



## SOLVING A DIFFICULT PROBLEM IN THE PAPER MILL

Company: Alier Papel  
Location: Rosello, Spain  
Sector: Paper Industry



Alier Papel is a very old paper manufacturing company in Spain. Established in 1833 it manufactures 170,000 tonnes of paper each year.

### The Problem:

Alier Papel reuses treated water from the existing Waste Water Treatment Plant to feed the liquid seals of sixteen vacuum pumps, divided in two groups one of seven and one of nine units which are used in drying pulp drums. The water is very hard due to the chemicals used in process. The main parameters are:

Parameter	Units	Value
pH WWTP exit		7,3
pH after CO <sub>2</sub> treatment		6,5
Temperature	°C	25
Conductivity	µS/cm	2100
Total hardness as CaCO <sub>3</sub>	mg/L	690
Calcium hardness as CaCO <sub>3</sub>	mg/L	590
COD	mg/L	30
Chloride	mg/L	210
Alkalinity	mg/L	780
Flow	m <sup>3</sup> /h	180

In order to avoid scale, the water was dosed with 3000 kg of CO<sub>2</sub> each day. Despite this Alier were still experiencing pump break downs



### The Solution:

Alier paper approached Fluid Dynamics asking them to provide a solution.

Due to the hardness of the water to be treated, it was decided that a MagCAT 150, 6" diameter should be installed in the main feed pipe carrying the recycled water treating the whole flow of 180 m<sup>3</sup>/h. MagCAT is a newly patented powerful anti-scale treatment which combines both magnetic and catalytic treatments methods.

MagCAT uses no chemicals, no electricity and has no moving parts . It is completely maintenance free.



Picture of the 6" MagCAT Installed at Alier Papel

### Results:

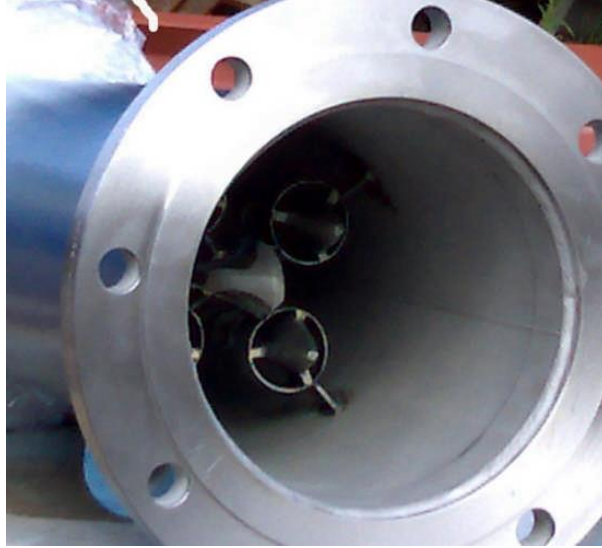
When the MagCAT 150 was installed the CO<sub>2</sub> dosing was gradually decreased. After three weeks the CO<sub>2</sub> addition was completely eliminated. Six months later there have been no break downs. The visual inspection inside the pump bleed pipes (one of the most critical scale points) shows no scale formation whatsoever.

### Savings:

The cost savings from eliminating daily CO<sub>2</sub> dosing allowed a pay-back period of less than five months and this is without taking into account saved maintenance costs and of course savings due to the fact that there was no lost production and finally no CO<sub>2</sub> going into the atmosphere.

*The engineering management at Alier approved the issue of this case history*





An internal view of a MagCat

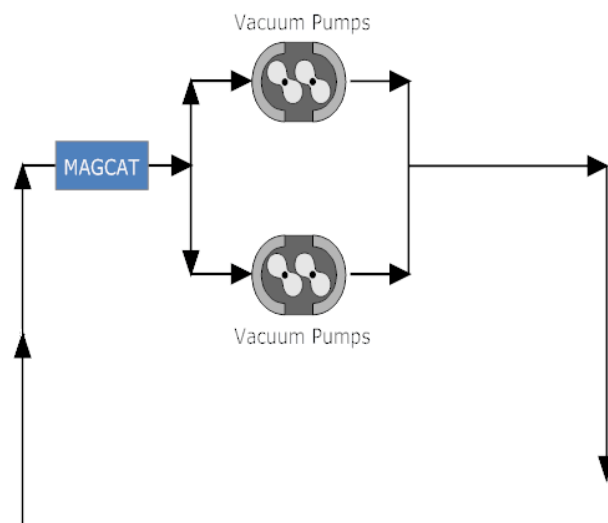
**Other paper mill installations:**

**Kimberly Clark UK**

5" MagCAT for vacuum pump protection at Barrow Paper Mill

Compressor cooling water circuit protection at Ayelsford

**Sappi Graphic** - Vacuum Box protection



**A Typical Installation Protecting Vacuum Pumps**



## Other MagCat installation examples:

### UK Atomic Weapons Establishment Reading (AWE)

Installed a combination of MagCAT products to treat scaling in pumps and pipelines of combined reject stream from a softener, R.O and iron removal systems.

The pipeline previously required cleaning every 1-3 months, pumps required regular cleaning and replacement of impellers.

Since installation (over 2 years) there has been no downtime for cleaning, no replacement parts for pumps, system now operating scale free.

### Cotto Tiles, Thailand

The customer had a 5" pipeline with severe scale and silica build up. Scale thickness inside the pipe was an average of 10mm before installation. 6 months after the installation of a MagCAT unit the scale had reduced to an average of just 3mm.



Before installation

6 months after installation

