

Question 27 (5 marks)

Describe the physical and chemical processes needed to purify and sanitise a town water supply.

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The physical and chemical process needed to purify and sanitise a town water supply would be to:

Step 1: Aeration of the water - in the process the water is aerated so that flocs are readily formed and easier to deal with.

Step 2: Flocculation: the addition of alum to the aerated water forms coagulants of solids to form bigger particles so that they can be collected.

Step 3: Sedimentation - the flocculated water is allowed to sediment, where a sludge forms and is removed.

Step 4: Filtration - the water is now passed through a filtration consisting of sand and gravel. The water should have a turbidity of no greater than 3 NTU.

Step 5: Chlorination - the water is now chlorinated to kill bacteria such as E-coli. Chlorination sanitises the water.

Step 6: Fluoridation - fluoride is added to help prevent tooth decay.

Throughout the process needed to purify and sanitise water supply constant checking and monitoring must be done to ensure water quality passes the guidelines of potable water.