

Case Study

AHLSTAR APP Pump, the Perfect Solution for Corrosive Liquid



AHLSTAR APP11-50 Pump

The Sulzer Difference

The combination of correct material selection, seal selection and seal arrangement gave a perfect result and a satisfied customer.

Project Highlights

In the phosphoric fertilizer manufacturing process, fluorosilicic acid (H_2SiF_6) is a by-product. It is the end product of phosphoric acid production (reaction). The process requires pumping at different concentrations. The customer uses fluorosilicic acid in different departments such as fluorine salts manufacturing.

The Challenge

The biggest challenge in pumping is strong fluorosilicic acid (up to 20%). At this concentration, it is very corrosive. In addition, the liquid contains very fine solids (SiO_2 gel). This combination is a challenge for the material selection. The material should be both corrosion resistant and abrasion resistant.

The Solution

Avesta 654 SMO was proven to be the best material for this application. The elastomers for the seal should also be selected carefully, because they should withstand this liquid. The customer also required a reliable water supply system, so Thermosyphone AesSeal with a level switch was proposed.

Customer Benefits

The selected pump features minimized lifecycle costs and improved process reliability.

Pump Data

Pump	AHLSTAR APP11-50, ser. no 100092935, double mechanical seal Burgmann
Material	4U
Capacity	70 m ³ /h
Head	50 m
Speed	3000 rpm
Motor power	30 kW

Process Data

Fluorosilicic acid	
H_2SiF_6	20%
Temperature	30 °C max
γ	1180 kg/m ³
Solids	10 g/l (SiO_2 gel)
Solids size	0.01 mm

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Applicable Markets

Fertilizer Industry

Applicable Products

AHLSTAR Pumps