AISLAMIENTO TÉRMICO EN LA INDUSTRIA

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AFELMA

AFELMA constituida por

LANAS MINERALES

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USOS

Construcción

Fachadas, cubiertas, tabiques, suelos, techos, conductos de aire acondicionado, protección de estructuras, puertas, mamparas, forjados

Industria

Calderas, acumuladores, tanques, depósitos, filtros, silenciosos, acondicionadores, motores

Transporte

Naval, aeronáutico, automoción, ferroviario

Cultivos semi-hidropónicos

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PROPIEDADES

- ✓ **Aislamiento Térmico**

  Debido al aire inmóvil que retienen en su interior, dificultan el flujo de calor.

- ✓ **Aislamiento Acústico**

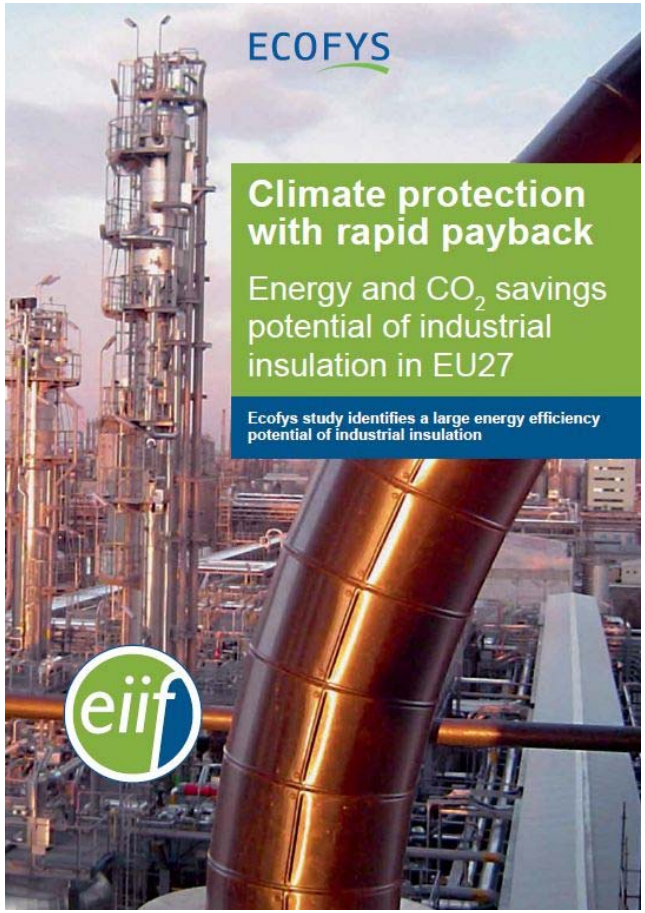
  Debido a la elasticidad de sus fibras y su porosidad abierta, tienen una alta capacidad de absorción y amortiguación de la energía acústica.

- ✓ **Protección contra el fuego**

  Por su origen inorgánico, son incombustibles, capaces de mantener sus propiedades hasta altas temperaturas y no generan humos ni gotas (son s1, d0)

Estudio Potencial de Ahorro en la Industria

Fundación Europea de Aislamiento Industrial



	Annual cost-effective savings potential		...in industry		...in fossil fuel-fired power generation				Initial investment	Energy savings potential	Annual savings
FR	51 PJ	3.8 Mt CO2	45 PJ	3.4 Mt CO2	6 PJ	0.4 Mt CO2	750 000	1.9 million	€ 100 million	75%	€ 420 millions
DE	106 PJ	8.7 Mt CO2	80 PJ	6.3 Mt CO2	26 PJ	2.4 Mt CO2	1 500 000	4.3 million	€ 180 million	75%	€ 750 million
IT	65 PJ	4.5 Mt CO2	48 PJ	3.3 Mt CO2	17 PJ	1.2 Mt CO2	1 500 000	2.2 million	€ 90 million	75%	€ 500 million
PL	40 PJ	3.4 Mt CO2	27 PJ	2.2 Mt CO2	13 PJ	1.2 Mt CO2	600 000	1.7 million	€ 35 million	75%	€ 200 million
ES	49 PJ	3.4 Mt CO2	40 PJ	2.8 Mt CO2	9 PJ	0.6 Mt CO2	1 200 000	1.7 million	€ 75 million	70%	€ 400 million
SE	16 PJ	1.4 Mt CO2	15 PJ	1.3 Mt CO2	1 PJ	0.1 Mt CO2	200 000	0.7 million	€ 35 million	70%	€ 150 million
UK	65 PJ	4.7 Mt CO2	46 PJ	3.2 Mt CO2	19 PJ	1.5 Mt CO2	900 000	2.3 million	€ 100 million	75%	450 million

Climate protection with rapid payback

Energy and CO_2 savings potential of industrial insulation in Spain

Ecofys study identifies a large energy efficiency potential of industrial insulation

En España:

Inversión

- ✓ Aislar superficies a niveles rentables
- ✓ Reparar aislamientos en mal estado

75 millones de €

Ahorro anual: **13.600 GWh (49 PJ)**

The annual savings potential is more than:

x 10 000

The energy consumption of 1.2 million households.

Ahorro anual equivalente a 1,2 Mill viviendas

Rapid payback

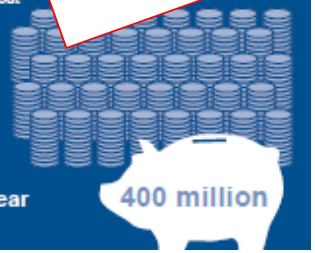
The potential can be tapped cost-effectively

- Insulating bare surfaces to cost-effective levels and repairing damaged insulation in industry requires initial investments of about 75 million euro.
- This one time investment would represent an energy savings potential of about 34 PJ, which would save industry 400 million Euros every year.

Payback times for these investments are usually less than one year.

75 million

Invest once – save every year



400 million

Ahorro anual 400 M€
Retorno < 1 año

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Reducción de emisiones de CO_2: **3,4 millones de toneladas**

El potencial de **reducciones de CO_2 anual** es equivalente a las emisiones de 1,7 millones de coches (considerando 12.500 km/año)

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Climate protection

The savings potential of industrial insulation is large and exists across all regions, sectors, equipment and operating temperatures.

- The total cost-effective savings potential amounts to about 40 PJ and 2.8 Mt CO_2 per year for industry or more than 4.5 % of total industry fuel consumption and emissions.
- In fossil fuel-fired power generation the total cost-effective potential was found to amount to 9 PJ and 0.6 Mt CO_2 per year.

Rapid payback

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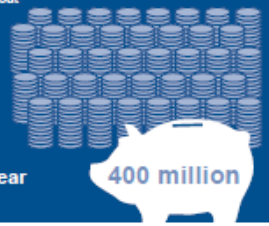

400 million

The annual savings potential is more than:

x 10 000

The energy consumption of 1.2 million households.

The annual CO_2 reductions potential is equivalent to:

x 10 000

The CO_2 emissions of 1.7 million middle class cars each running 12 500 kilometres per year.

www.eiif.org

Why is the potential in industry so large?

Expert experiences show that in industrial plants about 10% or more of the equipment is uninsulated or covered with damaged insulation. Furthermore the level of insulation applied is typically based on a minimum investment decision following requirements regarding the maximum surface temperature to avoid personal injuries, minimum process needs or based on generic maximum heat loss rates only.

Requirements like cost-effectiveness or maximum energy efficiency of the insulation system are therefore often not considered.

In the past, when fuel prices were lower energy efficient insulation would not have led to a large difference. Nowadays, the price of energy is higher and is expected to grow even further. As a result there is an increasing gap between current and cost-effective insulation levels. Additional costs for CO_2 emission allowances will accelerate this trend and further increase the savings potential.

How to tap the potential?

Step 1 **Insulate uninsulated parts and replace damaged insulation**

- If all uninsulated parts would be insulated, and damaged insulation would be repaired, this would reduce industrial energy consumption by 3.5 %.

Step 2 **Evaluate the cost-effectiveness of insulation and consider upgrading**

- Insulating all surfaces to cost-effective levels would avoid about 66% of current heat loss.

Step 3 **Involve insulation experts* early in the planning process of a new build, overhaul or retrofit to realise cost-effective and energy saving levels**

- Not enough space available is most often the reason why cost-effective and energy-efficient insulation levels can't be realized.

**EIIF certified TIPCHECK engineers (Technical Insulation Performance Check) carry out independent energy appraisals and evaluate the money and energy savings potential. More information on www.eiif.org*

Best practice in industry

Chemical Plant
Payback: 2–4 months
Energy savings: 12 600 000 kWh/a
Money savings: 505 000 EUR/a

Refinery
Payback: 1–3 years
Energy savings: 1 021 958 kWh/a
Money savings: 75 000 EUR/a

Processing plant
Payback: 3 months
Energy savings: 1 448 500 kWh/a
Money savings: 47 800 EUR/a

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Inversión:
900 millones de €

Ahorro:
3.500 millones/año

El potencial de ahorro anual en Europa es de 620 PJ

=

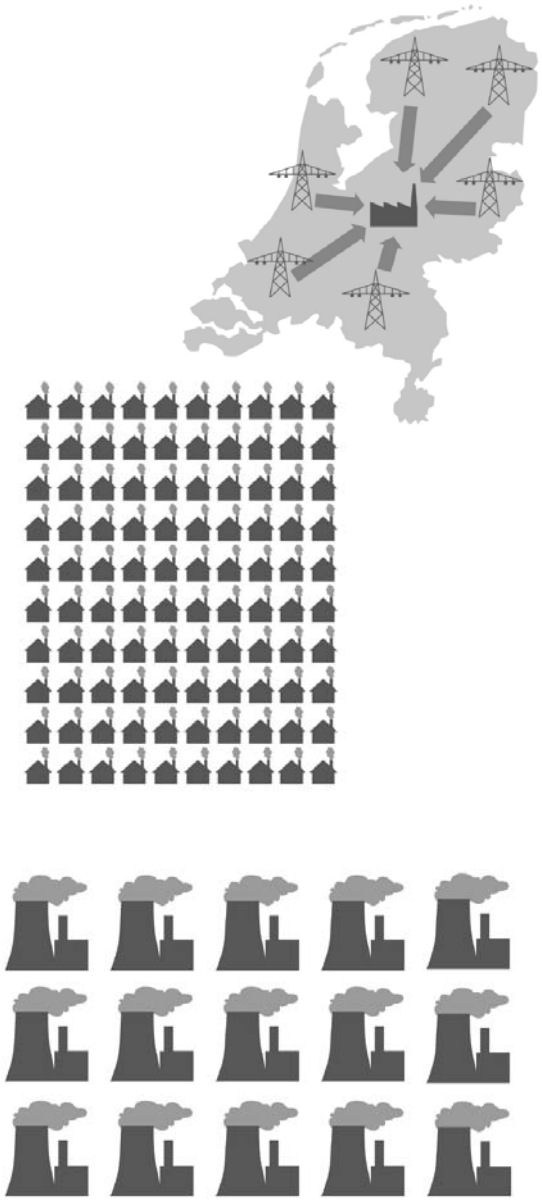
El consumo de energía del conjunto de la industria holandesa

=

El consumo energético de 10 millones de viviendas

=

15 plantas de generación de energía alimentadas por carbón (500MW)



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Reducción de emisiones de CO_2: **49 millones de toneladas**

El potencial de **reducciones de CO_2 anual** es equivalente a las emisiones de 18 millones de coches (considerando 12.500 km/año)

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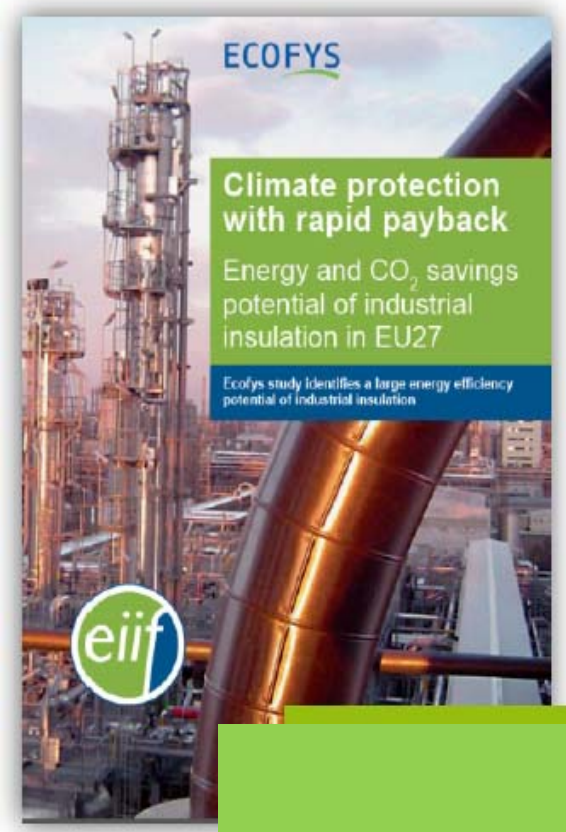

- **Informe completo en Inglés**
- **Resúmenes en Inglés, Alemán, Italiano, Francés,…**

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Guía de Buenas Prácticas en el Aislamiento Industrial

Comunidad de Madrid

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Gracias por su atención

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