

## **“Optimizing Axial Flow Pumps in Evaporator Circuits”**

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### **Bio:**

Krebs has more than 30 years experience in pumps applied in energy, mining, fertilizers and chemical processing markets. He has held management and executive positions at GIW Industries, AR Wilfley and Sons, Inc., Ensival Moret America and at Sulzer pumps with special focus on business development in fertilizer markets. Mr Krebs has served on the Hydraulic Institute Committee for Rotodynamic Slurry Pumps and is a member of SME. He has presented technical papers at ANNA; "Safe Application and Operation of Vertical Pumps in Ammonium Nitrate" (2013), "Safe and Reliable Handling of Ammonia via Canned Motor Type Pumps" (2014) and "Vacuum Cooling Evaporator, Low Level Flash Cooler Pump" at the 37th Clearwater Conference in 2013.

### **Abstract:**

Axial Flow Pumps are commonly applied in evaporator / crystallizer circuits, which remove water to concentrate a process product. Evaporation in phosphoric acid production for example is employed to achieve higher phosphoric acid concentrations. This recirculation pumping application requires a high specific speed pump which provides high flow rates at relatively low discharge pressures. Evaporation is a 24/7 operation where pump performance and reliability are important to achieve high plant efficiencies and high production rates. This technical paper presents useful guidelines and understanding for proper pump selection considering hydraulic criteria, materials, sealing and installation options. Critical operational and maintenance points will be presented along with successful upgrade of equipment in the field.