Water Treatment in Hong Kong

Raw Water and Drinking Water

Hong Kong's water comes from two sources: from rainfall collected in local catchments and from the Dongjiang in Guangdong. For the raw water to become drinking water, it has to undergo a series of treatment processes to ensure that the treated water is in full compliance with drinking water standards.

Raw Water Treatment Process

During the water treatment process, raw (untreated) water is pre-treated by dosing with chemicals and then passes to the clarifiers for removal of relatively large particles and impurities. Clarified water then flows into filters for filtering out the more finely divided particles. The filtered water is disinfected before supply to the public. A small amount of residual chlorine is maintained in the water to prevent bacterial growth on the rest of its journey. Fluoride is also added for dental protection.

(Diagram) Typical Water Treatment Process

Pre-treatment

Various chemicals may be added into raw water as pre-treatment to facilitate the subsequent treatment process:

- Polyelectrolyte – to facilitate coagulation
- Alum – to coagulate impurities
- Hydrated lime – to adjust pH
- Chlorine – to control algae growth and oxidise impurities
- Potassium Permanganate – to facilitate removal of manganese
- Ozone – to oxidise impurities, control algae growth and remove taste & odour
- Powdered activated carbon – to remove taste & odour

1. Clarification
   To remove the large floc particles formed after flocculation

2. Filtration
   To remove the more finely divided suspensions

3. Disinfection
   To suppress biological growth & disinfect the water

1. Clarification

Water treatment works in Hong Kong use different technologies of clarification to flocculate and remove impurities in the water, which include:

Multi-deck Sedimentation
Constructed as a three-tray tank to save space.

High Rate Lamella Sedimentation
Impurities settle more quickly to the bottom via the inclined tube installed in the tank.

Solids Contact Clarification
Remove impurities through mixing to facilitate aggregation and settle to the bottom.

Dissolved Air Flotation (DAF)
Impurities adhere to tiny bubbles formed by dissolving and releasing air in the water and then float to the surface where they are removed.

2. Filtration

The technologies of filtration used in Hong Kong include:

Rapid Gravity Filtration
Use anthracite, sand and other granular media to remove more finely divided suspensions.

Biological Filtration
Use bio media, sand and other media to remove more finely divided suspensions, ammonia and organic matters.

3. Disinfection

Apart from adding chlorine, the filtered water may be disinfected by ozonation in the contact tanks.

Chlorination
Advantages:

- Cost effective
- Provide residual in the distribution system
- Effective oxidant for iron, manganese, colour and taste & odour

Ozonation
Advantages:

- Need short contact time for disinfection
- Very effective oxidant for iron, manganese, colour and taste & odour
- Reduce chlorine consumption

Published by the Water Supplies Department
2026 Edition