



FRUITS (35gms)

NUTS/SEEDS

LEGUMES · EGG / FLESH

MILK/CURD, LEGUMES

CEREALS
250 gms

FRUIT

VEGETABLES

DIVYANAM

GPS Map Camera

Ganesh Ganj, Rajasthan, India



Mangta Rd, Ganesh Ganj, Rajasthan 326033, India

Lat 24.424962° Long 76.56502°

Thursday, 26/02/2026 02:09 PM GMT +05:30



Google



GPS Map Camera



Ganesh Ganj, Rajasthan, India



Mangta Rd, Ganesh Ganj, Rajasthan 326033, India
Lat 24.424962° Long 76.56502°
Thursday, 26/02/2026 02:08 PM GMT +05:30

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SLOW SAND FILTERATION

FOUR ELEMENTS

1. Supernatant Water
 (a) Promotes the downward flow of water through the sand bed.
 (b) Provides resting period of 3-12 hours for raw water to undergo partial purification by sedimentation, oxidation and particle agglomeration.
 (c) The level of supernatant water is always kept constant.

2. Sand Bed
 (a) This is 1-meter thick bed of sand grains of 0.4 to 0.3 mm.
 (b) This bed is supported by 30cm of graded gravel, which also prevents the entry of fine grains into drainage pipe.

→ Sand bed gets covered with slimy and gelatinous layer of algae, planktons, clabtons and bacteria, called Vital layer or biological layer or Schmutzdecke layer.
 → The formation of Vital Layer is k/a ripening of filter.

3. Under-Drainage System
 (a) These are porous pipes which serve as outlet for filtered water and support the filter medium.

4. Filter Control
 (a) These are certain valves and devices, incorporated in the outlet pipe. They maintain a constant rate of filtration.



RATE OF FILTRATION
 100-400
 lit/hr/m² area

Ventilometer -
 which measures loss of head (bed resistance).
 Regulates valves to maintain a steady rate of filtration.

FILTER CLEANING -
 → This filter runs for weeks to months without cleaning.
 → Filter bed should be cleaned, Supernatant water is drained off and sand bed is cleaned by scraping the top layer to a depth of 1-2 cm.
 → After using 20-25 scuffing thickness of sand bed reduces to 6-8 mm. This filter is cleaned.

DISADVANTAGE
 → Because of their smaller rate of filtration, they require large surface area and large volume of filtering materials.
 → This makes them costly and uneconomical.

EFFICIENCY AND PERFORMANCE
 → Highly efficient in removing bacteria and suspended matter, and also removal of color and turbidity (for example).
 → The extent of bacteria removal is upto 98 to 99%.

References by
 1. Textbook of Water Supply Engineering
 2. Principles of Sanitation
 3. Environmental Engineering
 4. Water Treatment
 5. Water Supply Systems
 6. Zaidpur Khanna

SLOW SAND FILTERATION

RATE of FILTRATION
 100-400 lit/hr/m^2

Manometer -
 • which measures loss of head (bed resistance).
 • regulates flow to maintain a steady rate of filtration.

FILTER CLEANING

→ This filter runs for weeks to months without cleaning.
 → Fine bed should be cleaned, supernatant water is decanted off and sand bed is cleaned by scraping the top layer to a depth of 1-2 cm.
 → After using 20-30 scratches, thickness of sand bed reduces to 0.5-0.8 m. Then, pump is fixed.

DISADVANTAGE

→ Because of their smaller rate of filtration, they require huge quantities of filtering materials.
 → This makes them costly and unattractive.

EFFICIENCY AND PERFORMANCE

→ High amount in removing bacteria from suspended matter, and also some dissolved matter, and also after 5 days.
 → The extent of bacteria removal is upto 98 to 99%.

Reference: 1. ... 2. ... 3. ... 4. ... 5. ...



(a) Permits the downward flow of water through the sand bed.
 (b) Provides uniform pores of 3-12 hours for new water to undergo partial pore flow.
 (c) The level of supporting water is always kept constant.

(a) This bed is supported by a siphon.
 (b) This is 1-2 m. thick bed of sand grains of 0.2 to 0.3 mm size.
 (c) This bed is cleaned with steam and pressure.

→ Sand bed also covered with steam and pressure. → The formation of multiple air layers on sand surface on siphon side. → The formation of multiple air layers on siphon side.

4. Filter Control
 (a) There are certain valves and devices incorporated in the filter.
 (b) These are used for the control of the filter.

3. Under-Drainage System
 (a) This is provided with the support for the filter.
 (b) This is provided with the support for the filter.

