

RAPID SAND FILTER / MECHANICAL FILTER

- 2 types

1. Gravity type (Paterson's filter)

2. Pressure type (Candy's filter)

Steps

1. Coagulation - Raw water treated with alum - 5 mg/ Liter

- 2. Rapid mixing - Violent agitation in a mixing chamber

3. Flocculation - Slow & gentle stirring of treated water in flocculation chamber for 30 min, Results in formation of thick, copious, white flocculent precipitate of

Aluminum Hydroxide

4. Sedimentation - 6 hours - Flocculent precipitate along with impurities

& bacteria, settles down - 5. Filtration - Partly clarified water is now subjected to rapid sand filtration

- Filter bed - Sand, Gravel, Perforated pipes

- Alum floc not removed by sedimentation is held back on the sand bed & forms a slimy layer which absorbs bacteria & oxidizes ammonia

- Rate of filtration - $5 \text{ m}^3/\text{m}^2/\text{hour}$

- When the loss of head approaches 7 - 8 feet, filtration is stopped & filters are subjected to

backwashing

- FILTER CLEANING
- Backwashing
- Reversing the flow of water
- Sometimes air is used •

ADVANTAGES

- Occupy less space
- Filtration is rapid
- Washing is