

## CASE STUDY

# AHLSTAR WPP pump provides flexibility in design to meet customer requirements

Fluorine salts production is a part of the phosphoric fertilizer process. The manufacturing process has two steps of absorption – an important part of the process. The pumped liquid is very difficult – it is both corrosive and abrasive. The temperature is high, too, and some cavitation is also present. The solids amount is high. The particles are fine, but they are very abrasive. The solids are partly SiO<sub>2</sub>. So, a combination of many factors is present.



AHLSTAR WPP44-150 pump

### The Sulzer difference

We are committed to supporting our customers' competitiveness and profitability. We have a proven track record of design innovations creating reliable, safe and energy-efficient products. Combined with a professional approach, this brings positive results.

### The challenge

Originally the customer had a locally made pump with a short lifetime (about three months). The target was to get a longer lifetime of the wetted parts (one year) at a reasonable price. The application is complex, so the final solution came after three trials.

### The solution

At first, Sulzer selected the AHLSTAR WPP wear resistant pump with open impeller in 4U material and with a dynamic seal. The pump operated for about a year after which it was worn out heavily with extensive abrasion discovered. After examining the affected surfaces of the wetted parts, we decided to try the 4L material in order to get a lower cost of the pump. About the same lifetime was achieved. Finally the longest lifetime was achieved by using the EH (hardened 4L) material (300 HB hardness).

### Customer benefit

In this case the best possible combination of pump type and pump material was found after several trials. As a result, an optimum solution between the price and lifetime was found. More pumps were ordered for the same application.

#### Pump data

|                               |  |
|-------------------------------|--|
| Pump                          | AHLSTAR WPP44-150, open impeller, dynamic seal |
| Original serial number        | 100008720                                      |
| Later delivered serial number | 100098624                                      |
| Material                      | EH (4L HB300)                                  |
| Capacity                      | 90 l/s   |
| Head                          | 45 m   |

#### Process data

|                                    |               |
|------------------------------------|---------------|
| Fluoric ammonium NH <sub>4</sub> F | up to 700 g/l |
| Temperature                        | 90°C          |
| Solids                             | 450 g/l       |
| Solids size                        | 20-40 mkm     |
| Density                            | 1'400 g/l     |

### Contact

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### Applicable markets

Fertilizer industry

### Applicable products

AHLSTAR pumps

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