's inner wall.

Cleaning: Equipment may be cleaned with soap and water.

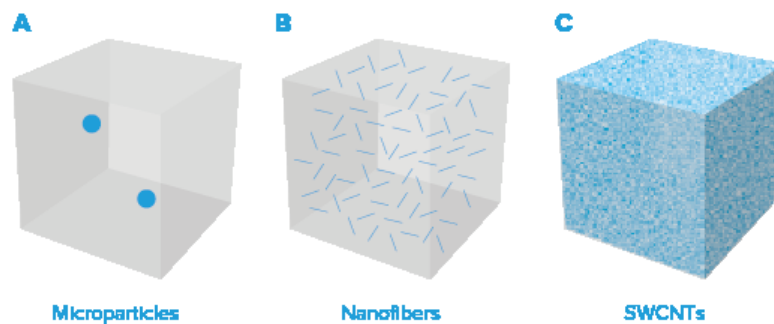
UBIGRUND® modifications:

UBIGRUND® Classic - classical formula is designed to be a multiple purpose coating, which solves **thermal insulating** and painting **problems at any surfaces**.

UBIGRUND® Facade - thermal insulating coating for walls (face building) with high vapor transmission rate. Reduce twice coating time to compare with other paint thermal insulating modifications.

N.B.: Especially for high solar radiation area producer uses special additive - **CARBON NANOTUBES**. This additive also produces in Russia, Novosibirsk city.

Carbon nanotubes (SWCNTs) can also be called graphene nanotubes as they are essentially an extremely thin rolled up sheet of graphene. The pre-eminence of these nanotubes is related to their exceptional properties, such as superior conductivity, high temperature resistance, ultra-low weight, record strength and high flexibility.



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