Notice for Choosing
Heat Insulation

For insulating pipes,
air conditioners,
ventilation

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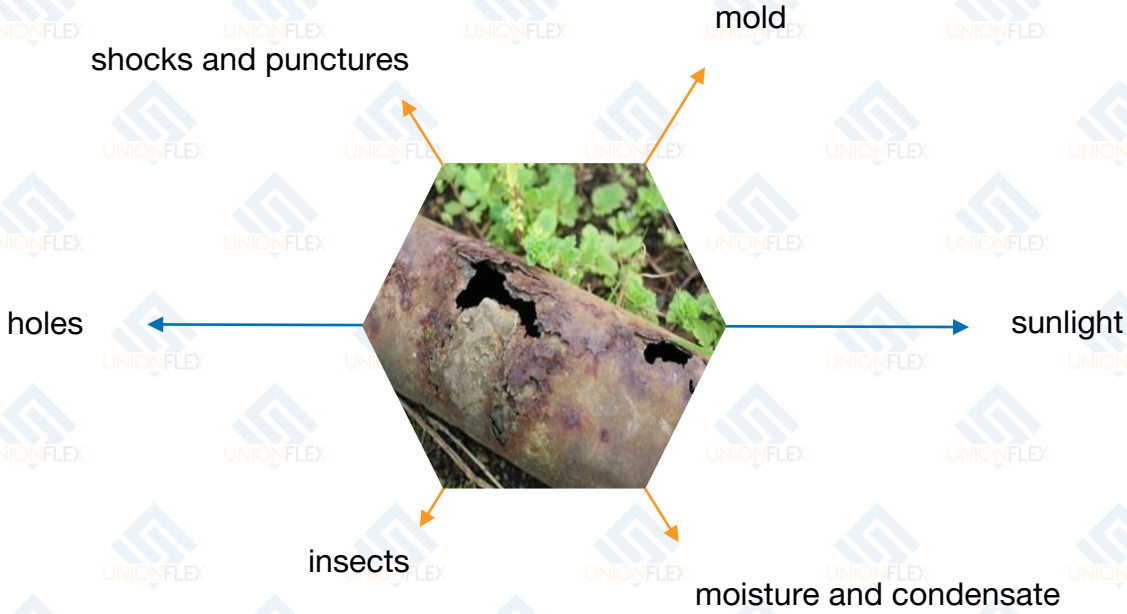
Why do we need to insulate pipes, air conditioners and ventilation?

Heat insulation ensures protection from the following:



Why do we need to insulate pipes, air conditioners and ventilation?

Heat insulator saves your money and provides extension of service life of pipeline, ventilation and air conditioning system as well.

Proper installation and high-quality materials ensure reduction of heat loss and provide protection of your pipes, air conditioner and ventilation from any impact.

7 indicators for choosing heat insulation

1

Thermal conductivity and density

are determinants of heat insulator layer thickness
and load on the pipeline

2

Thermal resistance

maximum and minimum temperatures at which the material retains its properties

3

Elasticity and compressive strength

ensure the form and structure stability in case of installing in the ground

4

Bioproofness and resistance to aggressive environments

are important for long-term operation of the materials under the ground and on the surface

5

Flammability and content of harmful substances

the extent to which the substances in heat insulation meet sanitary and hygienic requirements, as well as fire safety regulations

6

Easy installation

how easy and quick covering the pipes with insulation can be with saving money on the services of specialist and materials for installation at the same time

7

Water resistance

ability of the material to repel moisture

Fields for application of heat insulation

Industrial and civil construction, renovation

Heating, water supply, sewerage, ventilation, air conditioning, refrigeration

Oil refining industry

Arrangement for plants, oil platforms and oilfields

Industrial cooling

Heat exchange equipment and fast-freezing equipment, industrial cooling systems and cooling systems for home

Cryogenics

Equipment of tanks, storage reservoirs, storage and gasification system pipelines

Fields for application of heat insulation

Military facilities and special facilities

Spaceports, aerodromes and military infrastructures

Liquefied natural gas

Arrangement for tankers, storage facilities, transport means and plants

Shipbuilding

Tankers, naval and civil ships

Solar energy

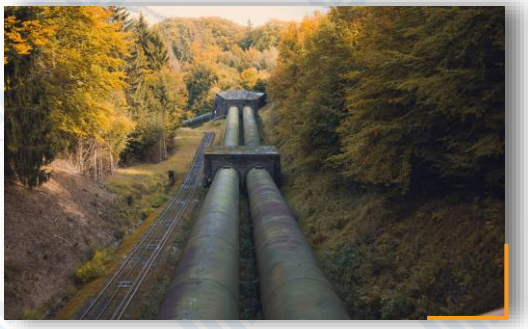
Solar heating panels, supply and discharge steel and copper tubes

3 main functions of heat insulation

Keeping the temperature inside the facility

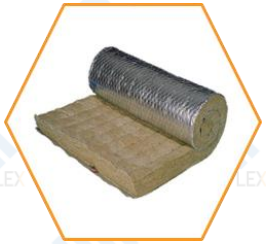
Protecting the system from damage

Extending the service life for operation of the facility

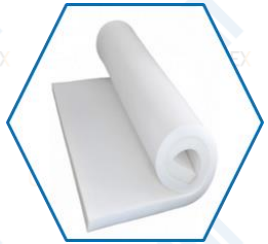


Types of heat insulation

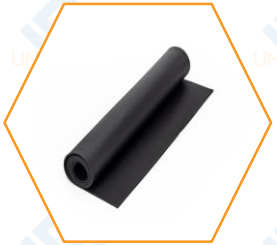
Mineral wool



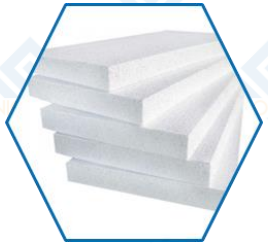
Polyurethane foam



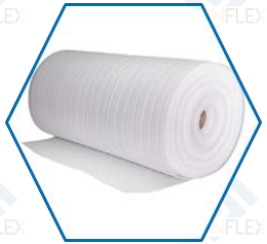
Foam rubber



Foamed plastic and polystyrene foam



Polyethylene foam



Mineral wool

Advantages

- Moderate price
- Non-flammable material
- Low thermal conductivity
- Ensuring fire safety (the material does not inflame even at 400 ℃)
- Biological and chemical stability

Disadvantages

- Lack of moisture protection (the material absorbs water forming mold)
- Heavy weight of the materials which will affect the cost of delivery, unloading and installation

Foamed plastic and polystyrene foam

Advantages

- Convenient to install
- No rotting
- Moderate price
- Low water absorption
- Excellent heat insulation
- Light weight
- Artificial origin of the material (it protects the pipes against microorganisms underground)

Disadvantages

- Highly absorbent
- Burns well and releases toxic substances
- Emits styrene (toxic substance) at low positive temperatures
- Destroyable by mechanical impact and sunlight

Polyurethane foam

Advantages

- Low thermal conductivity and water absorption (because of cellular structure)
- Non-rotting and resistant to mechanical impact
- Spray polyurethane foam is more dense, fire-resistant and its heat loss is less compared to polyurethane foam in the form of blocks

Disadvantages

- Degrades when exposed to UV rays
- Burns well (normally and highly flammable)
- Does not withstand mechanical impact
- A specialist and additional equipment may be required for installation (affecting the costs)

Polyethylene foam

Advantages

- Environmentally friendly material
- Does not burn (low-flammable) and does not release toxic substances
- Non-rotting, water and steam-proof, mold- and corrosion-resistant
- Sound-proof
- Easy to install due to light weight

Disadvantages

- Degrades when exposed to UV rays (it is not suitable for pipes, air conditioners and ventilation located on the ground surface and outside the residential and industrial premises)

Foam rubber

Advantages

- Environmentally friendly material
- Does not burn and does not release toxic substances
- Resistant to UV rays and mechanical impact
- Non-rotting, water and steam-proof, mold- and corrosion-resistant
- Easy to install (light weight and adhesive coating)

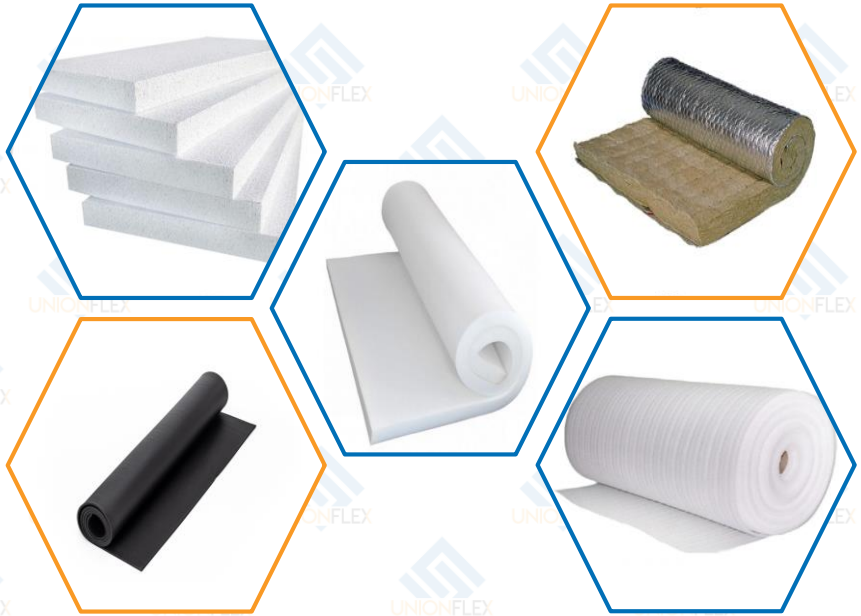
Disadvantages

- Relatively high price

Conclusion

There is no multi-purpose material, each type of heat insulation has its advantages and disadvantages

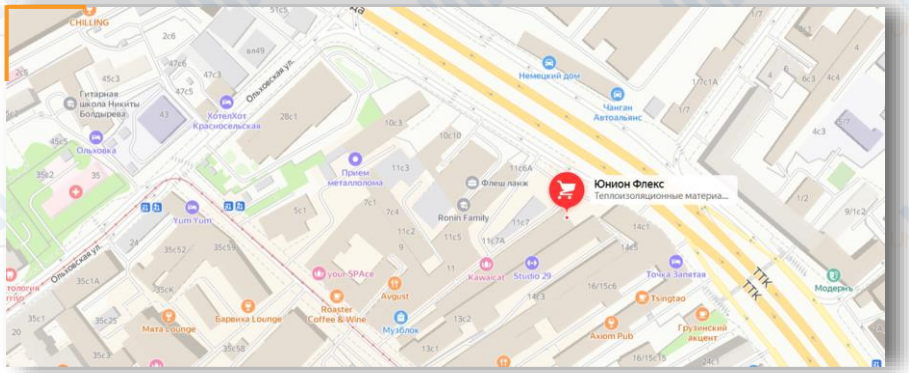
- If you want to save your money, choose foamed plastic
- If you want to save your money and you are ready for difficult installation, then choose mineral wool
- If you are highly interested in convenience, environmental friendliness and durability of materials, then it’s worth paying attention to heat insulation made of foam rubber



Notice for choosing heat insulation

Indicator	Mineral wool	Foamed plastic	Polyurethane foam	Polyethylene foam	Foam rubber
Thermal conductivity, W/(m·K)	0.04	0.035-0.04	0.03	0.04	0.035
Application temperature, ℃	from -60 to +450	from -100 to +80	from -100 to +150	from -80 to +100	from -200 to +110
Water absorption, %	10-15	4	1-2	0.6	0.6
Environmental safety	non-hazardous	emits harmful substances	non-hazardous	non-hazardous	non-hazardous, without asbestos
Flammability	non-flammable	normally and highly flammable	moderately, normally, highly flammable	low-flammable	low-flammable
Easy installation: from 1 (min) to 5 (max)	3	4	2-3	4	5
Service life, years	over 20	over 25	over 25	over 30	over 25

Contact information



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