Efficient cooling Tower water filtration through automatic backwash filters

Stefan Schöpf MSc, Lenzing Technik GmbH, Lenzing, Austria; presenting author,

Water is an important utility in production plants in almost every industry. One main purpose is cooling of industrial processes. One of the most common means of controlling the temperature of cooling water is the open (evaporative) cooling tower.

Introduction

These open cooling towers allow particles from surrounding environment, e.g. dust, pollen etc. to enter the cooling water circuit. These impurities can cause dis-functions as well as efficiency loss within the system by clogging spray nozzles, fouling Evaporation surface or heat exchanger or damaging pipework through erosion.

Preventing efficiency loss and damage in cooling water systems

To maintain the efficiency of the system and to prevent damages, filtration is required. Due to the typically high flow rates within these cooling water loops, the filtration happens in two steps. Step one is a rather coarse full stream filtration at 200-300µm to remove the majority of particles, typically very robust and comparably inexpensive wedge wire filters are used for this purpose. Step two is a fine filtration step in a 3-5% bypass, which should prevent accumulation of fines in the cooling water system.

As this step is very crucial to maintain the water quality it needs a reliable equipment able to do very fine filtration at 10-20µm.

Technology

An advantageous alternative to commonly used media filter provides the Lenzing OptiFil®. Due to its patented backwash mechanism it combines the smart benefits of automatic backwash system like a small footprint, simple periphery and low hold up volumes with the pros of media filters like eminent filtrate quality and long intervals between maintenance requirements.

This paper describes how the automatic backwash filter Lenzing OptiFil® adds value to cooling water systems in various examples.