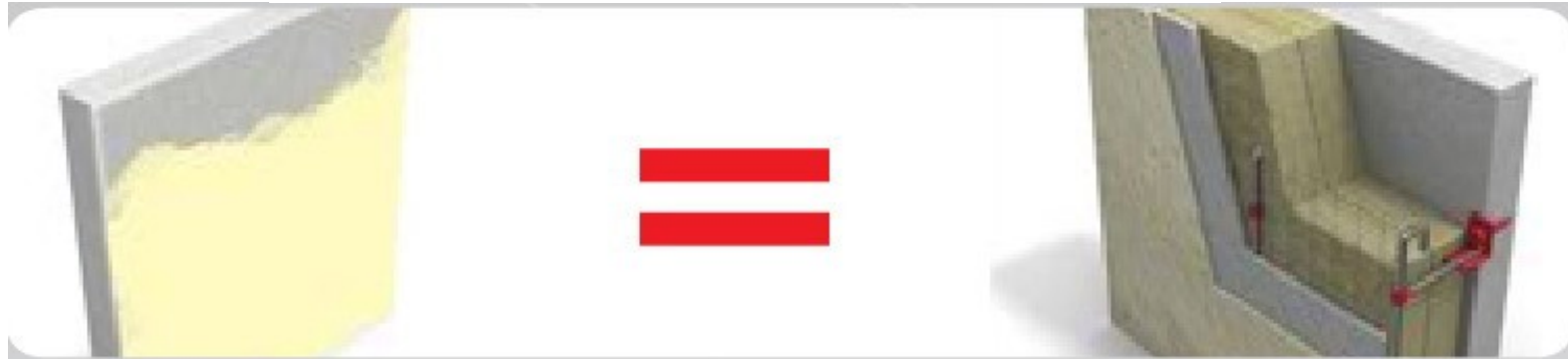


BRONYA[®]

SUPERFINE HEAT INSULATION



1 mm

60 mm



1 mm

60 mm

Hyperfine liquid heat insulation is Bronya - warming paint, ceramic heat insulation, thermal insulation coating and corrosion protection

How to carry out the heat insulation of the walls of the internal accommodations, when it is desirable to lose not the centimeter of the expensive living space? How to warm the external facade of building so as not to spoil its exterior view and not to ruin on super-expensive facing. How to rapidly and qualitatively carry out the heat insulation of curved surfaces (conduits, capacity, cistern the like)?

Visualizing the labor-consuming and expensive process of the additional heat insulation of walls in the apartment, people live by decades in the cold panel apartments with the eternally freezing through and damp walls, without being solved to be pulled in the prolonged process of repair, but meanwhile in all these cases today there is a simple, inexpensive, but very effective solution -

Hyperfine liquid heat insulation (thermal insulation coating) Bronya®!

It is possible to find the large number of ceramic thermal insulation coatings on the construction market of Russia: (mascoat, tsm of ceramic, thermal of coat, Izollat, Astratek, Alfatek etc), but today Russian scientists created actually unique product - liquid ceramic heat insulation Bronya®, which exceeds according to its thermophysical properties all known analogs, and prices of it are substantially is less!

Liquid heat insulation Bronya®! is highly effective for the heat insulation of the facades of buildings, roofs, internal walls, slopes of windows, concrete sections, conduits of hot and cold water supply, steam pipelines, air ducts for the systems of air conditioning, cooling systems, different capacities, cisterns, trailers, refrigerators and the like it is used for averting the formation of condensate on the pipes of cold water supply and for the highly effective heat insulation of the conduits of heating and hot water supply. The temperature range of the use of hyperfine heat insulation from - 60 °C to + 250 °C. the period of the service of material is more than 15 years!

Liquid composition thermal insulation material Bronya®! - first product, which is developed in Russia by the original technology, is produced from the high-quality imported components and does not has

analogs on the relationship price- quality (to look price list). Bronya® is full certified, what is the guarantee of high quality of product. We are proud of Bronya® quality! Pride of our product is formed in positive estimations and gratitude of our clients. Our clients on the merit evaluate the irreproachable declared and guaranteed functionality and they are coming back to us again and again.

Today material Bronya® has industrial certified modifications:

- 1. Bronya® Classic** - the best hyperfine heat insulation, with which you when or worked!
- 2. Bronya® Anticor** - for the first time in Russia is developed the unique hyperfine thermal insulation coating, which can be brought directly to the rusty surface. It is sufficiently simple to remove by wire brush "damp" (friable) rust, after which it is possible to bring heat insulation CORUNDUM of anti-crusts, observing instruction. Heat insulation corundum of anti-crusts is highly effective thermal insulation coating and anticorrosive coating, but not only preservative and modifier of corrosion.
- 3. Bronya® Winter** - for the first time in Russia is developed the hyperfine liquid thermal insulation coating, with which it is possible to work to -35 °C. corundum winter - newest development in the rule of hyperfine liquid ceramic thermal insulation materials. In contrast to all other thermal insulation coating of the materials, represented on the Russian market, work on putting corundum winter can be carried out at minus temperatures, to -35 °C, whereas the minimum temperature of putting usual thermal insulation coating cannot be below +5 °C corundum winter it consists of the composition of special acrylic polymers and dispersed in it micro-granules of foam glass, but so pigmenting, rheological and inhibiting contribution.
- 4. Bronya® Facade** - is for the first time in the world developed material which can be brought by layers with thickness to 1[mm] one time, and which possesses the permeability to steam of qualitative facade coatings.

The liquid heat insulation, which calls also - ceramic heat insulation or hyperfine heat insulation, is intended for obtaining the coating on the surfaces of any form, they possess thermal insulation, and also, by soundproof, moisture-proof and anticorrosive properties with the very wide field of application.

From the beginning Liquid Ceramic Thermal Insulation Coatings has been developed by NASA (national aerospace center of the USA) as the insulation of spacecraft Shuttle surface. Successfully tests under space conditions made it possible to widely use, subsequently, in the building, the industry, everyday and other spheres of activity.

The widest use liquid heat insulation received as thermal insulation coating material: the conduits of vapor, hot water, water-heating equipment of boiler rooms; the enclosing constructions, ceilings, walls and the roofs of habitable, public and industrial buildings both the new building and reconstructed (both from the internal and from the outer side).

The economical effect of thermal insulation is:

- Pipes – 20%
- Buildings – 40%
- Boilers – 150%

Typical using of product is for:

- Thermal insulation with effect 1mm = 50mm of mineral wool (or one brick's thickness wall)
 - let you reduce:
 1. Building expenses (one brick wall is ten times expensive than 1 mm of coat).
 2. Weight of construction.
 3. Expenses for heating and air conditioning.
 4. Exhaust gases emission to atmosphere.
 - let you increase:
 1. Boilers, turbines, air condition machine effect.

- 2. Life time of buildings (due to against moisture protection).**
- 3. Life time of people (due to moisture and bacteria development preventing).**
- 4. Safety of personal busy with hot piping and armature.**

Possibility to use these unique insulating coatings is considerably wider, then it is possible to use and as highly effective thermal insulation, anticorrosive and chemically steadfast protection for:

- Metal constructions and the construction**
- Hangars and the garages**
- The crane beams**
- Bridges and the overbridges**
- The conduits of thermal heating systems**
- Steam pipelines and the gas pipes**
- The air conditioning systems**
- Pipes with the cold water (for averting the condensation)**
- Hydrants, water heaters and the boilers**
- The heat exchangers**
- Steam boilers insulation**
- Oil pipelines - underground and ground-based, the oil tanks**
- The hot chemical mixing tanks**
- Capacities and water storage tanks, chemical agents and so forth**
- The cooling chambers**
- Coating the internal part of the housing of the special-purpose means of the military and**
- Refrigerators**
- Automobile and railroad tank cars for different liquids**
- Passenger railroad wagons and the railroad cars of the metro (heat- and soundproofing)**
- The Engine Rooms of the ships and factories.**
- The fuel tanks and hulls of the ship, submarines, launches, yachts, fisher boats etc**

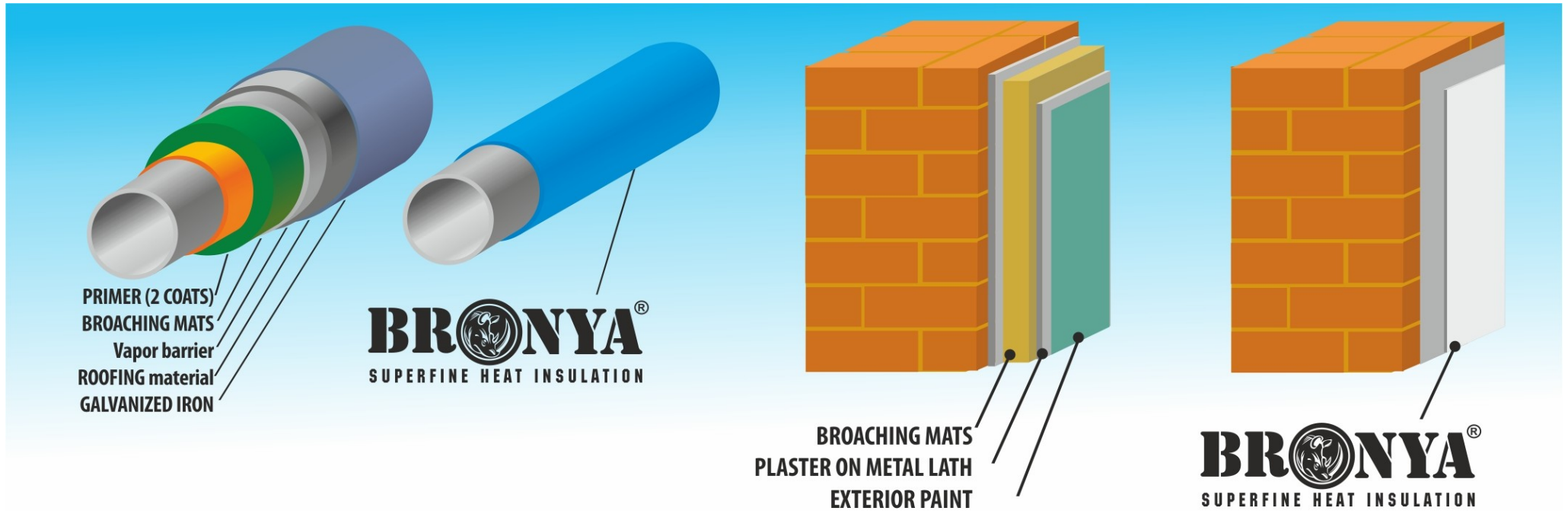
The sphere of the application of liquid- ceramic insulating coatings constantly is enlarged. Creative approach to the use of heat insulation makes possible for producers and users to open and to master all new fields of application of unique materials.

Thermal insulation coating, with the normal operation, has a guarantee - 10 years, with the external use even 25 years - during the putting indoors.

Advantages of hyperfine heat insulation Bronya®:

- It is possible to bring to any surface - metal, plastic, concrete, brick and other building materials, and also to the equipment, the conduits and the air ducts.
 - They have ideal adhesion to the metal, plastic, propylene, which makes it possible to insulate the covered surface from the access of water and air.
 - Are not permeated for the water and are immune to the effect of aqueous solution salts. Coatings ensure surface protection from the action of moisture, atmospheric precipitations and temperature differentials.
 - It effectively decreases heat losses and ensures anticorrosive protection.
 - Surface from the formation of condensate protects.
 - The small thickness of coating with the highest effectiveness (covering with a thickness of 1 mm it ensures the same insulating properties as 50 mm to mineral wool isolation or brickwork with thickness into 1-1,5 bricks).
 - They are brought to the surface of any form.
 - Is not created increment load on the frameworks.
 - It prevents the thermal deformations of metal constructions.
 - They reflect to 85% of radiant energy.
 - They ensure a constant access to the inspection of the isolated surface without the need for the stoppage of production, idle times, connected with the repair, and with interference of production equipment.
 - It is not destroyed under the action the UV of emission.
 - The rapid procedure of the application of coatings decreases labor expenses in comparison with the traditional insulators (they are easily and rapidly brought by brush or apparatus for airless putting).
 - In the case of damage, the coating easily is overhauled and is restored.
 - Does not support the combustion (at a temperature of +260°[S] it is charred, with +800°[S] is decomposed with the isolation of carbon monoxide and oxide of nitrogen, which contributes to retarding the propagation of flame).
 - It is ecologically safe, nontoxic, they do not contain harmful flying organic compounds.
 - High chemical resistance to the alkalis, the salt solutions and so forth.
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- Fires and are explosion-proof
 - Low price, with the highest quality!
 - Lowest calculated thermal conductivity among all known insulation - 0.001 Wt/m of °C (at +20°C)!

Diagrams of putting liquid heat insulation on different constructions and comparison with the traditional methods of the warming:



Exemplary dependence of the thickness of the layer of coating Bronya[®] on the temperature the heat-transfer agent for achievement of 60°C on the surface of conduit.

Temperature of heat-transfer agent (°C)	110	135	177	213	233	252	260
Thickness of the layer (mm)	1.14	1.52	1.9	2.67	3.05	3.42	3.8
Quantity of substituted [layers]	3	4	5	7	8	9	10

Technical characteristics of the liquid ceramic thermal insulation coating [Bronya®]®

Designation of the indices	Unit of the measurement	Value	Note
Color of the film	white (it depends on the ordered color)		
The exterior view of coating the surface	lusterless, flat, uniform		
Elasticity of film with the bend	mm	1	ALL-UNION STATE STAN. 6806-73*
Adhesion of the coating	the mark	1	ALL-UNION STATE STAN. 15140-78*
Adhesion of coating on the pulling power	MPa		
- to the concrete surface	MPa	1,28	ALL-UNION STATE STAN. 28574-90
- to the brick surface	MPa	2,00	ALL-UNION STATE STAN. 28574-90
- to steel	MPa	1,2	ALL-UNION STATE STAN. 28574-90
Resistance of coating to the action of a temperature differential from -40 °[S] to + 60 °[S]		without changes	ALL-UNION STATE STAN. 27037-86
Resistance of coating to the action of the temperature of +200 °[S] for 1, 5 hours	yellowing, cracks, scalings and there are no bubbles		ALL-UNION STATE STAN. R 51691-2000
Longevity for the concrete and metallic surfaces in the moderate- cold climatic region (Moscow)	the years	not less than 10	
Thermal conductivity	[Vt]/[m] of °C	0,0012	
Heat absorption	[Vt]/[m] of °C	2,2	
Heat emission	[Vt]/[m] of °C	4,0	
Permeability to steam	mg/m ch pA	0,03	
Radiation coefficient of the surface		0,32	
Water absorption in 24 hours	% by the volume	2	ALL-UNION STATE STAN. 11529-86

Surface temperature during putting of the material	°C	from + 7 to + 150	
Operating temperature	°C	from - 60 to + 260	

Liquid ceramic heat insulation - is the microscopic, filled with vacuum ceramic and silicone balls, which are located in the suspension in the liquid composition, which consists of the synthetic rubber, the acrylic polymers and the inorganic pigments. This combination makes materials with lungs, flexible, extended, which possess grow prettier by adhesion to the covered surfaces. Uniqueness of the insulating properties of this thermal insulation paint - result of the intensive molecular action of air, which is located in the hollow balls.

Hyperfine heat insulation is Bronya® - this is the suspension of white color, which after drying forms elastic coating.

Liquid ceramic heat insulation they are diluted by water, which makes it possible to work with it in the accomodations without the additional ventilation.

Ceramic heat insulation does not support combustion. The film with a thickness of 1 mm is decomposed with temperature + 840 °C, separating carbon monoxide and nitrogen; therefore liquid heat insulation they detain and they slow down the propagation of flame and smoke.

Liquid heat insulation Bronya® can be brought to the metallic, the concrete, the brick, the wooden, the glass, the plastic, the rubber, pasteboard and some other surfaces. The surface, to which are brought the compositions, must be clean, degreased, without mud, rust and to have a temperature from +7°C to +150 °C. operational temperature from - 47°C to +260 °C (depending on material).

Materials are brought by usual sprayer, and also painter's brush or roller. Work with the airless sprayer ensures higher productivity.

The maximum thickness of one covering is approximately 0,38 mm. during 10-20 minutes, after the application of coating, the moisture proof film appears. Time of the drying of the single-layer coating of 24 hours, at room temperature. Putting sequential layer is accomplished after complete drying of the previous layer.

Approximate standard of the consumption of the coating with the work with roller - 0,5 l/sq. m. Depending on the required result and workable surface, the consumption of material can change both into greater and to the smaller side.

During putting of material by injecting device, the consumption of the material of approximately 0,4 l/sq. m. (2,5 sq. m. of/[I]). The labor expense for the application of coating is commensurate with the labor expense of coloring by usual paints.

Material is supplied in the plastic buckets by capacity 20 l.

- **Can be applied to metal, plastic, concrete, bricks and other building materials, as well as equipment, pipelines and air ducts.**
 - **Have the perfect adhesion to metals, plastics, propylene, which allows to isolate the coated surface from the ingress of water and air.**
 - **Do not permeable to water and not affected by water solution of salt. Coatings protect the surface from the impact moisture, precipitation and temperature fluctuations.**
 - **Effectively reduces heat loss and improves corrosion protection.**
 - **Protects the surface from condensation.**
 - **coating thickness of 1 mm provides the same insulating properties as the 50 mm roll insulation or masonry thickness Noah 1-1,5 brick.**
 - **Apply to the surface of any shape.**
 - **Do not create an additional burden on the supporting structures.**
 - **Prevents temperature deformation of metal structures.**
 - **Reflects up to 85% of radiant energy.**
 - **Provide continuous access to the inspection of an isolated surface without the need to stop the production downtime associated with repairs, and failures in production equipment.**
 - **Do not degrade under UV radiation.**
 - **Quick treatment coating reduces labor costs compared to conventional insulators (easily and quickly applied ki - Stu, apparatus airless).**
 - **Easily repaired and restored.**
 - **Are the insulating material that does not support combustion. At a temperature of 260 ° C will char at 800 ° C, decomposed with allocation of carbon monoxide and nitrogen oxide, which contributes to slowing the spread of flame.**

- **Environmentally safe, non-toxic, contain no harmful volatile organic compounds.**
- **resistant to alkalis.**
- **pH value (pH) 8,5 - 9,5**
- **The time of complete drying of one layer is 24 hours**
- **Calculated thermal conductivity at 20 ° C, 0, 001 W / m ° C**
- **Fully certified in Russia.**
- **Certification in Belgium is under process.**
- **At the moment we are producing 35 000 Ltrs of Bronya® per day.**

We will answer any your questions with our pleasure:

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