

## BLYGOLD POLUAL: EXTRA ENERGY SAVING!!

If corrosion occurs and pollution will adhere - without any corrective or preventive measurements - the performance can decrease dramatically.

And if we speak about the performance of a coil, which is related to airside pressure drop and thermal resistance, everybody knows that a treatment and professional cleaning is not only the key to a longer life time of the coil, but what is more important; saving money on the energy bill.

This was found again in an independent test at the France company Rexan Beauty, located near Lyon. This cosmetics manufacturer has had a chiller (RTAB 212) for over there years. It is used for the manufacturer's production process, which runs 16 hours a day, 365 days a year.

The annual maintenance of the coils - which were made from aluminium without protective coating - during this period was periodical rinsing.

However, after they found that the coils - partly as a result of this - were extremely dirty, Rexan Beauty decided to have the coils professionally cleaned and treated with Blygold poluAl.

Subsequent measurements showed that the coil performance increased:

- Lower pressure drops
- bigger air capacity
- better heat transfer

### MEASUREMENTS

DATE	TYPE OF MEASUREMENT	BEFORE TREATMENT	AFTER TREATMENT
CIRCUIT A	PRESSURE DROP Pa	110	80
	AIR SPEED m/s	1,13	1,97
	AIR FLOW m <sup>3</sup> /h	16957	29594*
CIRCUIT B	PRESSURE DROP Pa	105	95
	AIR SPEED m/s	1,511	2,23
	AIR FLOW m <sup>3</sup> /h	22735	33614

\* note : in the past they changed a fan into a wrong position!

Impressive figure, which conclude tremendous energy savings, and are easy to quantify:

#### Starting point

Increase of condensing T by 1°C, KW input increases by 1,75%

Increase of condensing T by 1 °C, cooling capacity decreases by 1,1%

#### Energy input

18 (Δ T) \* 1,75% = + 31,5%  
= 151,4 KW, an increase of 36,2 KW

#### Cooling capacity

18 (Δ T) \* 1,1% = - 19,8%  
= 280,8 KW, a downfall of 69,3 KW

#### Energy consumption

- 36,2 KW per hour = 579,2 KW per 16 hours (one day)
- Annual extra energy consumption 211408 KW
- Average price per KW US\$ 0.125



"A Blygold treatment in the workshop"

If treated with PoluAl coating and cleaned thoroughly twice. During the 5-year warranty period, the condenser would deliver its nominal performance. Provided the fouling conditions and cleaning by the customer. Compared to the cost of this treatment and the costs of increased energy consumption, this means that the **pay back period would be app. 2.5 months.**

Blygold warrants the anti-corrosion treatment for at least five years, incl. a two time thorough cleaning by certified engineers.

#### Note

The pay back period will differ in each scenario. The differences between a five year Blygold treatment and the increase of energy costs are tremendous. However, it is fair to conclude that a non feasibility-case rarely occurs.

### Technical information of the unit at Rexan Beauty

* Unit	RTAB 212
* Compressor	SCREW
* Circuits	R22
* Surface coil	TWO
* Coil design	11,6 m <sup>2</sup> (faces area)
* Normal cooling capacity	Slit fins, 17 FPI
* Normal KW input	350,1 KW ( T air inlet = + 30 °C, T water outlet = + 7 °C
* Normal air debit	115,2 KW ( T air inlet = + 30 °C, T water outlet = + 7 °C
* ΔT Nominal condensing temp.	± 33500 m <sup>3</sup> / h per circuit
* ΔT Measured condensing temp.	15 °C
(before PoluAl treatment, and cleaning)	33 °C (increase of 18°C)