



**Polybutene**  
Piping Systems Association

## Case Study

Villa Mercedes, AR



Thermafex | Flexalen



## Villa Mercedes, AR

Thermaflex | Flexalen



### Clean local biogas energy from renewable animal and plant feedstocks

This central Argentine biogas plant is located on a major farming complex in the province of Villa Mercedes, three hours from Rio Cuarto and five hours from Cordoba City. It is the first biogas plant in Argentina that complies with international quality standards for pig export and is deemed ecologically sustainable.



On the estate, 30,000 pigs produce 1.5 tons of excrement every day. This renewable energy source, combined with the farm's sorghum and maize plant waste feedstocks supplies a clean local biogas energy plant constructed using the Thermaflex company's Flexalen piping system made from Polybutene-1.



### Villa Mercedes, AR

Biogas is a mixture of gases, produced from biomass raw materials that are used as fuel to produce electricity, heating or cooling. Biomass materials are recurring feedstocks, often by-product materials which would otherwise be wasted, including wood production, agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. It is a renewable energy source.

Biogas is produced inside a biodigester, anaerobic digester or a bioreactor. Almost all equipment installed in the Villa Mercedes biogas plant was imported from Germany.

At Villa Mercedes biodigesters process the decomposition of the mixture to produce the biogas, which fuels the internal combustion motor to generate 2.4 MWh. From the biogas plant, a highly efficient energy distribution is delivered using the Flexalen PB-1 piping system, so that only 25% of the energy produced is used on the farm, with the remainder sold to the local electricity company.

Because of this successful outcome, the biogas plant is being expanded and new barns are under construction. These will be used for additional pig breeding, thus widening the local energy supply through additional manure feedstocks.

#### Goals

Prior to the biogas plant, the local energy supplier could only produce 75 kWh, while demand reached 250 kWh. Therefore an increased energy supply was critical to make up the shortfall. The production of heat from the cooling system brings the water to a temperature of 65°C.

Additionally, an additional system was implemented to allow the hot water usage to clean the pig area floors as well as the transportation of sorghum and maize across the entire plant.

#### Results

- 1,400 meters of pipes surrounding the countryside of the plantations were connected, mostly using with the pre-insulated Flexalen twin pipe 63 mm ø and Flexalen 75 mm ø made from Polybutene-1.
- With Flexalen, the installers could install 900 meters in one day (twin pipe 450 meters), a significant reduction of the installation time.



#### STATISTICS

- **30,000 pigs** eating and producing
- **1.5 tons** of excrement per day, used as biogas feedstock
- **2.4 MWh** of electricity
- **75%** is sold to the local energy company
- **1,400m** of Flexalen 600 installed made from PB-1
- **900m** were installed in only 1 day

## Villa Mercedes, AR

### The choice for Flexalen

Flexalen pre-insulated PB-1 pipe system made by Thermaflex was chosen because of its low thermal conductivity, its easy installation, its reliable welding technique, its great strength and long lifetime. Because of the energy loss values, the transport of hot water with Flexalen is very efficient.

