



**Polybutene**  
Piping Systems Association

## Case Study

Italian Research Base | Antarctic



Thermaflex | Flexalen



[www.pbpsa.com](http://www.pbpsa.com)

## Italian Research Base | Antarctic

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### Channeling heat in extreme cold for a research base in Antarctica

During the planning of the Italian research base in Antarctica, The Italian National Research Council (C.N.R.) knew the extreme temperatures meant it would be an enormous challenge to deliver the hot water reliably and efficiently in such extreme conditions. Thermaflex Austria, together with Thermaflex Italy, equipped the Antarctic research base with an efficient, reliable and sustainable hot water supply.



The Italian scientific base P.N.R.A. is located in the Bay of Terra Nova. The National Program of Searches in Antarctica is located there to support and develop scientific and technological research in Antarctica, and studies several fields of global strategic interest such as global changes, climatic processes, the structure and evolution of the oceanic ecosystem, space weather and astrophysics.

The Polybutene pipes (Polybutylene, PB-1) (Flexalen 600 and Flexalen 1000+) required for the Research Base and all necessary tools and accessories for electrofusion welding were shipped from the Ancona Harbour in Italy, directly to Antarctica.

## Italian Research Base | Antarctic



### Details

The Italian National Research Council (CNR), a public organisation, to conduct, promote, transfer and improve research activities in the field of 'scientific advancement'. It also looks at how this knowledge can be applied for technological, economic, and social development.

### Goals

The Antarctic Research base project required a dependable, low-maintenance solution for the research center's underground hot water. The extreme temperatures in the Antarctica posed a significant challenge to this objective because of the possibility of frozen, cracked pipes. Additionally, they were looking for an easy installation of a sustainable and problem-free hot water supply in the difficult conditions, including placement on permanently frozen ground.

### Results

In total, 460 meters of Flexalen 600 and 390 meters of Flexalen 1000+ were installed to connect the power plant and the main building. Before they decided to use Flexalen PB-1 pipes, they had the pipes tested by the C.N.R. (National Research Council) in a climatic chamber at -80°C. This conclusively demonstrated they were fit for purpose.

### Organisations

P.N.R.A. (Antarctica Italian Base) [www.pnra.it](http://www.pnra.it)  
C.N.R. (National Research Council) [www.cnr.it](http://www.cnr.it)



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