



**MINERAL MATERIAL
WITH THERMAL INSULATION
AND PROTECTION PROPERTIES**

INDUSTRIAL

ADITIZOL BASIC



WWW.ADITIZOL.CZ

ADITIZOL BASIC is water-dilutable material intended for thermal insulation and the protection of metal, plastic and other surfaces. Application work with ADITIZOL BASIC material can be performed on the foundation with a temperature range from + 10 °C to + 150 °C. Operating temperature is from - 40 °C to + 200 °C. It acts as a vapour barrier.

It is designed to provide fast, efficient and safe for health reduction in heat loss:

- **ADITIZOL BASIC** - of metal roofs and walls, product pipelines, pipelines, utility fittings, technological units, structures, boilers, tanks, production equipment, air conditioning pipes and other surfaces that need to be insulated and protected from undesirable external effects.

Examples of possible applications:

- stability of insulation and protective characteristics
- energy savings
- to reduce overheating of the metal roofs and walls
- effectively participates in increasing work safety (reducing the temperature of the hot surface below 60 °C from the original surface temperature of up to 200 °C)
- protect the construction from adverse atmospheric and environmental influences
- preventing of sudden changes in internal pressure
- possibility of application in places with the complicated access, possibility of permanent visual control
- ensuring and maintaining the required temperature regime

Characteristics and advantages:

- health and hygienic safety allows its use indoors
- it is highly resistant to weathering and ageing
- practically does not burden the load-bearing structures and prevents sudden thermal deformations
- does not support combustion – CSN EN 45545-2:2021 Fire protection test in accordance for set of requirements R1, R7 and R17
- It is environmentally friendly, water dilutable and free of harmful volatile substances
- creates a complete protective and thermal insulation layer on the surface of any structure without joints and interruptions
- it is applicable in the interior and exterior
- corrosion protection
- significantly resists atmospheric influences, especially acid rain and UV radiation, bridges even small cracks of less stable surfaces, has permanent properties, is renewable

Cooperation and research:

- Research cooperation with the Czech Technical University in Prague - The Faculty of Architecture, Department of Building Construction

Certifications and examinations:

- production and products are certified by the Technical and Test Institute for Constructions Prague, s.p. (TZÚS)
- product is certified by the State Institute of Health in Prague - for indirect contact with food
- in TZÚS Prague, s.p. the thermal insulation properties of the ADITIZOL material have been proven, which can achieve substantial energy savings of up to 60%

ADITIZOL BASIC

Experimental verification of thermal insulation properties of mineral ADITIZOL BASIC material on test bodies by calorimetric comparison method* Technical and Test Institute for Constructions Prague, s.p.			
Thickness of the material of ADITIZOL BASIC	Specified temperature	Input Pt	Relative energy savings
Input Pt (W) – thermal energy input required to maintain a stable temperature of 60 °C, $\Delta\theta = 34,5$ K.			
without material	60 °C	364,6 W	0 %
1 mm	60 °C	279,1 W	23,45 %
2 mm	60 °C	170,9 W	53,13 %
Input Pt (W) - thermal energy input required to maintain a stable temperature of 80 °C, $\Delta\theta = 55,3$ K.			
without material	80 °C	670,3	0 %
1 mm	80 °C	436,4	34,89 %
2 mm	80 °C	269	59,87 %
Input Pt (W) - thermal energy input required to maintain a stable temperature of 100 °C, $\Delta\theta = 74,2$ K.			
without material	100 °C	925,5	0 %
1 mm	100 °C	674,7	27,10 %
2 mm	100 °C	358,1	61,31 %
Conclusion: The experimental measurements have confirmed that the mineral ADITIZOL BASIC material has thermal insulation properties and significant energy savings can be achieved using this material. However, the absolute amount of energy savings depends on the particular marginal boundary conditions and the appropriate method of use.			

* Report Data - Experimental verification of thermal insulation properties of mineral **ADITIZOL BASIC**: **Technical and Test Institute for Constructions Prague, s.p.**

ADITIZOL BASIC

MEASUREMENT REPORT measurement of the material ADITIZOL BASIC in the climatic chamber (standard ČSN EN 60068-2-1, ed. 2 (Test A: Cold)) on the test samples at stable body temperature 100 °C for verification of thermal insulation properties of the material (calorimetric comparison method) * Czech Technical University in Prague, Faculty of Architecture, Institute of Civil Engineering II			
Power P (W) – power input required to maintain a stable body temperature 100 °C.			
Thickness of material ADITIZOL BASIC layer (mm) on the test samples	Ambient air temperature θ_t	Power P	Relative energy savings
Without material	-20 °C	1252,1 W	0 %
2 mm	-20 °C	552,2 W	55,90 %
Without material	-10 °C	1135,3 W	0 %
2 mm	-10 °C	502,6 W	55,73 %
Without material	0 °C	1021,2 W	0 %
2 mm	0 °C	454,9 W	55,45 %
The test in the climatic chamber demonstrated that the material ADITIZOL BASIC has demonstrable and non-negligible thermal insulation properties and its use can achieve substantial energy savings.			

* Report Data – Evaluation of data from a laboratory measurement of the material **ADITIZOL BASIC** in a climate chamber for verification of thermal insulation properties of the material: **Czech Technical University in Prague, Faculty of Architecture, Institute of Civil Engineering II**

Coca-Cola HBC Česko a Slovensko, s.r.o. – production plant Prague - Kyje

The Coca-Cola company was interested in insulating the pasteurizer at its factory. The goal of the application was to reduce heat losses and reduce surface temperature to ensure work safety, while adhering to all hygienic requirements and without limitation of operation. The use of mineral wool or similar insulating materials was not possible due to the operation and the requirements related to the operation.

Preliminary Paint Test:

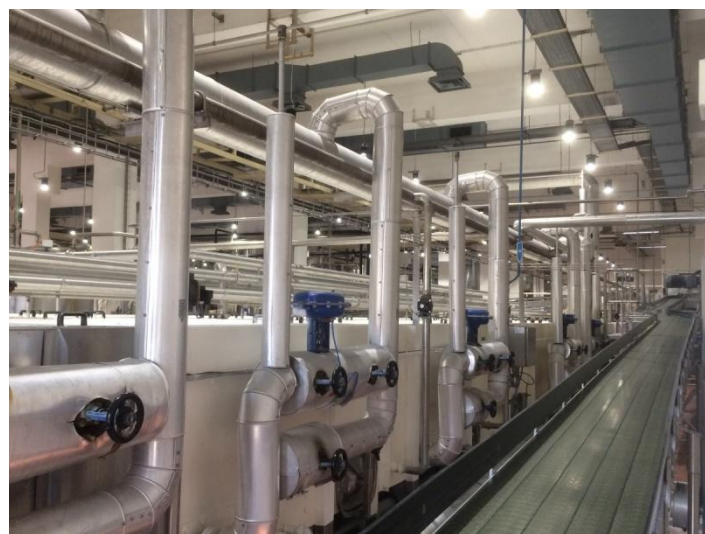
In March 2017, based on Coca-Cola's request, we applied a paint sample to the pasteuriser to verify the declared properties of the material. Certainly, we also submitted an attestation from the National Institute of Public Health, Prague – Expert assessment of suitability for use of mineral material ADITIZOL for indirect contact with foodstuffs.

Application of paint:

Based on the preliminary test results and on the conclusion that the material meets all requirements, the ADITIZOL BASIC material was applied to the cleaned surface of the pasteurizer in full operation (the ADITIZOL BASIC can be applied on surfaces up to 150 °C) and partly during a short overhaul in August 2017. The material thickness was 1.5 – 2.0 mm.

Results of the application:

- the surface temperature of the pasteuriser is reduced by 38%;
- significant improvement in work safety;
- reduction in the energy intensity of production without the need for additional installation of space-intensive thermal insulating elements ;
- mechanical stability of the paint layer.



PASTEURISER – Coca-Cola

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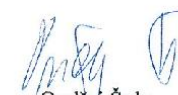
Ref.: Assessment of application of mineral ADITIZOL BASIC paint

In August 2017 the mineral ADITIZOL BASIC paint was applied to the cleaned surface of the pasteuriser in our Prague - Kyje production plant. The application was implemented partly in full operation and partly during overhaul.

During the continuous inspections, the mechanical stability of coating layer and the reduction of the surface temperature of the pasteuriser by 38 % was determined.

The result of the paint application is a significant increase in work safety and a reduction in the energy intensity of production without the need for additional installation of space-intensive thermal insulating elements. Based on the proven results we can recommend ADITIZOL mineral coating for use in our plants.

Prague, 15.3.2018



Ondřej Šolc
Production manager
PET & RMW dpt.
Coca-Cola HBC Česko a Slovensko, s.r.o.

Armenia • Austria • Belarus • Bosnia & Herzegovina • Bulgaria • Croatia • Cyprus • Czech Republic • Estonia • FYROM • Greece • Hungary • Ireland • Italy • Latvia
Lithuania • Moldova • Montenegro • Nigeria • Northern Ireland • Poland • Romania • Russia • Serbia • Slovakia • Slovenia • Switzerland • Ukraine

Coca-Cola HBC Česko a Slovensko s.r.o., IČ 41189698, DIČ CZ41189698, zapsaná v obchodním rejstříku vedeném Městským soudem v Praze, oddíl C vložka 3595, daně z příjmu 22.8.1991. Člen skupiny Coca-Cola HBC.

Chemical industry CHEMOPROJEKT a.s.



The tank is located outside in the premises of the chemical plant and in the summer time it has been overheated. The tank was covered with cooling sails in summer. As a result of the overheating, instability in the properties of the chemical substances in this tank occurred. A method of some insulation has been sought to ensure that the tank does not overheat in the summer and does not freeze in the winter. The application of ADITIZOL BASIC has been designed to meet this requirement. Applied material thickness 3.00 mm.

The result of the application:

The UT 800 100 water tank warmed up in the summer months. A round of tenders was carried out to ensure the insulation of the tanks. We were offered a previously unknown way of insulation the tanks. After the application of the thermal insulation material, the temperature in cooling circuit stabilized during the summer months. The average temperature has stabilized at 22-23 °C!

Chemical industry CHEMOPROJEKT a.s.



The glycerine tank is located outside in the premises of the chemical plant. The goal was to apply some material to reduce heat losses during operation. The application of ADITIZOL BASIC has been designed to meet this requirement. Applied material thickness 3.00 mm.

The result of the application:

The UT 900 010 glycerine tank is designed with mixing of the medium through a small heat exchanger. Previously, despite the mixing of the medium, it solidified and there were problems with exhaustion. After the application of the thermal insulation material, the temperature value has stabilized and the heating circuit through the exchanger and the pumping of the medium itself is already in order. We keep the temperature in the tank even in the winter months at a temperature of 34-36 °C!

Chemical industry DUSLO, a.s.



On the surface of the outdoor pipeline, where is CO₂ gas, sudden temperature changes have occurred due to changes in temperature conditions (for example, by the effects of rain on the sun-heated pipe). Specifically, to suddenly cool the surface of the pipeline. As a consequence of the gas pressure impacts, the compressors failed to function, they had to be repaired and the operation had to be interrupted.

After the material has been applied to the surface of the pipeline, no sudden temperature changes occur on the surface of the pipeline, and consequently no failures and failures in operation. Year of project implementation: 2015. Applied material thickness 2.00 mm.

The result of the application:

- stability of insulation and protective characteristics,
- protection from direct sunlight,
- preventing of sudden changes in internal pressure,
- possibility of permanent visual control.

Pharmaceutical industry VUAB Pharma, a.s.



The VUAB Pharma a.s. uses the ADITIZOL BASIC material for over 2 years as a replacement for conventional insulating materials (PUR foam, mineral wool) on crystallization boilers and hot water pipelines with the possibility of applying of paint in operation. Average applied material thickness 2 mm.

The results of application:

- stability of insulation and protective characteristics,
- energy savings,
- ensuring of the safe temperature of hot surfaces,
- significant improvement in work safety,
- space saving,
- possibility of application in places with the complicated access,
- possibility of permanent visual control.

Energy industry ČEZ Teplárenská a.s.



ČEZ Teplárenská a.s had a request for additional thermal insulation on the pipeline to be implemented as a pilot as well as a test project in the following specification: ADITIZOL BASIC colour was used for the long-distance pipeline from the heating plant, total length 100 m - bidirectional. Surface specification: galvanized sheet which has been stripped of degraded original paint. The ADITIZOL BASIC material has been applied in a total thickness of 2 mm. As a pilot project, the project will be monitored for 3 years in order to verify the properties of ADITIZOL material. Year of project implementation: 2017.

The results of application:

- stability of insulation and protective characteristics,
- energy savings.

Chemical, energetic and food industry ZVU STROJÍRNY, a.s.



ZVU STROJIRNY, a.s. use ADITIZOL BASIC material in some projects as a substitute for conventional insulating materials (PUR soil, mineral wool). The photo is a tank that serves as a water tank in the brewery. The location of these reservoirs was paid out in the open air to prevent overheating of the surface of the reservoir in the summer by the solar energy, and to maintain the required water temperature in the tank at winter. An application of ADITIZOL BASIC has been designed to meet this requirement. Applied material thickness 1.5 mm.

The result of the application:

- stability of insulation and protective characteristics,
- protection from direct sunlight,
- protection against overcooling of the tank cover,
- ensuring and maintaining the required temperature regime,
- possibility of permanent visual control.



Distillery – crystallizing tanks



Tank - water



Chimney



Air-conditioning systems - piping



Container - server



Fittings



Air-conditioning systems - piping



Mobile self-service petrol stations



Tanks

ROOF IN PANAMA CITY BEACH, FLORIDA, USA



Applied material thickness 2.00 mm.

The result of the application:

- stability of insulation and protective characteristics,
- protection from direct sunlight,
- reduction in the amount of energy penetrating inside during solar heating
- energy savings,
- provision of the necessary temperature mode,
- preventing of sudden changes in internal pressure,
- possibility of permanent visual control

ROOF IN MUNICH, GERMANY – OFFICE BUILDING



It is designed to provide fast, efficient and safe for health reduction in heat loss:

➤ **ADITIZOL OPEN** – of buildings, production and storage facilities

Examples of possible applications:

- for insulation facades
- for insulation of complex architectural facades
- for insulation of room walls and corridors from the interior
- to prevent surface condensation of water vapour on the walls and subsequent possible mould formation
- to reduce freezing of walls - to reduce heat loss and protect buildings and structures
- to protect the facade from adverse atmospheric and environmental influences
- to balance of the surface temperature of outer walls with the inner surfaces
- to reduce overheating of the building envelope

Characteristics and advantages:

- health and hygienic safety allows its use indoors
- it is highly resistant to weathering and ageing
- practically does not burden the load-bearing structures and prevents sudden thermal deformations
- does not support combustion
- It is environmentally friendly, water dilutable and free of harmful volatile substances
- allows application on WTA remedial plaster systems with the required high diffusion parameters
- creates a complete protective and thermal insulation layer on the surface of any structure in flat and plastic relief without joints and interruptions
- it is applicable in the interior and exterior significantly resists atmospheric influences, especially acid rain and UV radiation, bridges even small cracks of less stable surfaces, has permanent properties, is renewable

Cooperation and research:

- Research cooperation with the Czech Technical University in Prague - The Faculty of Architecture, Department of Building Construction

Certifications and examinations:

- production and products are certified by the Technical and Test Institute for Constructions Prague, s.p. (TZÚS)
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- in TZÚS Prague, s.p. the thermal insulation properties of the **ADITIZOL** material have been proven, which can achieve substantial energy savings of up to 60%

Experimental verification of thermal insulation properties of mineral **ADITIZOL OPEN** material on a building construction in the exterior and in the interior*

Technical and Test Institute for Constructions Prague, s.p.

To assess the thermal insulation properties of **ADITIZOL OPEN** material, a certified, fully autonomous testing device on the principle of the calibrated guarded hot box MPT-01 has been used which is designated for determining the thermal transmittance properties of building components and constructions in accordance with the standard ČSN EN ISO 8990:1998 – Heat insulation – Determination of heat transfer properties in steady state - Calibrated and guarded hot box.

Thickness of the material of ADITIZOL OPEN	Application	Input Pt	Relative energy savings
Pt (W) thermal energy input required to maintain a stable temperature in the hot section of the facility with the set temperature θ_{ti} +18°C in the hot interior and with the set temperature θ_{te} -10°C in the cold section of the testing concrete building construction – thickness 100 mm.			
without material		144,29 W	0 %
1 mm	cold section (the exterior)	125,31 W	13,50 %
1 mm	hot section (the interior)	126,40 W	12,40 %
2,1 mm	cold section (the exterior)	105,11 W	27,15 %
Combination 2,1 mm a 0,5 mm	cold section (the exterior) and hot section (the interior)	90,71 W	37,13 %

Conclusion: The experimental measurements have confirmed that the mineral **ADITIZOL OPEN** material has thermal insulation properties and significant energy savings can be achieved using this material on a building construction. However, the absolute amount of energy savings depend on the particular boundary conditions and the appropriate method of use.

* Report Data - Experimental verification of thermal insulation properties of mineral **ADITIZOL OPEN** material on a building construction in the exterior and in the interior: **Technical and Test Institute for Constructions Prague, s.p.**

ADITIZOL® is ideally positioned to meet the needs of consumers and provide our partners with an opportunity to leverage the strengths of our products in their respective markets.
ADITEX seeks to improve the everyday living conditions of people.

ADITEX, spol. s r.o.

Czech Republic

producer of a mineral material



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