

 **ISO FLECT®**

SISTEME PERFORMANTE PENTRU IZOLATII TERMICE

G O L D



ISO FLECT® GOLD
SISTEME PERFORMANTE PENTRU IZOLATII TERMICE
MEMBRANA TERMOIZOLANTA | BARIERA DE VAPORI | IZOLATIE FONICA

EFICIENTA
IN TOATE ANOTIMPURILE

PROTECTIE
IMPOTRIVA CONDENSULUI

GARANTIE
PANA LA 50 DE ANI**

95-97% RECOMPENZA
CALORIE RADIANTA

0.03% TRANSMISIE

CAPACITATE DE
≤80°C
RETINERE A CALORIEI

DUBLEAZA EFICIENTA IZOLATIEI TERMICE

APLICATIILE PRINCIPALE:

- mansarde
- acoperisuri
- tavane si pereti

PROFITA DE BENEFICIILE TEHNOLOGIEI NASA

- asigura economii de energie de 40-60%
- reduce cu pana la 90% nivelul expozitiei la condensu
- reduce pierderile de caldura dintr-un sistem termic
- compatibil cu toate tipurile de sisteme
- eficienta termica garantata

COMPOZITIE:

- 2 x folie de aluminiu
- 1 folie de EVA
- 3 mm spuma polistiren

GROSIME TOTALA:
10 mm (±3%)

GREUTATE VOLUMICA:
4 kg / m³ (±5%)

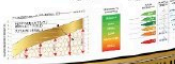
www.isoflect.ro

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CE 

DESPRE  **MONTAJ** 

"CALCULEAZA TERMOIZOLATIA"

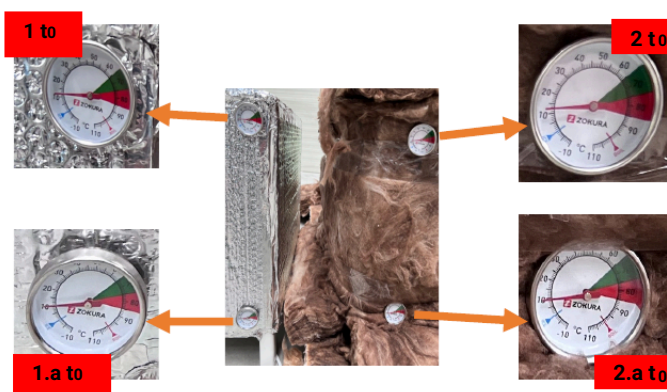




Theme – testing the degree of insulation in degrees Celsius and identifying any differences under real conditions rather than laboratory conditions, under real conditions of exposure to cold.

Two identical structures with identical internal volume were used.

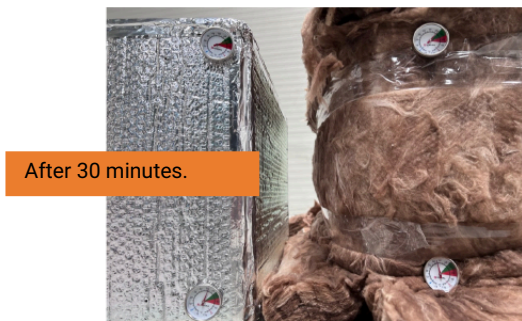
1. Structure 1, insulation with a single layer of **Isofect Gold (thickness 10 mm)**.
2. Structure 2, insulation with one layer of glass mineral wool, thickness 100 mm, Lambda **0.032 W/mK**.
3. The same thermometers were installed in both enclosures, one at the top and one at the bottom.
4. Outside temperature: 11°C.
5. Date of the test: 04 March 2022.
6. The test was carried out indoors, without temperature fluctuations.



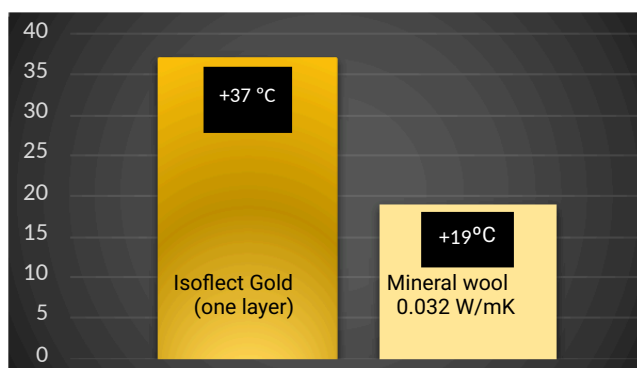
- **Objective 1:** determining the time in which the two products provide the optimum comfort temperature of 24 °C, starting from the temperature at the moment t_0 . We note that the most relevant result is the one displayed in positions 1.a + t_1 and 2.a + t_1 , since the two are located below the level of the heating source. Thus, the heat displayed in these positions is considered the most relevant, since they are not under the direct influence of a heating source, and the temperature displayed results from homogeneous heating.



- **Objective 2:** testing the temperature reached inside each device, within a time unit of 30 minutes.



Total yield for each material



Conclusions:

- under practical conditions, a single layer of Isoflect Gold had an efficiency 94.64% higher than mineral wool ($\lambda = 0.032$ W/mK);
- in addition to conventional insulation (a 10 cm layer of mineral wool insulation), the Isoflect Gold thermo-reflective membrane provides a substantial improvement in the efficiency of the thermal insulation system as a whole;
- the addition of an Isoflect Gold thermal insulation membrane, installed in accordance with the instructions, provides this thermal insulation system with an additional yield of approximately 125.89%.

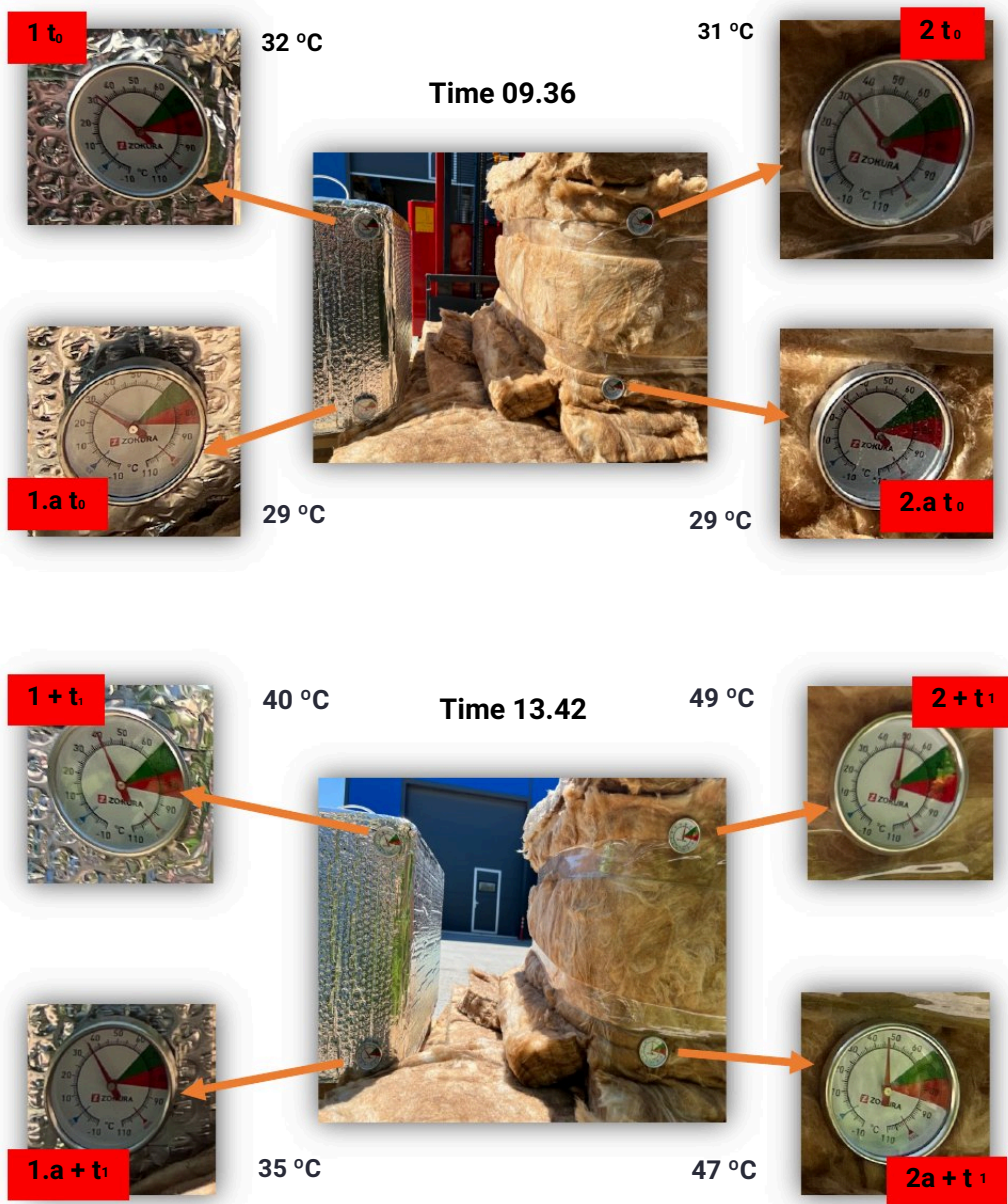
Closing note:

Isoflect Insulation does not encourage the removal of conventional insulation materials, as these have the following roles:

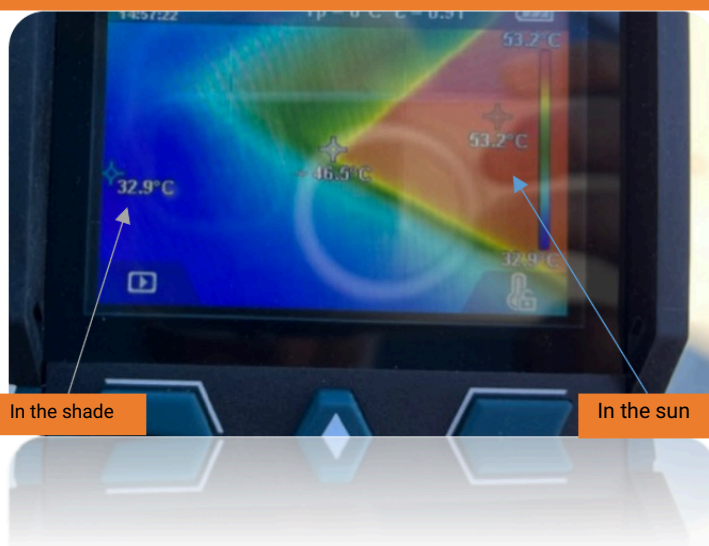
- they reduce the speed of air circulation in the attic cavities;
- they store part of the heat, which they subsequently release when the source disappears, thus increasing autonomy;
- they substantially improve sound insulation, an aspect in which the Isoflect Gold thermal insulation membrane does not excel;
- it substantially improves fire resistance.

Theme – testing the degree of insulation in °C and identifying any differences under real conditions rather than laboratory conditions, under real conditions of exposure to solar heat.

1. Structure 1, insulation with a single layer of Isofect Gold (thickness 10 mm).
2. Structure 2, insulation with one layer of glass mineral wool, thickness 100 mm, Lambda 0.032 W/mK.
3. The same thermometers were installed in both enclosures, one at the top and one at the bottom.
4. Maximum outside temperature (in the shade): 32°C.
5. Date of the test: 15 July 2022.
6. Start time (t₀): 09.36
7. Time of the last recording (t₁): 13.42

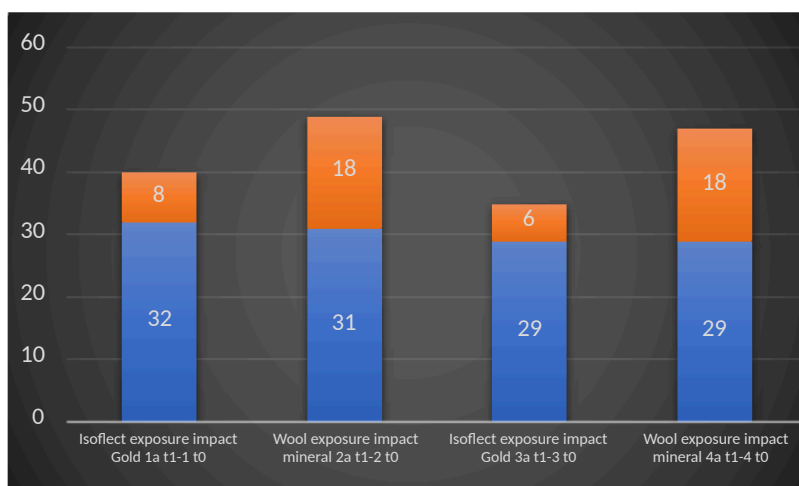
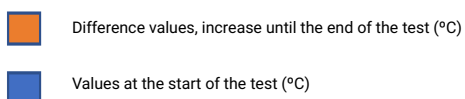


Maximum outside temperatures during the test



INTERPRETATION

Calculating by the weighted average formula, the result shows that Isoflect Gold was **157.14%** more efficient than 10 cm of mineral wool with $\Lambda = 0.032 \text{ W/mK}$.



History of thermo-reflective membrane technology

In 1860, the French scientist Jean Claude Eugene Peclet experimented with the insulating effect of metals with high and low emissivity facing air spaces. Peclet experimented with a wide variety of metals, from tin to cast iron, and concluded that neither colour nor visual reflection were important determining factors in the performance of the materials. Peclet calculated the reduction in the number of BTU for high- and low-emissivity surfaces facing various air spaces, discovering the benefits of a radiant barrier in reducing heat transfer.

In 1925, two German businessmen, Schmidt and Dykerhoff, filed patent applications for reflective surfaces intended for use as building insulation, because recent improvements in technology had made low-emissivity aluminium foil commercially viable. This became the launch pad for radiant barriers and reflective insulation worldwide, and over the following 15 years millions of square metres of radiant barrier were installed in the USA alone[2].

Within 30 years, the radiant barrier had made a name for itself, being included in projects at MIT, Princeton and at Frank Sinatra's residence in Palm Springs, California.

Space exploration

For the Apollo programme, NASA helped develop a thin foil of aluminium that reflected 95% of radiant heat. A metallised film was used to protect spacecraft, equipment and astronauts from thermal radiation or to retain heat during extreme temperature fluctuations in space. Aluminium was vacuum-coated until a thin film was obtained, and applied to the base of the Apollo landing vehicles. It was also used in numerous other NASA projects, such as the James Webb Space Telescope and Skylab. In the vacuum of outer space, where temperatures can range between -400 and 250 °F (-240 and 120 °C), heat transfer takes place only by radiation, so a barrier radiant is more effective than on Earth, where between 5% and 45% of the heat transfer can still take place by convection and conduction, even when an effective radiant barrier is implemented.

The radiant barrier is a space technology certified by Space Foundation(TM).

The radiant barrier was inducted into the Space Technology Hall of Fame in 1996.

Source: Wikipedia

Construction

Isoflect Insulation has developed and adapted specific thermo-reflective materials, optimised and adapted to almost every application in the field of thermal insulation in construction, so that they contribute significantly to energy savings, pollution reduction, reduction of the thermal impact on the surrounding environment, increased sustainability, and increased comfort and quality of the indoor climate of buildings.

Isoflect Insulation membranes are used with a major impact on energy efficiency in the following applications:

- Under the roof covering
- Unheated
- habitable attics and roofs
- Interior of walls with cladding
- Floors
- Pipes and ducts
- Other technical applications

Applications and installation solutions: <https://isoflect.ro/>

Source: Isoflect Insulation