

Case History no. 12 – Ferric Nitrate Filtration

Fluid : Ferric Nitrate (known as alum)
Temperature : ambient
Pressure : 3 – 4 barg
Flow rate : 600 lph
Line size :

Problem:-

A client who produces Ferric Nitrate used in municipal water treatment plants by the local authorities was required to improve the purity of some bathes for particular customers. They wanted to filter it to a level of 0.4 – 0.5 microns and achieve a flow rate of 600 lph.

Solution: -

As neither they or Hall Pyke had experience of filtering this fluid and it would be difficult to predict how it would handle at such a low sub micron level of filtration. It was believed that the contaminants were all very fine and of a fairly uniform particle size range. They needed to filter some product quickly so we suggested conducting a trial with a filter we had stock and then size up based on the results from this. We gave them a filter and a 20” single open ended 0.2 micron membrane cartridge (0.2 membrane would effectively provide sterile filtration and thus might block quickly and lose flow rate quickly (they found that they could get a flow rate of 150 lpm through this single 20” 0.2 micron filter).

Result:-

Based on this information we recommended a filter housing requiring 4 off 30” long filter cartridges with a retention rating of 0.5 micron absolute. They purchased this unit and it proved to meet their requirements full and they are a regular user of cartridges.