

## THE MEMBRANE, THE STAR PIECE

Or in other words the piece that is responsible for the final product.. It's true that all the pieces of the plant are in service and that on all of them depend a large part of the quality of the water produced, but it is also true that without them, without these structures of organic material- a polymer called poliamide- the water the water after all the processes we've described would continue to be salty. It is in this phase, , after passing these membranes, that the liquid divides in two parts, forty-five percent of totally pure water and fifty-five percent of terribly salty water. Nor must it be said that these membranes are also responsible for the high financial cost of the plant.

On the right is a cross section of a membrane.

## THE OSMOSIS ROOM

In this room is the most sophisticated and expensive machinery of the plant.: The membrane frames and the pressure pumps. Logically, there is a huge range of auxiliary equipment, amongst which must be pointed out indispensable equipment that controls certain parameters: the PH, the cloudiness, and the conductivity. If one of these parameters does not correspond with the specifications of the water, then it is discharged by a waste pipe and doesn't pass by the osmosis process.. This is so that it doesn't damage the membranes or their frames.

## OSMOSIS ROOM: MEMBRANE FRAMES

There are four membrane frames , each one is capable of producing seven thousand tons of pure water each day., which signifies that the process flow is slightly more than double that. The capacity of the plant , at present is therefore twenty-eight thousand tons per day and it is planned to expand it with another two production lines, thus fourteen thousand tons more.

The steel tubes take away the salty water to the disposal point , while the blue pipes transport the treated sweet water.

## OSMOSIS ROOM : PRESSURE PUMPS

As with the filter units there are five units of pressure pumps, leaving one of those always in reserve in case of a breakdown. They are powered by a motor of more than one thousand horsepower, capable of creating a pressure of more than seventy five atmospheres. This requires a supply of one thousand –eight hundred kilowatts. An ingenious and efficient process of recovery of energy means that the consumption is reduced to one thousand –two hundred kilowatts. This is because the water enters in the frames it has a pressure of sixty-seven atmospheres of which only six or seven are used to move the water round the network. The remaining energy is used to power a turbine generating power that can therefore cause savings up to thirty-five percent.