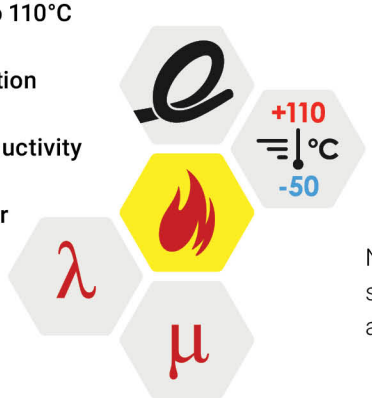
Why Protective Coverings are important for pipe insulation?

Heat flow is an inevitable consequence of contact between objects of different temperature [1].
In any application where water or any other fluid is cooled or heated and carried through pipes, or is preserved in any type of container, a significant amount of energy is lost due to this effect.

Thermal insulation provides a state in which thermal conduction is reduced, creating a barrier, which makes thermal radiation reflected rather than absorbed by the lower-temperature body [1]. By using the appropriate type of thermal insulation, the heat loss is prevented and energy (and therefore, in most cases money) is saved.

Nitrile Butadiene Rubber (NBR) Flexible Elastomeric Foam (FEF), such as ISOPIPE TC, is the most widely used type of thermal insulation, since it has a lot of advantages including:

- **great flexibility and ease of use**
- **very good reaction to fire, B-s2, d0**
- **temperature range that covers the majority of the applications, up to 110°C**
- **environmental protection**
- **very low thermal conductivity**
- **very high water vapour diffusion resistance**



However, outdoor weathering of any insulation material that will be subject to the harmful effects of ultraviolet radiation, ozone and oxidation is a concern [2].

Traditionally, in order to protect this thermal insulation, installers would paint it with a polyurethanic paint or wrap it with a PVC tape to extend its lifetime.
ISOPIPE TC SOLAR, is the first ever NBR FEF insulation that was produced with an external patented UV resistant polymer cover, that creates a barrier between the sun (and therefore the UV radiation) and the surface of the pipe.

ISOPIPE TC SOLAR, besides saving time for the installer, since no painting or wrapping is anymore needed, provides a series of advantages such as:

- **Extends the lifetime of the insulation, ensuring long term performance**
- **Enables the insulation to be installed outdoors**
- **Increases the water vapor diffusion resistance**
- **Allows the insulation to be cleaned, with a wet wipe and makes it appropriate for hospitals, or other places of hygienic interest**
- **Increases the mechanical resistance of the insulation**
- **Improves the aesthetic of the product**

Nowadays, all the NBR FEF insulation producers, provide several types of factory applied covers that offer lots of advantages as described above.

ISOPIPE S.A., *as a pioneer in the field of FEF insulation, provides a wide range of insulation covers with different properties covering all the market needs, such as*

SOLAR
the aforementioned polymeric cover in white, black and silver colour

SOLAR TWIN
polymeric film that combines two pipes and optionally an electric cable

UV PLUS
100μm triplex Aluminum cover

SOLAR SG
the same properties as SOLAR Covering in corrugated form, white colour

HP
for hygienic protection – only for indoor use

HEAVY DUTY
long term outdoor performance fire resistant 230μm Aluminum

As it is clear, protective coverings are essential when a rubber insulation is installed outdoors since they provide protection from decomposition by UV radiation. As the insulation technology moves forward, several options are developed, offering even more advantages, and providing solutions for more applications.

For more information, please visit our website *https://www.isopipe.eu/en/isopipe-coverings*

Sources

1. Sahu, D.K., Sen, P.K., Sahu, G., & Sharma, R. (2015). A Review on Thermal Insulation and Its Optimum Thickness to Reduce Heat Loss. *International Journal for Innovative Research in Science & Technology*, 2 (6). Retrieved from *http://www.ijirst.org/articles/IJIRSTV2I6001.pdf*

2. Schmidt, R. (1999). *Proper Use And Application of Flexible Closed-cell Insulation.* Retrieved from *https://insulation.org/io/articles/proper-use-and-application-of-flexible-closed-cell-insulation/*