

REFERENCJE powłoki termoizolacyjnej PScoat



MAJ 2022

Testing results at the Continental:

Target: Mold Container
Container type: AS410 HS Flex Cont.Steamplate
Size: 410x1170
Used insulation material: PS Coat
The measurements took place 11. - 12.7.2019.
The main aim: safety, then also energy savings

Measuring no. 1: Surface temperature without insulation 131,4 °C



Measuring no.2: Surface temperature without insulation 128,6 °C



Application of insulation coating - PSCoat:



Application of insulation coating - PSCoat:



Measuring no. 3: Surface temperature insulated by PS Coat: 43,6 °C



Measuring no. 3: Surface temperature insulated by PSCoat: 40,4 °C



Final usage:



The main aim was safety, but also energy savings.

Savings will know when all mold containers in one hall will be insulated.

We do not have individual measurements.

The whole assembly will be isolated in September.

RESULT:

The temperature rapidly dropped from average 130 °C to 42 °C. This result will definitely mean significant savings to our company at this devices and increase the safety level.



ENERGIABÖRZE

Project: Almásfüzitő, Hungary

(gas engine with 3 MW_e, 3 MW_{th} installed capacity)

Used material: PSC

Place of use: Hot water Pipeline system

Introduction:

Energiabörze as an electricity trader holds an aggregator (virtual power plant) in order to utilize the capabilities of the generation assets for providing ancillary services to the Hungarian TSO, MAVIR. In order maximize the efficiency of own assets by reducing losses, Energiabörze used the PSC material for insulation purposes.

Installation of PSC:

We have installed some thermal and pressure measuring instruments into the heating pipeline system before and after the heat exchangers at our CHP unit Almásfüzitő. 135 m³ 80°C-85°C hot water circling in the heating-pipeline system per hour. When we built the heat and pressure measures into the system, we had to remove the rockwool insulation and the tin coating.

One of the most important things is to minimize the heat loss until the selling point. To reach this goal, we had to insulate the holes on the pipeline system.

The rockwool insulation and the tin coating are very complicated to use on a surface with many outstanding pipes, or measuring points. That's why we have used PSC. Painted it by a paintbrush 3 layers.

Some picture of the place of use:





ENERGIABÖRZE

After the painting was dry, we checked the temperature of the surfaces, seen on pictures below:



Temperature was measured with a certified touch thermometer. During the measurement the hot water in the pipeline system was: 80°C.

Temperature of the surface of the pipeline system, without PSC insulation:	61,2 °C
Temperature of the surface of the pipeline system, with PSC insulation:	32,2 °C



ENERGIABÖRZE

Results and consequences:

As it is shown above, the temperature of the surface we used PSC reduced almost 30 °C. It is considered as a great result. Our experiences with the PSC were: easy to apply, it dries fast on hot surface, usable at any surface, heat insulation factor is high, water resistant, easy to correct if damaged.

2017.04.19

ENERGIABÖRZE Kft.
1113 Budapest, Elek u. 11.

Rudolf Edlmayer

Leader of the Maintenance



STREBL GREEN CARBON™

CARBON BLACK MANUFACTURER

ALPHA Construction AG

Bahnhofstrasse 21

6301 Zug

Switzerland

Dear Mr Jean Kocian

We would to inform you that we have been working with Chevron Philips globally to implement of Power Smart Coat insulating coating, commencing with Singapore .

Chevron Philips Chemicals USA has conducted some vigorous testing on the product and has approved for the product to be used by the organization.

We are in phase 1 of this process, Singapore will start with the removal of their existing aluminium cladding to be replaced with Power Smart Coat. Progressively, Chevron will use this in all their locations worldwide .

Testing Methodology USED

Testing was done as follows, 180 days of outdoor exposure in direct sunlight.

- The fundamental objective of the outdoor exposure test is to understand, qualitatively, if the thermal barrier microsphere coating absorbs moisture/water and/or changes in appearance and texture, after 180 days of outdoor exposure in direct sunlight.
- The potential concern is that if the thermal coating "physically or chemically" breaks down and loses its purported moisture repellent properties, the underlying steel pipe surface will be prone to CUI as no protective coating purportedly is required under the PSC 250T coating.
- At 30 day intervals, the test sample will be re-weighed, photographed and the total coupon thickness measured (the thickness of the coupon – coating plus sheet ranged from 0.111" to 0.168" (2.8194 to 4.2672 mm). The measured thickness of the stainless steel sheet was 0.0183" (0.465 mm).
- At the end of 180 days, the coupon will be evaluated as above, then immersed in distilled water for 72 hours at room temperature. The sample will be re-weighed to determine if the outdoor exposure made the coating vulnerable to moisture absorption.

Please direct all enquiries from ALL Chevron Philips Chemical Locations worldwide to Strebl Green Carbon Singapore. It is a long process to get approved and we have successfully completed the initial stages.

Yours Sincerely,
Diana Sherin Gomez
VP Sales

STREBL GREEN CARBON Pte Ltd, 316 Tanglin Road #02-01, GreenHub, Singapore 247978

Head Office: +65 6801 0693 Email: info@streblgreencarbon.com

STREBL Green Carbon, s.r.o., Politických Veznu 872, Zatec 438 01 ICO:04600045 Tel. +420 777 233334

Website: www.streblgreencarbon.com

12.05.2020

To,
Alpha Construction/PS Coat.
Switzerland.

Dear Mr Jean Kocian

SUB: Reference Letter for PS Coat

This is to inform you that we M/s Odema – Alena Bensova, based are Puchov have recently strated manufacturing of Surgical Mask in a Santize Zone, where we have used your product, PS Coat.

We are happy to inform you that we have already got Hygine Certificate for the same.

Best Regards

A handwritten signature in blue ink, appearing to read "Rakesh Taurani", with a stylized flourish at the end.

Rakesh Taurani



Phone/Fax: +421(0)424631818, E-mail: info@odema.sk, www.odema.sk
Id.no.: 33484155, VAT no.:
SK1020517586,

Account number: 0063694564/0900 - Slovenská sporiteľňa a.s.
IBAN: SK11 0900 0000 0000 6369 4564, S.W.I.F.T.: GIBASKBX

Date 3th of July 2020
Bangkok

REFERENCE LETTER

We hereby confirm that the application of the Thermal insulation PSC Power Smart Coat 250T HP has being carried out during work performed by our company and OIC team.

The propose of the application was to provide a thermal insulation coating on mold containers, cylindrical shape Type 122 at Michelin Leam Chabang site, Thailand.

At the application, there were 2 types of PSCoat used. Conductive layer was used for main insulation effectiveness and top layer to ensure hard cover for non-abrasive result to meet customer's needs.

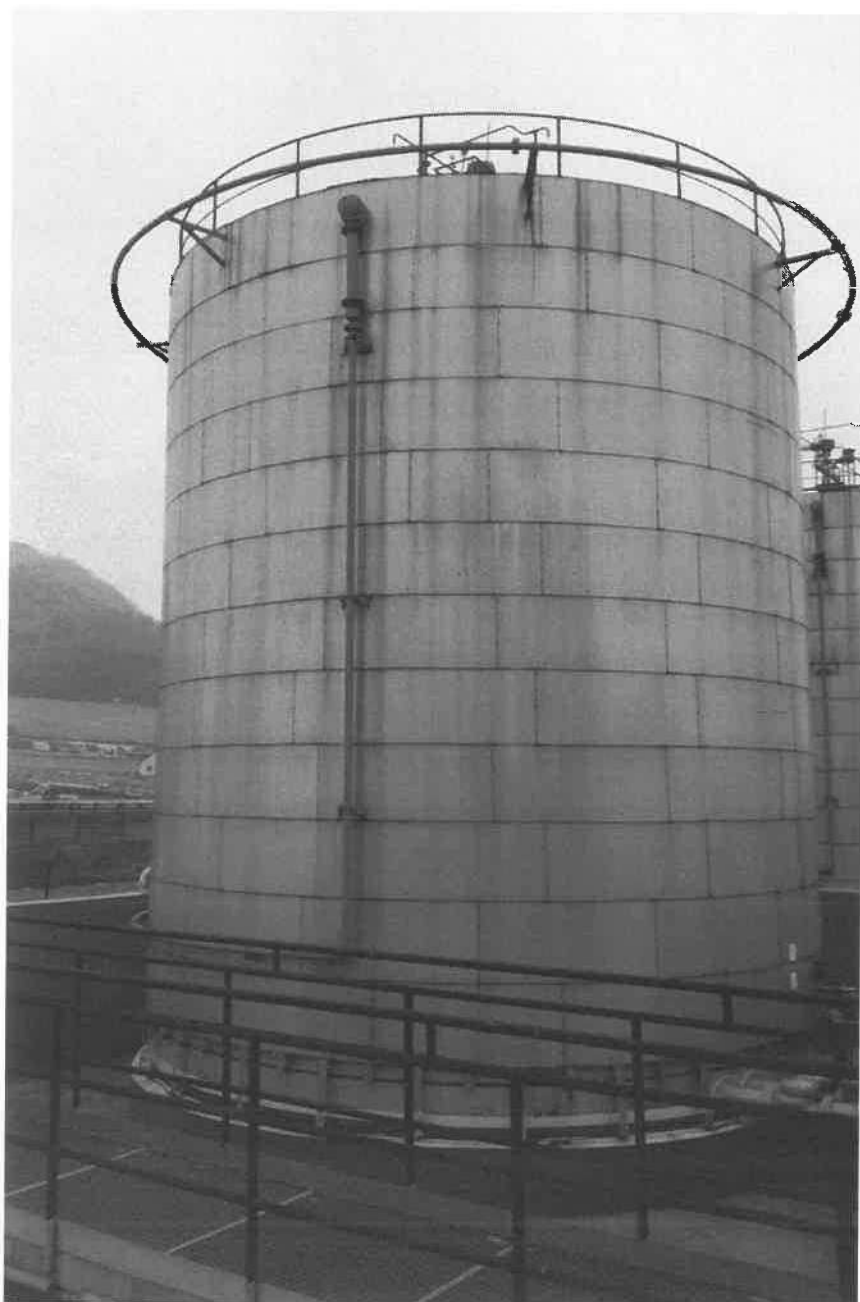


WINFAIR ASIA CO., LTD.
บริษัท วินแฟร์ เอเชีย จำกัด

Phanida Laurinec
Winfair Asia Co., Ltd.

Technická správa o izolácií benzínovej nádrže H203D technológií PScoat.

Nádrže TKAP H203C, H203D slúžia ako skladovacie nádrže BA a sú vybavené tepelnou izoláciou. Tepelná izolácia bola inštalovaná dodatočne, kvôli výkyvom teploty skladovaného produktu v letných mesiacoch (obr.1) Nahrievanie produktu spôsobovalo pri zavážaní čerpacích staníc rozdiely/problémy pri bilancovaní.

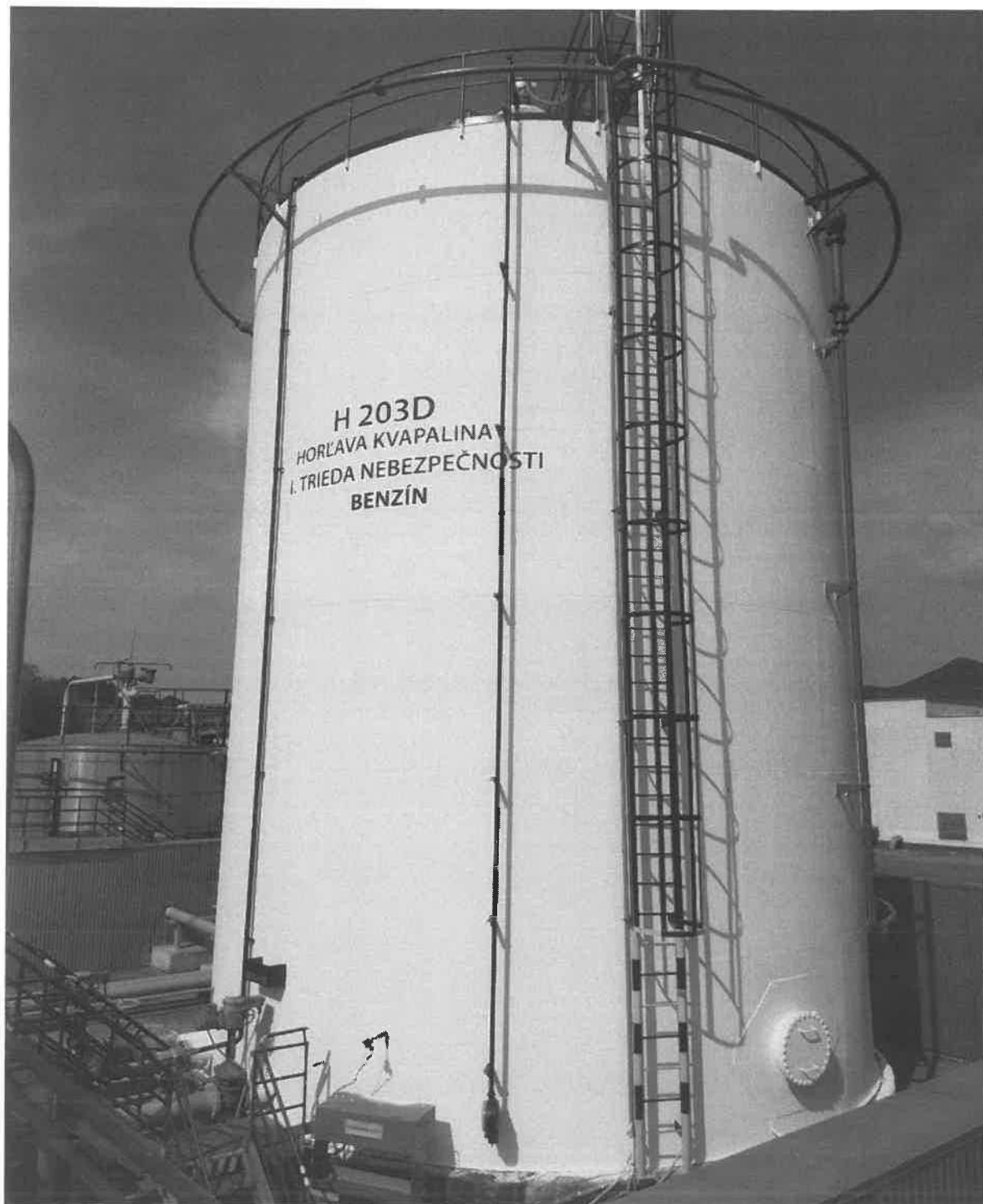


Tepelná izolácia je problém z hľadiska dlhodobej údržby, vzhľadom na to že izolácia je časom plne nasiaknutá vodou a pôvodný ochranný náter nespíňa svoju pôvodnú funkciu protikorózneho ochrany.

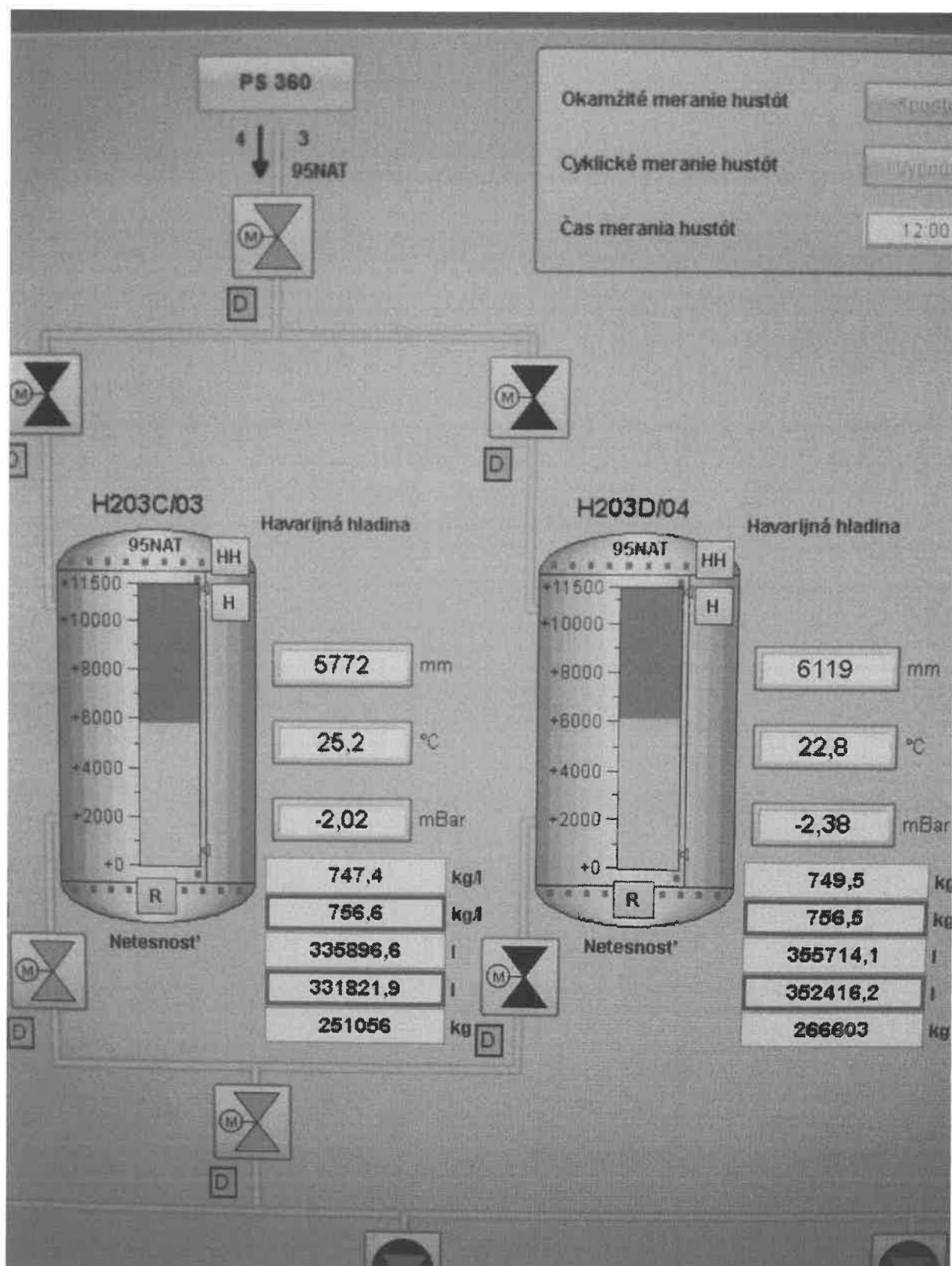
Dlhodobé ponechanie tohto stavu spôsobilo poškodzovanie plášťa a strechy nádrže koróznym napadnutím a tým pádom bola ohrozená aj integrita nádrže (obr.2).

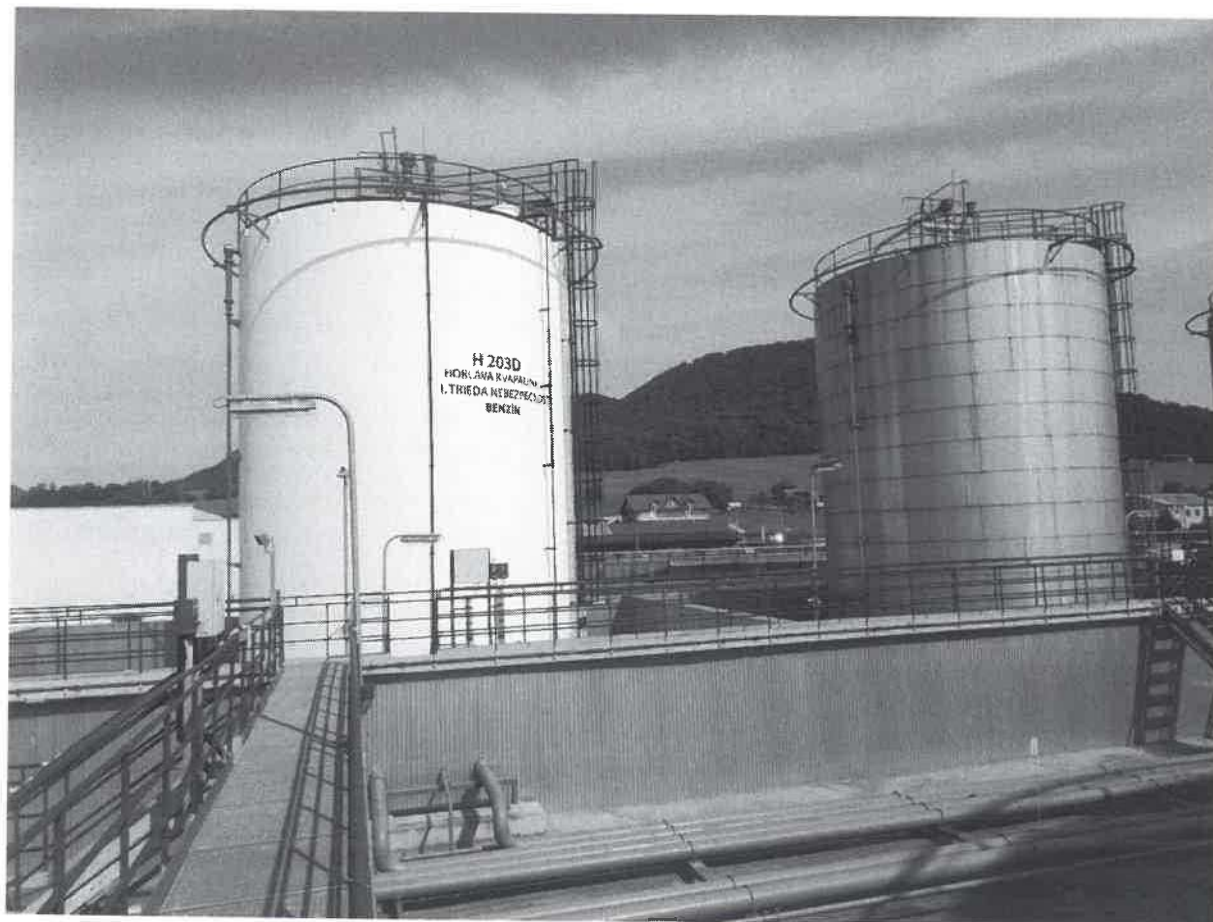


Riešením vzniknutej situácie bolo odstránenie izolácie, ošetrovanie celej vonkajšej plochy nádrže ochranným náterom PScot. Realizácia prác prebiehala počas júla 2019. Súčasný stav nádrže po ukončení všetkých prác je na obr.3.

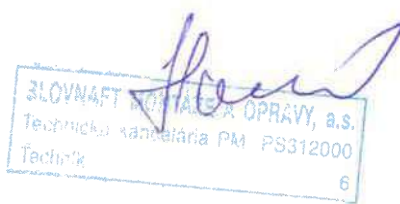


Aktuálne sa sleduje teplota skladovaného benzínu vid' obr. 5 v nádržiach H203D (PScoat) a H203C (izolovaná nádrž). Pre objektívne výsledky je potrebné sledovanie počas dlhšieho časovaného obdobia, ale už teraz vieme povedať že rozdiel teploty medzi nádržami je v rozpätí 2 až 3 stupne.





PAVOL HANIN
Technická kancelária PM - SZ
Terminál Kapušany



SLOVNAFT MONTÁŽE A OPRAVY a. s.,

Vlčie hrdlo, P.O.BOX 52, 820 03 Bratislava 23
t: +421 2 40 55 22 60 m: +421 917 766 790
pavol.hanin@mao.slovnaft.sk slovnaft.sk

Reference letter

We hereby confirm application with our company Synthos Dwory 7 thermal insulation coating PSC Power Smart Coat.

The PSC Power Smart Coat was applied in June 2016 at the Energy Department on a mesulfite lye tank.

The purpose of the PSC Power Smart Coat coating application was thermal and corrosion protection of the tank due to difficult working conditions.

Application of the PSC Power Smart Coat thermal insulation coating fulfilled in all technical points our expectations.

Since then the PSC Power Smart Coat has not changed its properties and technical parameters.

Dyrektor Wydziału Energetycznego


Sławomir Czuchryj

Synthos Dwory 7 spółka z ograniczoną odpowiedzialnością spółka jawna

ul. Chemików 1, 32-600 Oświęcim, tel. +48 33 844 18 21...25, fax +48 33 842 42 18.

VAT EU PL9591762828. Bank Pekao SA, 05 1240 4748 1111 0000 4869 9154.

The District Court in Kraków, XII Department of Economic of the National Court Registry, registration no. KRS 0000490507.



The Company
has an Integrated
Management
System in place

List referencyjny

Niniejszym potwierdzamy zastosowanie w naszej spółce Synthos Dwory 7 powłoki termoizolacyjnej PSC Power Smart Coat.

Powłoka Termoizolacyjna PSC Power Smart Coat zastosowana była w czerwcu 2016 roku na Wydziale Energetycznym na zbiornika ługu posulfitowego.

Celem aplikacji powłoki PSC Power Smart Coat była termiczna i antykorozyjna ochrona zbiornika ze względu na trudne warunki pracy.

Aplikacja powłoką termoizolacyjną PSC Power Smart Coat spełniła we wszystkich punktach technicznych nasze oczekiwania.

Powłoka PSC Power Smart Coat od tego czasu nie zmieniła również swoich właściwości oraz parametrów technicznych

Dyrektor Wydziału Energetycznego


Sławomir Czuchra

Synthos Dwory 7 spółka z ograniczoną odpowiedzialnością spółka jawna

ul. Chemików 1, 32-600 Oświęcim, tel. +48 33 844 18 21...25, fax +48 33 842 42 18.

VAT EU PL9591762828. Bank Pekao SA, 05 1240 4748 1111 0000 4869 9154.

The District Court in Kraków, XII Department of Economic of the National Court Register, registration no. KRS 0000490507.



The Company
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System in place

RIVER POWER s.r.o.
Hlubinska 1378/36
Moravska Ostrava
702 00 OSTRAVA

Č.j.:

Vyřizuje / linka

Ostrava 1. dubna 2015

REFERENČNÍ LIST

Potvrzujeme tímto, že jsme aplikovali od společnosti RIVER POWER s.r.o. termoizolační nátěr POWER SMART PAINT na potrubí teplé vody jako tepelnou izolaci a na potrubí studené vody proti tvoření kondenzátu. Nátěr byl aplikován v

TEPLÁRNA TŘEBOVICE - OSTRAVA

Po provedení nátěru o síle 3 mm barvy POWER SMART PAINT ve zmíněné teplárně jsme obdrželi následující parametry:

	Před nátěrem	Po nátěru
Potrubí s teplou vodou	87 °C	47 °C
Potrubí se studenou vodou	s kondenzací	bez kondenzace

S výsledky po aplikaci tohoto nátěru jsme velmi spokojeni a jsme připraveni ho požívat na další instalace.

S pozdravem

THE REFERENCE LETTER

We hereby acknowledge the use of the company RIVER POWER s.r.o. thermal insulating cover POWER SMART PAINT application in our hot and cold water and condensate system in:

POWER PLANT TŘEBOVICE - OSTRAVA

After installing a layer of coverage 3 (mm) POWER SMART PAINT in the above-mentioned installation we obtained the following insulation parameters:

	Before coating	After coating
Potrubí s teplou vodou	87 °C	47 °C
Potrubí se studenou vodou	with condensation	without condensation

Držitel certifikátů: kvality dle ČSN EN ISO 9001, environmentálního řízení dle ČSN EN ISO 14001 a bezpečnosti a ochrany zdraví při práci dle ČSN OHSAS 18001.
Držitel osvědčení o akreditaci pro zkušební laboratoř č. 1470, č. 1597 a osvědčení o akreditaci pro inspekční orgán č. 4047.

We are very satisfied with the applied coatings insulation and are going to be used in the preservation of our installations.

Best Regards:



AmpluServis, a.s. 3
Elektrárenská ul. 5558
709 74 Ostrava

Ing. Miroslav Pajchl
Ředitel společnosti

Tel.: + 420 596 904 557
Mobil: + 420 602 749 580
E-mail: Miroslav.pajchl@veolia.com
www.ampluservis.cz

Držitel certifikátů: kvality dle ČSN EN ISO 9001, environmentálního řízení dle ČSN EN ISO 14001 a bezpečnosti a ochrany zdraví při práci dle ČSN OHSAS 18001.
Držitel osvědčení o akreditaci pro zkušební laboratoř č. 1470, č. 1597 a osvědčení o akreditaci pro inspekční orgán č. 4047.

Protokol zkoušek tepelně izolačních vlastností produktu Power Smart Coat (PSC)

DEZA a.s., Velké Meziříčí
28.07.2015

Zkušební aplikace proběhla v oddělení Energetika společnosti DEZA a.s. v následující komisi:
Ing. Jean Kocian – zástupce společnosti River Power, s.r.o.
Ing. Horák Vlastimil, ved. provozu DEZA a.s.

Zkoušky tepelně izolačních vlastností produktu PSC probíhala za provozu zařízení. Aplikace se prováděla na přírubu potrubí horké vody u tepelného výměníku oddělení Energetika. Teplota vody v potrubí je +130°C.



Měření se provádělo na neizolovaném a izolovaném povrchu příruby kontaktním teploměrem Volfcraft thermosstick DOT 300. Bylo aplikováno celkem 3,5 vrstvy nátěru silou max 2,10 mm (síla každé vrstvy je max. 0,3-0,5mm)

Dodatečně tepelné vlastnosti materiálu PSC kontrolovali krátkodobým dotykem rukou do izolovaného povrchu – 130°C 58 organoleptický způsob kontroly teploty povrchu. Čas dotyku se zjišťuje přibližně protože práh bolesti u každého z členů komise je jiný.

Materiál se nanášel štětcem na horký povrch. První vrstva produktu PSC se hodně ředila vodou podle návodu k aplikaci, proto tloušťka první vrstvy je menší než 0,3 mm. Následné vrstvy materiálu se aplikovali normální konzistence (síla nátěru cca 0,4mm), ale tloušťka nátěru se těžce kontroluje vzhledem k rychlému schnutí na horkém povrchu.

Výsledky měření jsou uvedeny v tabulce

1	2	3	4
Množství vrstev	T, °C	Čas dotyku, vteriny	P, W/m ²
0 (neizolovaný povrch)	107	-	689
1 (hodně zředěná, 0,3mm)	92	1	525
2	-	3-5	
3	64	5-10	269

Naměřené hodnoty teploty na povrchu nám umožňují odhadnout snížení tepelných ztrát prostřednictvím vypočtené hustoty tepelného toku R. Hodnoty P jsou uvedeny ve sloupci 4 tabulky a jsou vypočítané dle Stefan-Boltzmannův vzorec.

$P = \sigma \cdot \epsilon \cdot (T_1^4 - T_2^4)$, kde

$\sigma = 5,670373(21) \times 10^{-8} \text{ W} \cdot \text{m}^{-2} \cdot \text{K}^{-4}$ Stefanova-Boltzmannova konstanta,

$\epsilon = 0,93$ – emisivita,

T_1 – teplota povrchu příruby, v °K,

T_2 – teplota vzduchu, v °K.

Výpočty ukazují, že ztráta tepla je snížena na krát. 58,8°C

Výsledky měření ukazují, že materiál PSC má jednoznačné izolační vlastnosti a může být použit pro izolaci zařízení s trvale provozní povrchovou teplotou 200°C, nárazově pak až 250°C a to hlavně v těchto případech:

- Izolace ke snížení tepelných ztrát,
- Izolace ke snížení rizik popálení zaměstnanců, aby se zabránilo pracovním úrazům.

Jean Kocian
CEO
River Power, s.r.o.

Ing. Horálek, Daza, a.s.
Ple 2

Měření se provádělo na vzorku izolace PSC, který byl umístěn na povrchu zařízení s teplotou 200°C. Měření bylo provedeno za pomoci měřicího přístroje, který měří tepelný tok. Měření bylo provedeno na vzorku izolace PSC, který byl umístěn na povrchu zařízení s teplotou 200°C. Měření bylo provedeno za pomoci měřicího přístroje, který měří tepelný tok. Měření bylo provedeno na vzorku izolace PSC, který byl umístěn na povrchu zařízení s teplotou 200°C. Měření bylo provedeno za pomoci měřicího přístroje, který měří tepelný tok.



Výsledky měření jsou uvedeny v tabulce

1	2	3	4
Měřená vrstva	T, °C	Čas dojevu, vteřiny	P, W/m²
1 (izolace zředěná 0,1 mm)	90	10,5	180
2	-	10,5	180
3	80	10,5	180

Naměřené hodnoty teploty a povrchové teploty jsou uvedeny v tabulce. Měření bylo provedeno na vzorku izolace PSC, který byl umístěn na povrchu zařízení s teplotou 200°C. Měření bylo provedeno za pomoci měřicího přístroje, který měří tepelný tok. Měření bylo provedeno na vzorku izolace PSC, který byl umístěn na povrchu zařízení s teplotou 200°C. Měření bylo provedeno za pomoci měřicího přístroje, který měří tepelný tok.

Częstochowa 7.VIII.2017

List referencyjny PSC

Niniejszym potwierdzamy zastosowanie powłoki termoizolacyjnej PSC Power Smart Coat podczas wykonywanych prac termoizolacyjnych przez naszą firmę.

Powłoka Termoizolacyjna PSC Power Smart Coat zastosowana była na instalacji gazu opałowego na terenie Koksowni Częstochowa w 2016 roku. Został nią zaizolowany rurociąg międzywadziowy gazu opałowego, oraz wszystkie zawory na instalacji pary na wydziale benzolowni. Aplikacja natryskowa powłoki PSC Power Smart Coat zapewnia zbliżone parametry termoizolacyjne do tradycyjnych izolacji z wełny mineralnej, a jej zastosowanie w izolacji zaworów zapewnia wymagane parametry przy znacznym skróceniu czasu wykonania robót.

Powłoka PSC Power Smart Coat od tego czasu nie zmieniła również swoich właściwości oraz parametrów technicznych.

Reference letter PSC

We hereby confirm that the thermal insulation coating of PSC Power Smart Coat is being carried out during thermal insulation work performed by our company.

The PSC Power Smart Coat Thermal Coating was applied on a gas heating system at the Częstochowa Coking Plant in 2016. It was insulated with gas interstitial gas pipeline, and all valves on the steam installation at the department of the gas station. The PSC Power Smart Coat spray application provides similar thermal insulation properties to traditional mineral water insulation, and its use in the insulation of the valves ensures the required parameters while significantly reducing the time required to complete the works.

The PSC Power Smart Coat coating has since changed its properties and technical specifications

Przedsiębiorstwo Produkcyjno-Usługowe
ARWEKON Sebastian Grabowski
42-202 Częstochowa
ul. Dżbowska 46/48
Regon: 241329800 NIP 949-182-05-26



Częstochowa, 18.08.2017 r.

**Przedsiębiorstwo Produkcyjno-Usługowe
ARWEKON Sebastian Grabowski**

ul. Dźbowska 46/48
42-202 Częstochowa

LIST REFERENCYJNY

Niniejszym potwierdzamy zastosowanie w naszej instalacji powłoki termoizolacyjnej PSC Power Smart Coat firmy ALPHA Construction AG, Bahnhofstrasse 21, 6301 Zug, Switzerland.

Powłoka Termoizolacyjna PSC Power Smart Coat zastosowana była w marcu 2017 roku na Wydziale Benzolowni w budynku kotłowni oleju diatermalnego.

Celem aplikacji powłoki PSC Power Smart Coat była termiczna izolacja zaworów na instalacji oleju diatermalnego.

Aplikacja powłoką termoizolacyjną PSC Power Smart Coat doskonale spełniła właściwości termoizolacyjne na zaworach zastępując tradycyjne skrzynie do tego typu izolacji.

Powłoka PSC Power Smart Coat od tego czasu nie zmieniła również swoich właściwości oraz parametrów technicznych.

WICEPREZES ZARZĄDU
DYREKTOR TECHNICZNY
Robert PASZAK

Koksownia Częstochowa Nowa
Spółka z ograniczoną odpowiedzialnością
00-867 Warszawa, ul. Chłodna 51
NIP 521-34-52-579
KRS 0000284737, REGON 141056327



Częstochowa, 18.08.2017 r.

**Przedsiębiorstwo Produkcyjno-Usługowe
ARWEKON Sebastian Grabowski**

ul. Dźbowska 46/48
42-202 Częstochowa

REFERENCE LETTER

We hereby confirm the application of the thermal insulation PSC Power Smart Coat on our installation. The coating was made by ALPHA Construction AG, Bahnhofstrasse 21, 6301 Zug, Switzerland.

The thermal insulation coating PSC Power Smart Coat was applied on benzol Plant Department, in the boiler room of diathermic oil, on March 2017.

The purpose of the application of PSC Power Smart Coat was thermal insulation of valves used in the installation of the diathermic oil.

The application of PSC Power Smart Coat resulted in perfect thermal insulation on valves, replacing the boxes traditionally used for this type of insulation.

Since the application, PSC Power Smart Coat has not changed its properties and technical parameters.

WICEPREZES ZARZĄDU
DYREKTOR TECHNICZNY

Robert PASZAK

Koksownia Częstochowa Nowa

Spółka z ograniczoną odpowiedzialnością

00-867 Warszawa, ul. Chłodna 51

NIP 521-34-52-579

KRS 0000284737, REGON 141056327



UWC – PSC Application Report

UWC KOMEN BIOMASS – Nakhon Rat FLY ASH HOPPER

VERSION 1.02 | JULY 18TH 2018 | PROPOSE TO:

ALPHA CONSTRUCTION

Bahnhofstrasse 21, 6301 Zug Switzerland

APPLIED BY WINFAIR'S PARTNER : OIC (THAILAND) CO., LTD.
UNDER SUPERVISORY OF ALPHA CONSTRUCTION, A.G. AND WINFAIR, LTD.

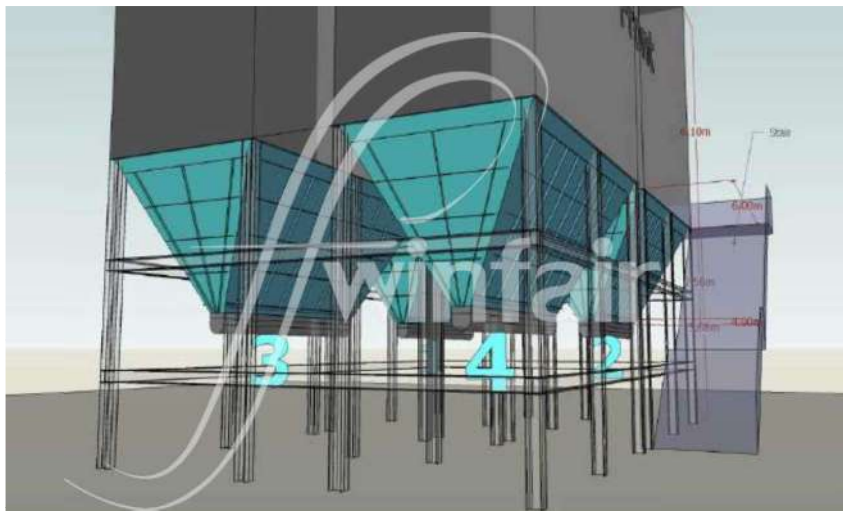
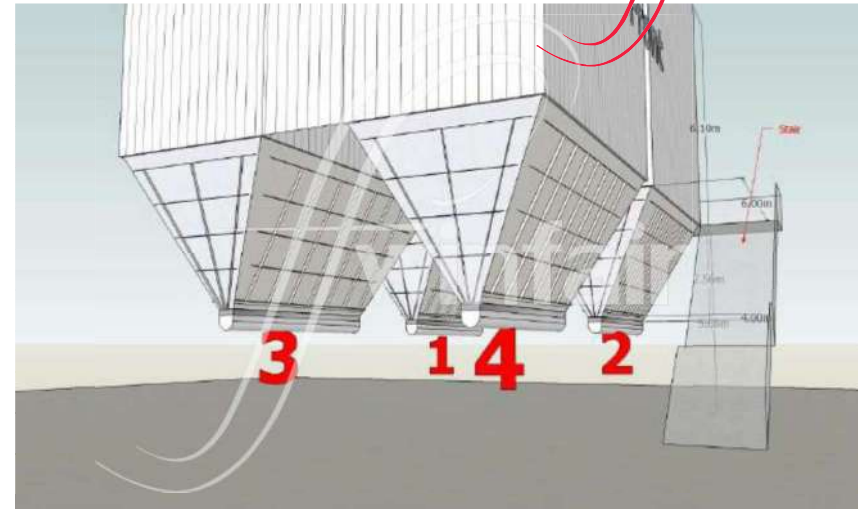
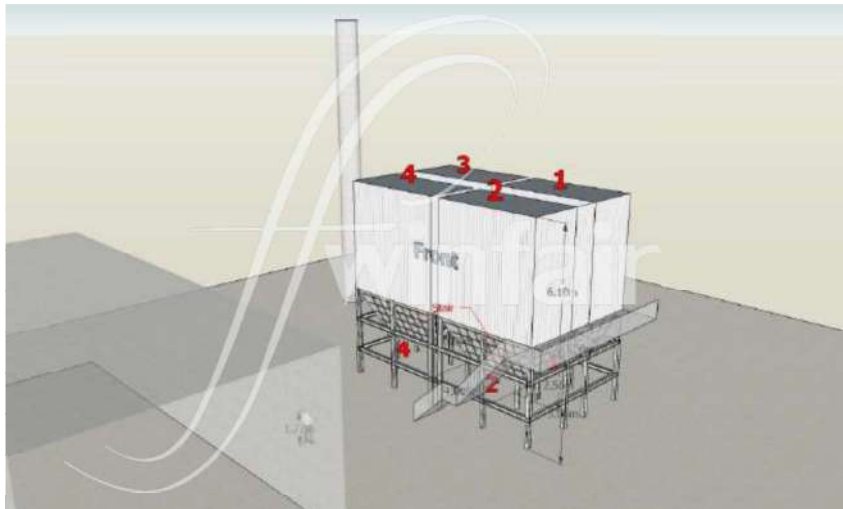




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UWC – PSC Application Report

winfair



Area of PSC coating

Area per one hopper - Big side	37.57	m2
(include flat plate keel) - Small side	12.45	m2
Total	50.02	m2/hopper

Total All Area	=	200.06	m2
----------------	---	--------	----

Thickness application	=	2	mm.
Consumption per coat (0.5 mm.)	0.67	L/m2	(include water dilute)
	0.35	kg/m2	(include water dilute)
coat time	4	coat	

UWC – PSC Application Report

winfair

1 First on site 02-06/04/18 :

- A team go on site for survey and start application under supervision by Product Owner. The first schedule planning is 7 days on 02-08/04/18 but the hopper was not installed finish for all area. a problem from sometime have rain and some other.

First three day a team just can only to checking a surface and recommended by

1. have to full weldinf and complete full rustguard coating
2. then all surface must be clean and stable , no dust , no rust and oil



- After that, the hopper can complete just some side so a team decide to do just small area 5 m2 for Demonstration on No.4.

1. prepare the PSC after open by slow stirring and slowly dilute for reduce viscosity by water 300 gram(cc.)/pail
2. start apply 1st coat by Hopper Air Spray gun and control average consumption by 0.35 kg(0.67 L)/1 m2/0.5mm/coat
3. allow to dry overnight before re-coat because that day was high huminity , then apply 2nd coat same method and consumption

***** However, this time have to stop application on 07/04/18 to wait for completion of hopper installation and beter weater.*****

UWC – PSC Application Report



material used = 3.50 L

UWC – PSC Application Report



2 Second on site 26-30/04/18 :

- After confirmed the hopper had all finished, a team go on site on 26/04/18 to continue application but just can be finish only first coat on the hopper No. 2 , 4 and one side of No. 3 because had rain every day. Especialy on 30/04/18 found some areas are damage due to heavy rain previous night.

*** We discussed with plant's manager and have to stop again.



material used = 97.50 L

UWC – PSC Application Report



3 Third on site 05-09/06/18 :

- Team go on site with prepared more protection from dust and reduce raining effect
- UWC open full system and some time bypass for application. Temperature on surface before coat about 80-110 C.
- no raining



- 1 day for protection work and prepare

UWC – PSC Application Report



- Application step :

- 1 day
 - surface preparing again, scratch to remove some from last time , clean all surface from dust and dirty , allow to dry.
 - re-coat for last damage area
 - apply 1st coat for remain area
- 3 day
 - apply next 3 layer by 1 coat per day
 - add acrylic pain (ratio 5 cc. per pail) by blue colour at 2nd layer and green colour at 3rd, finish by nature white colour.



UWC – PSC Application Report

winfair



material used = 432.95 L

UWC – PSC Application Report



- after all finished and UWC run full system, able to touch direct the surface
- surface temp and total used as below.



total PSC used	533.95	L
	277.65	kg
remain PSC	3.85	L
	2.00	kg

Hopper	Average Temperature (°C)
No.1	54.83
No.2	66.42
No.3	36.31
No.4	51.30

informed by UWC at 14/06/18

THE END

ALPHA CONSTRUCTION AG

Bahnhofstrasse 20
6300 Zug
Switzerland

Your letter number/day:

Our number:
VMT-1/2018

Handled / tlf.
Milan Misár +421 917 898 579

11.6.2018 Martin

Subject:

Thermo-coat PCS-250T-HP from company ALPHA CONSTRUCTION AG is applied on inner surface of our containers (welded construction), specifically thermo-bridges, corners, main frame and supports.

After application there were no dew-points in thermo-bridge areas during climatic tests (+49°C and 95% humidity).

Thermo-coat PCS-250T-HP was applied in 180 containers for military customer. Containers are used in missions in different climatic conditions, EMEA region. There were no warranty claims for this technology.

On attached pictures 1, 2, 3 you can see applied thermo-coat in our containers.

We really appreciate flexible delivery dates and sharing of technology know-how of thermo-coat application.

Attachments: 1-3.

Written by: Ing.Miloš Ballo

Approved: Ing.Romana Šošková

Letters: 1

Registration marking:

Prepared in two prints.

No. 1 – ALPHA CONSTRUCTION AG, Zug

No. 2 – for VMT



VÝVOJ Martin, a.s. -1-
Komenského 19
036 01 Martin
IČO 36381829
IČ DPH SK7120001405



Lany Wielkie, 18.10.2018

Gospodarstwo Rolne Bożena Butor-Fleszar
Łabędzka 54
44-153 Lany Wielkie

Referencje

Gospodarstwo Rolne Bożena Butor-Fleszar ma przyjemność polecić firmę River Power. Niezwykle satysfakcjonująca współpraca rozpoczęła się w maju 2018 i trwa do dnia dzisiejszego. Zakres dotychczasowej współpracy dotyczył:

- - wykonanie termomodernizacji dachu.

Przedsiębiorstwo, jakoś towaru zawsze stawia sobie za priorytet. Oferowany asortyment ma dobre parametry.

Warto wspomnieć o funkcjonalności asortymentu oferowanego przez firmę. Do zalet towaru z pewnością można włączyć jego wszechstronność.

Wyróżnikiem jest ogromna wiedza, jaką dysponuje przedsiębiorstwo. Podczas współpracy, z przyjemnością, można przekonać się, że personel firmy to prawdziwi profesjonaliści, w odróżnieniu od konkurencji, na którą miałem niestety nieprzyjemność trafić.

Firma konkurencyjna, której w pierwszej kolejności zleciłem wykonanie prac termomodernizacji dachu, dostarczyła materiał, który niestety odpadał z dachu. Jego parametry termorefleksyjne również pozostawiały sporo do życzenia, względem obietnicy złożonej przez producenta materiału.

Dopiero materiał firmy River Power i ich powłoka termorefleksyjna PSC okazała się być rozwiązaniem problemu. Temperatura spadła w okolicach 10°C, a powłoka w pełni przylegała do dachu.

Polecam firmę River Power, jako partnera przy pracach związanych z termomodernizacją.

GOSPODARSTWO ROLNE
inż. Bożena Butor-Fleszar
44-153 Lany Wielkie, ul. Łabędzka 54
NIP: 969-220-88-55
tel.: 22 238-71-78

Z poważaniem
Krzysztof Fleszar
Wiceprezes

Letter of recommendation –translation from origin

REFERENCES

The Bożena Butor-Fleszar farmstead is pleased to recommend the River Power, s.r.o company. The beneficial cooperation between mentioned companies began in May 2018 and continues to this day. The scope of works included:

- Application of thermal insulation on the roof described below

The recommended company holds the quality of the used material to the highest degree. All of its parameters are proven excellent.

It is worth to take a note of the company's wide range of solutions. All products are characterized by their versatility.

The combined knowledge of River Power's, s.r.o. agents is another important asset, as proven during the application of thermal insulating material. They stand out from their competitors, with whom I had the misfortune of cooperation.

The first company hired to apply the thermal insulation provided us with material that fell off our roof. Its actual insulating properties were also far from the initial estimates, provided by the manufacturer.

The Power Smart Coat insulation provided by River Power, s.r.o. s.r.o. proved to be the suitable solution for the overheating problem. The temperature decreased by 10°C and the coating is fully adhesive to the roof.

I can highly recommend River Power, s.r.o. as a reliable partner with all thermal modernization works.

Sincerely,

Krzysztof Fleszar
Vice President



Bielsko-Biała dnia 30.06.2020

Zakład Usług Przemysłowych
Andrzej JEŻEWSKI
Orzesze

RIVER POWER s.r.o.
Jean KOCIAN
Ostrava

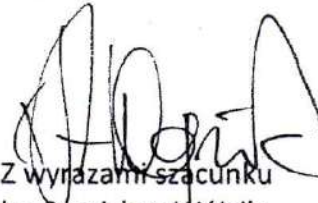
LIST REFERENCYJNY

Niniejszym potwierdzamy realizację aplikacji nanopowłoki termoizolacyjnej PSC – Power Smart Coat w naszym kościele parafialnym p.w. św. Józefa oraz przyległej kaplicy Matki Boskiej w Bielsku-Białej.

Realizacja miała miejsce w miesiącu lutym 2019 roku i dotyczyła przygotowania i malowania ścian wewnętrznych kościoła i kaplicy.
Powierzchnia obiektów sakralnych objętych pracami termomodernizacyjnymi to odpowiednio: 3100 m² + 600 m²

Aplikacja wraz z pracami towarzyszącymi została wykonana sprawnie a oczekiwany efekt termoizolacyjny został osiągnięty.
W kościele oraz przyległej kaplicy zauważa się wyraźną poprawę temperatury oraz tzw. mikroklimatu obiektu zarówno w okresie zimowym jak i letnim.

Zarówno materiał: nanopowłoka termoizolacyjna PSC jak i ekipa aplikacyjna jest z całą pewnością godna polecenia.
Ekipa wykazuje się dużą profesjonalnością, a użyte materiały spełniają przedstawione uprzednio parametry i właściwości.


Z wyrazami szacunku
ks. Stanisław Wójcik
proboszcz

Parafia Rzymskokatolicka
pw. św. Józefa
w Bielsku-Białej na osiedlu Złote Łany

ul. Tuwima 62
43-300 Bielsko-Biała
tel. 33 814 18 89
tel. 48 516 338 827
www.zlotelany.duszpasterstwa.bielsko.pl

Bielsko Biąła, dated on 30.06.2020

**Roman Catholic parish
dedicated to saint Jozef**

Industrial Service Plant
Andrzej Jeżewski
Orzesze

RIVER POWER s.r.o.
Jean KOCIAN
Ostrava

Letter of references

Hereby, we confirm the implementation of the application of a heat-insulating nanocoating **PSC Power Smart Coat** in our parish church dedicated to saint Jozef and the adjacent chapel Mother of God in Bielsko Biąła.

The realization took place in February 2019 and it concerned preparation and painting of internal walls of the church and chapel. The area of sacred buildings covered by thermo – modernization works is respectively 3100 m² + 600 m².

The application of accompanying work was performed effectively and the expected thermal insulation effect was achieved. In the church and the adjacent chapel, there is a significant improvement in temperature and the so-called microclimate of the interior both in winter and in summer.

Both material heat-insulating nanocoating **PSC** and the application team are certainly recommendable. The team is highly professional, and the used materials fulfill the previously mentioned parameters and properties.

Bielsko Biąła, dne 30.06.2020

**Římsko-katolická farnost
oddaní světcí Jozefovi**

Závod průmyslových služeb
Andrzej Jeżewski
Orzesze

RIVER POWER s.r.o.
Jean KOCIAN
Ostrava

Referenční list

Tímto potvrzujeme aplikaci tepelně izolačního nanotechnologie **PSC Power Smart Coat** v našem farním kostele zasvěceném světcí Jozefovi a přilehlé kapli Matce Boží v Bielsko Biále.

Realizace proběhla v únoru 2019 a týkala se přípravy a malování vnitřních stěn kostela a kaple. Rozloha posvátných budov, na něž se vztahují termo modernizační práce, je 3100 m² + 600 m².

Aplikace doprovodných prací byla provedena efektivně a bylo dosaženo očekávaného tepelně izolačního účinku. V kostele a přilehlé kapli dochází k výraznému zlepšení teploty a tzv. mikroklima interiéru v zimě i v létě.

Určitě doporučujeme jak tepelně izolační nanotechnologii **PSC**, tak aplikační tým. Tým je vysoce profesionální a použité materiály splňují výše uvedené parametry a vlastnosti.

STAVOVSKÁ s.r.o.

Poliklinika - Místek

8. Pěšího pluku 85, 738 01 Frýdek-Místek

RIVER POWER s.r.o.
Ing. Jean Kocián

Stavovská s.r.o.
Štefánikova 1301/4, 742 21, Kopřivnice
Poliklinika Místek
8. pěšího pluku 85, 738 01 Frýdek-Místek
IČ 25864173 DIČ CZ25864173
tel. 558 900 111

Vážený pane,
použili jsme v prostorách polikliniky ve Frýdku-Místku nanobakteriostatický nátěr PScoat dle instrukcí. Nátěr splnil naše požadavky, jsme spokojeni.

PhDr.Bc.Valentová Kateřina,MSc.
Ředitelka polikliniky v Místku společnosti Stavovská
Tel.:603 254 322, 558 900 388
e-mail:katarinavalentova@seznam.cz

51

Ve Frýdku-Místku 7.2.2022

Stavovská s.r.o.
Štefánikova 1301/4, 742 21 Kopřivnice
Poliklinika Místek
8. pěšího pluku 85, 738 01 Frýdek-Místek
IČ 25864173 DIČ CZ25864173
tel. 558 900 111

REFERENCE LIST

PSC 250T INSIDE BACTERIOSTATIC

Our polyclinic in Frýdek-Místek used the nanobacteriostatic coating PScoat in the premises of the polyclinic COVID 19 according to the instructions.

The coating met our requirements and we are satisfied with this technology.

Sincerely



Director

PhDr. Kateřina Valentová

Tel: +420 558 900 388

Email: valentova.katarina@pkmistek.cz

Frýdek Místek on 7 February 2022

Reference letter

We hereby confirm application in our company VAE Controls - Plynex s.r.o. Slovakia thermal insulation coating Power Smart Coat (PSC).

The (PSC) Thermal Coating was applied in 2016 in Plynex Slovakia s.r.o. on the concrete tank of the fermenter in bioenergy plant.

The purpose of the Power Smart Coat (PSC) application was a thermal protection of the tank and ensuring constant temperature of its work necessary in the process of fermentation at low outdoor temperatures in the winter.

Application of the PSC fulfilled in all technical points our expectations and the process of fermentation is currently going well.

Since then the Power Smart Coat (PSC) coating has not changed characteristics and technical parameters.

Best regards,



VAE CONTROLS, s.r.o.
nám. J. Gagarina 233/1
710 00 OSTRAVA
ČESKÁ REPUBLIKA
DIČ: CZ48390470
914

Martin PECINA

General Manager, Member of the Board of Directors

e-mail: martin.pecina@vaecontrols.cz, web: www.vaecontrols.cz

GSM: +420 602 448 011,

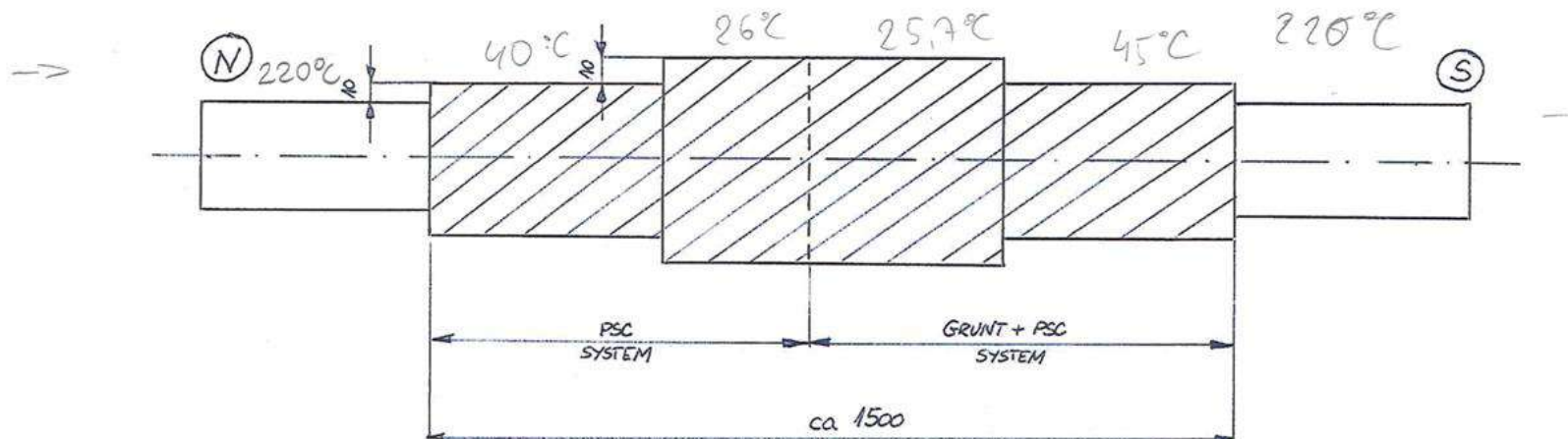
IČ: 48390470, DIČ: CZ48390470



Referencje: GRUPA AZOTY – rurociąg pary 220°C

WYNIKI POMIARÓW KAMERA TERMOWIZYJNA

11.10.2017 RUROCIĄG PARY 0,9 MPa ciępy XI



STARA IZOLACJA - 4 lata szklane, ostona cementowa + papa 18°C
-||- -||- bez papy 24°C

PIERWSZA PRÓBKA PSC - 24°C

DEPARTAMENT KOROZYJNY KOORDYNACJA PRODUKCJI I BEZPIECZEŃSTWA
Biuro Zarządzania i Koordynacji Produkcji
KIEROWNIK BIURA
mgr inż. Zbigniew Paprocki

RESEARCH REPORT

comparison of thermal permeability of the walls in the
facility at Dolnej Wsi 58 for PSCoat system

Inwestor: RIVER POWER s.r.o
PCK 10/8
40-057 Katowice

Autor: mgr inż. Philip Skuczeń

Charakterystyka Energetyczna
Obiektów Budowlanych
mgr inż. Philip Skuczeń
św. Jana 11/4 , 40-012 Katowice
NIP: 634-277-81-54 nr rej: 15211

Philip Skuczeń

Philip Skuczen

Entry number to the list of persons authorized to draw up energy performance certificates
15211

Date: 15.01.2019	Research Report PSCoat	mgr inż. Philip Skuczeń
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Research Report

1. Subject of the study

The subject of the study is a research report of a multi-family building located at ul. Dolna Wies 58 in Gliwice, which aims to obtain a comparative heat transfer value for the front façade insulated with PSCoat technology, and the rear wall insulated with foamed polystyrene $\lambda=0.031$.

2. Object description:

The object under study is a three-story building with commercial premises on the ground floor, residential above and an attic. The building has a basement. It is made in traditional brick technology.

Front facade of the building is cover by PSCoat system. Rear facade and side facades are covered by styrofoam of 12cm thickness.



Date: 15.01.2019	Research Report PSCoat	mgr inż. Philip Skuczeń
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3. Object description:

The purpose of the study:

The study is aimed at obtaining the estimated thermal permeability coefficient and comparing it for both baffles, i.e. with insulation in PSCoat technology and styrofoam with a thickness of approx. 12cm, $\lambda=0.031$. Due to the unique nature of PSCoat insulation, we can not calculate the thermal permeability coefficient, therefore we refer to the comparison of temperature values with commonly known technology.

Comparative study of the estimated thermal permeability parameter.

The estimation of the thermal permeability parameter is determined on the basis of the temperature difference between the three zones: indoor temperature, outdoor temperature and internal temperature of the tested partition.

We determine the replacement heat flux based on the formula:

$$Q' = \frac{T_{wew} - T_{ściany}}{R_{si}} \quad (1)$$

where:

Q- heat flux

T_{wew} – indoor temperature

$T_{ściany}$ – temperature of the tested partition

R_{si} – heat transfer resistance according to PN-EN ISO 6946

Comparative thermal permeability is calculate based on the formula:

$$U' = \frac{Q}{T_{wew} - T_{zew}} \quad (2)$$

where:

U- thermal permeability

Q- heat flux

T_{wew} – indoor temperature

T_{zew} – outdoor temperature

The obtained result is compared with the known calculation value of thermal permeability of the partition insulated with 12 cm of polystyrene acc. to PN-EN ISO 6946.

Comparing the results according to the approximate and computational method, we obtain a comparative parameter:

$$\theta = \frac{U}{U'} \quad (3)$$

The estimated value of thermal transmittance for the PS Coat insulated barrier is scalable acc.to parameter θ . New results we are able to compare to the real thermal permeability value

The course of the study:

- Thermovision was carried out using a thermal imaging camera on the inner front wall of the building in the living space of the building's owner. The air temperature inside and outside the room was measured using thermometers. In the second place,

Date: 15.01.2019	Research Report PSCoat	mgr inż. Philip Skuczeń
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similarly, thermovision was carried out using the thermal imaging camera of the inner rear wall of the building in the living space of the building's owner. The internal air temperature was measured using thermometers

4. Thermal imaging camera

- Research equipment:
FLIR TG165 thermal imaging camera
Temperature measurement using infrared:

Meter type	Point thermal imaging camera
Type of display	LCD TFT 2" (176x220), colour
Measuring range of temperature	-25...380°C
Optical resolution	24:1
Field of view	38.6° horizontal x 50° vertical
Accuracy of non-contact temperature	±1,5% lub ±1,5°C
External dimension	186 x 55 x 94mm
Power source	akumulator Li-Ion 3,7V 2600mAh
Measure	Non-contact temperature (IR)

-Object:

The walls of the building were made in the traditional technology of full brick with a thickness of 38 cm, cement-lime plaster. Inside the room, the walls are covered with acrylic paint.

- Material emissivity coefficients have been defined for two temperatures:

temperature 0 °C ; temperature 20 °C

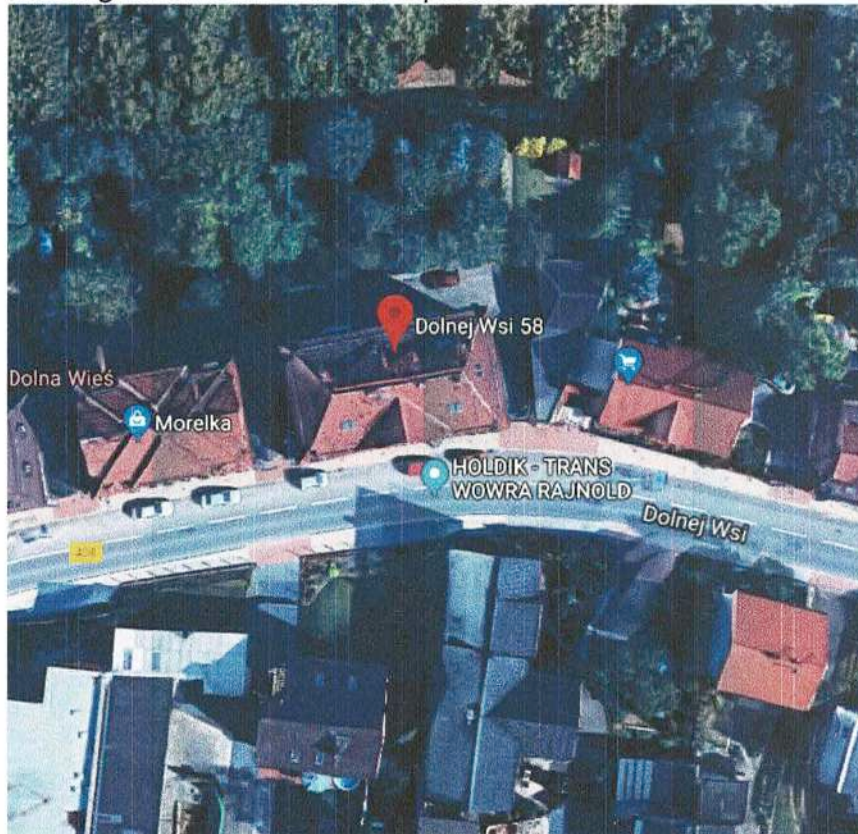
- brick: 0,85 ; 0,93

- acrylic paint: 0,94; 0,95

- cement lime plaster: 0,88 ; 0,93

-Building orientation:

The front wall of the building has a south-eastern exposure. The rear wall of the building has a north-western exposure.



-Atmospheric conditions

The control of atmospheric conditions was carried out twice.

First measurement: 14.01.2019

Temperature: -1 °C, 984 hPa; Wind: 35 km/h, north west direction; Opad: 0 mm; Cloudy

Second measurement: 15.01.2019

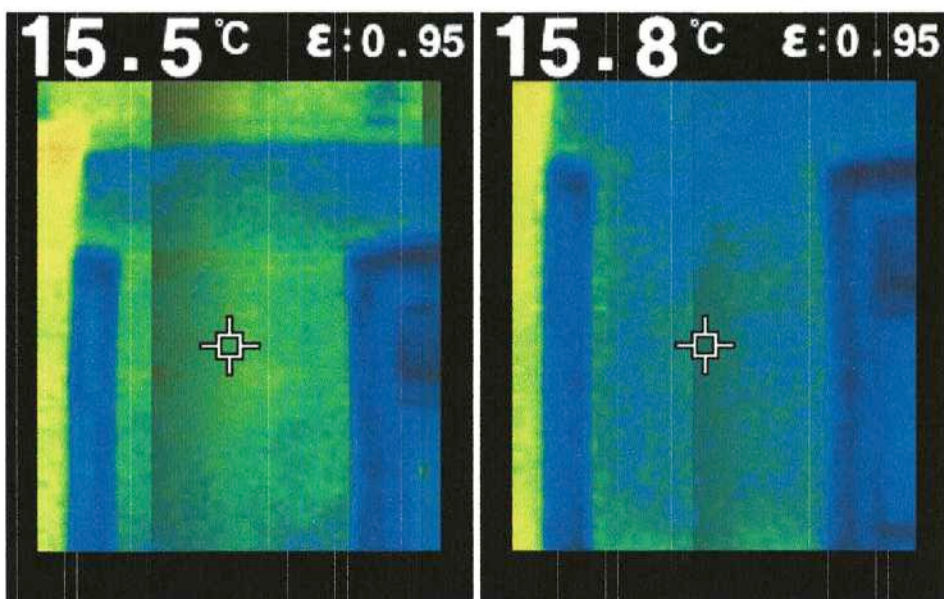
Temperature: 2 °C, 990 hPa; Wind: 32 km/h, north west direction; Fall: 1 mm; Cloudy
During research report was equal to 2 °C

Indoor air temperature in room 1: front wall painted with the PScoat system: 18,6 °C

Indoor air temperature in room 2: rear wall insulated with 12 cm thick polystyrene foam: 18,4 °C

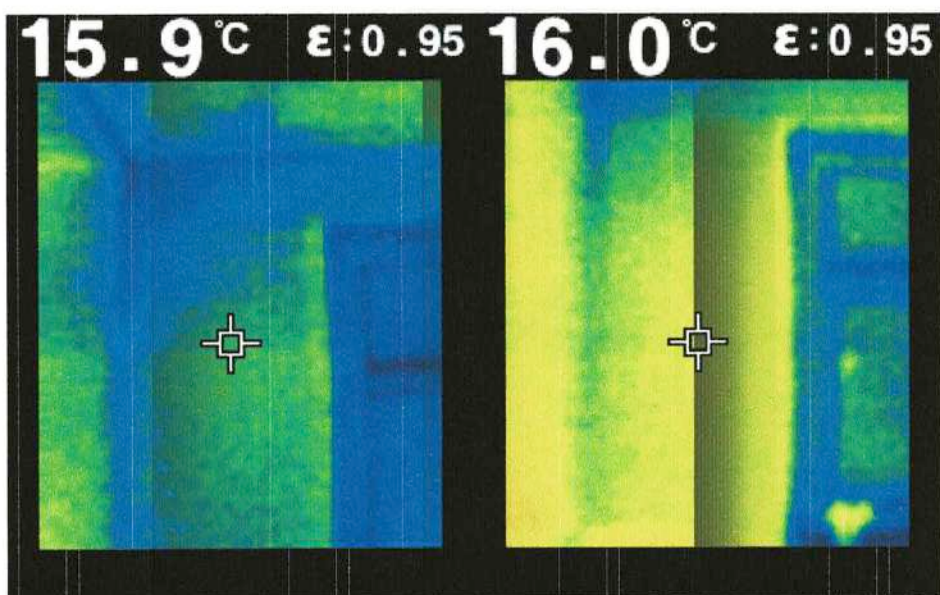
All measurements made with a thermal imaging camera were made at the same distance from the wall, away from all thermal bridges for the most accurate measurement.

-Pictures from the thermalvision camera



Front wall

Front wall



Rear wall

Rear wall

Date: 15.01.2019	Research Report PSCoat	mgr inż. Philip Skuczeń
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5. Research data

a) Front facade covered by PSCoat system

Front facade + PSCoat		
Temperature of the internal wall [st. C]		Outside air temperature
Point 1	Point 2	2,0
15,8	15,5	
Avarage temperature		
15.65		

b) Rear facade covered by styrofoam of 12cm thickness

Rear facade + styrofoam 12 cm		
Temperature of the internal wall - tylnej [st. C]		Outside air temperature
Point 1	Point 2	2,0
15,9	16,00	
Avarage temperature		
15,95		

6. Calculation of the comparative thermal permeability parameter

a) Front facade covered by PSCoat system

Calculation of the heat flux value [Q] and thermal permeability [U]					
Rsi [(m2*st.C)/W]	Internal temperature [st. C]	Front wall internal [st. C]	Outside air temperature [st. C]	Q [W/m2]	U [w/(m2*st.C)]
0,13	18,6	15,65	2	22,6923	1,3670

b) Rear facade covered by styrofoam of 12cm thickness

Calculation of the heat flux value [Q] and thermal permeability [U]					
Rsi [(m2*st.C)/W]	Internal temperature [st. C]	Front wall internal. [st. C]	Outside air temperature [st. C]	Q [W/m2]	U [w/(m2*st.C)]
0,13	18,4	15,95	2	18,8462	1,1492

Date: 15.01.2019	Research Report PSCoat	mgr inż. Philip Skuczeń
---------------------	------------------------	-------------------------

Calculation of the theoretical value of heat transfer "U" for a wall insulated with 12 cm polystyrene $\lambda = 0,031$

The design value of heat transfer U of the partition acc. to PN-EN ISO 6946:1999

		Rbrick [m ² *C/W]	Rstyrofoam	R	U
Insulation	Styrofoam 12 cm	0,4935	3,870967742	4,5345	0,220532734

7. Determination of the comparative parameter

Partition			Ratio
Styrfoam	U tested	1,1492	0,1919
	U calc.	0,2205	

8. Calculation of the calculated values of the thermal permeability tested

Partition	Ratio	U tested	U comparative
Styrofoam	0,1919	1,1257	0,2205
PSCoat		1,3670	0,2678

The difference in thermal permeability between the two comparative partitions is 0,0473

Date: 15.01.2019	Research Report PSCoat	mgr inż. Philip Skuczeń
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9. Finding a calculated value „U” partition PSCoat for styrofoam $\lambda = 0,031$

The design value of heat transfer U of the partition according to the standard PN-EN ISO 6946:1999

		Rbrick [m ² *C/W]	Rstyrofoam	R	U
Insulation	Styrofoam 12 cm	0,4935	3,8710	4,5345	0,2205
	Styrofoam 10cm	0,4935	3,2258	3,8893	0,2571
	Styrofoam 9cm	0,4935	2,9032	3,5667	0,2804

10. Conclusions

After the examination of walls insulated in two different technologies - Styrofoam of thickness 12 cm ($\lambda = 0,031$) and PSCoat system, conclude that using PSCoat system is in range between 9 a 10 cm

Insulation	U
Styrofoam 9cm	0,2804
PSCoat	0,2678

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