



Home Biogas

• Theory

The biogas is a renewable energy different from the natural gas which needs to be extracted. It's produced by the fermentation (or anaerobic digestion) of biodegradable materials such as manure, sewage, municipal waste, green waste, plant material and crops. The bioprocess is called methanization.

Every day, from this fermentation of 40 to 60 days, you obtain mainly 50 to 75 % of methane (CH_4) and carbon dioxide (CO_2). Methane gas can be combusted with oxygen. It's 23 times more pollutant (greenhouse) than carbon dioxide that why it's better to burn it. This valuable resource allows acquisition of autonomy and in the same time stop polluting sources of energies. From this renewable energy different applications are possible:

- Electricity generator (gas motor)
- Heating
- Cooking
- Decomposition of organic waste
- Production of fertilizer (composting)

• Practice

In this application, the biogas is produced by fermentation of cow dung. Bacteria needs 20 to 30 times more carbon than nitrogen (Ratio $\text{C/N}=30$) and the cow dung ratio is 24 ($\text{C/N}=24$) therefore effective. Cow dung is diluted two times with water and goes into an airtight cylinder of 3m^3 . This system allows producing quantities of gas to sustain the community kitchen.

• How it works?

As the shown below, the system function is self efficient thanks to the pressure created by fermentation. The first, is a feeding chamber where fresh cow dung (approximately 40 to 50 kgs), is mixed with water which in turn releases methane into the 3m^3 cylinder which get stored here released through the gas outlet, the waste cow dung gets released through pressure in the form of slurry which is used as a fertilizer.

