**Fungi** are a kingdom of organisms encompassing approximately 1,500 known species including yeasts, moulds, and mushrooms. Within the world of microscopy, fungi come in various shapes and sizes. Fungi can appear rigid, irregular, curvy, bent, and even contain branching.

Fungi in wastewater are usually located within the floc structures and typically stain Gram negative and Neisser positive (see Figures 2 & 3). Typically, the appearance of fungi within activated sludge plants are associated with high sludge ages and low pH.

Fungi can be common in the effluent of biotowers and trickling filters. High fungal concentrations can cause sludge bulking impacting settling. In activated sludge plants, high fungi concentrations can prove more difficult dewater causing increased polymer consumption.

**Figure 1:** Yeast cells within a wastewater sample

For activated sludge processes we don’t typically see a lot of fungi, with most observed under the microscope being yeast cells (see Figure 1), typically from trade waste from food and beverage industries (mainly wine and beer production). Here yeast cells are involved in the fermentation process of converting sugars into alcohol.

The appearance of yeast cells is not strictly limited to food and beverage industries. Yeast in activated sludge processes may also be associated with low DO conditions (fermentative), low pH or severe P deficiency.

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