

# Fact sheet Scientific terms



## Scientific terms

**Aluminium sulphate** Commonly known as alum. It is added into the water to begin the process of coagulation. The pH must be maintained at a stable level for alum to be effective.

**Caustic soda** is used to lower the pH level in the water prior to adding alum.

**Chloramine** is a long lasting disinfectant formed from chlorine and ammonia. Chloramine is added to the water in the final treatment process. Ammonia helps lengthen the life span of chlorine in the water.

**Chlorine** is added to the water at the end of the treatment process. It is important to add chlorine to help remove micro-organisms, bacteria and viruses from the water.

**Coagulation** Alum is added to the water and flash mixers circulate it through the water during this process. This destabilises the particles found in the water.

**Dissolved air filtration (DAF)** A process to help remove the finer 'floc' particles from the water that were not removed in the sedimentation basins. A pressurised stream of water, saturated with air, is injected into the water, causing a large formation of very fine bubbles to become attached to the 'floc' particles. The particles float to the surface, forming a 'sludge blanket' on the top of the water that is then removed.

**Fluoride** is added to the water at the end of the treatment process as a protective dental health measure.

**Flocculation** occurs when suspended particles in the water clump together. This is known as 'floc'. Lime and/or caustic soda may be added to ensure the pH level of the water is at the right level for flocculation to occur.

**Lime** is used to lower the pH level of the water prior to adding alum.

**pH** is the chemical measure of the acidity or alkalinity of water. The pH range is from 0 to 14, and a neutral pH is between the ranges of 6.8–7.2. In order for flocculation to occur pH must be neutral.

**Powdered activated carbon (PAC)** is used in the initial stages of treatment to remove compounds from algae that may cause taste and odour issues in treated water.

**Sand and anthracite filters** are one of the older forms of water purification and has occurred naturally in the environment for thousands of years. Under carefully controlled conditions, water flows through the filters. The filters remove any remaining floc from the water.

**Sedimentation tanks** Water is slowly moved into large sedimentation basins that resemble swimming pools. The 'floc' (particles in the water) bind together and sink to the bottom of the basins. The settled 'floc' is now known as sludge. Large vacuums sweep the bottom of the sedimentation basins to remove the sludge.

**Sludge** is a waste product formed through the water treatment process. The sludge is collected and transferred to a centrifuge on site, which removes any remaining water. The removed water is processed again by the water treatment plant. The sludge is used as landfill.

**Turbidity** is the level of suspended material in the water. Suspended materials include dirt, clay or other particles.