



Ref. No.

Date:

Lab Scale Bio-adsorption Wastewater Treatment Unit

A bio-adsorption wastewater treatment unit (BWTU) is a system that utilizes biological materials to remove pollutants from wastewater. It offers researchers, and even small-scale industrial settings a platform to test and develop bio-adsorption strategies for specific wastewater streams.

Description:

The key components of a lab-scale bio-adsorption unit typically include:

- **Column:** A transparent vertical container holds the bio-adsorbent material. It allows for visual monitoring of the treatment process and bed exhaustion.
- **Bio-adsorbent:** This is the heart of the unit and consists of a biological material with a high affinity for target pollutants. Examples include algae, bacteria, fungi, or biosynthesized materials. The bio-adsorbent is typically packed within the column.
- **Feed reservoir:** This container holds the untreated wastewater to be fed into the column.
- **Pump (optional):** A pump can be used to control the flow rate of wastewater through the column.
- **Effluent collection:** Treated wastewater exits the column and is collected for analysis.
- **Sampling ports:** These allow for collecting influent and effluent samples to assess treatment efficiency.

Features:

- **Compact design:** Ideal for laboratory use, these units have a small footprint and are relatively easy to set up and operate.
- **Tailored bio-adsorbents:** Researchers can experiment with different biological materials to target specific pollutants based on their adsorption capabilities.
- **Adjustable flow rate:** By controlling the flow rate of wastewater through the column, researchers can optimize contact time between pollutants and the bio-adsorbent, influencing treatment efficiency.
- **Visible operation:** The transparent column allows for visual observation of the bio-adsorbent bed and potential color changes in the effluent, indicating pollutant removal.

Applications:

- **Research and development:** Testing the effectiveness of various bio-adsorbents in removing pollutants from different types of wastewater. This can help identify promising biomaterials for specific applications.





- **Process optimization:** Studying the effect of parameters like flow rate, bio-adsorbent type and quantity, and contact time on treatment efficiency.
- **Educating students:** Demonstrating the principles of bio-adsorption for wastewater treatment in an educational setting.
- **Pilot testing for industrial applications:** Providing preliminary data on the feasibility and effectiveness of bio-adsorption for treating specific industrial wastewater streams before scaling up to a larger treatment system.



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Product Description
10 L PP bio-adsorption Unit (Packed Bed)- Customized Capacity Available
Bio-adsorbent Type 1 (As per Requirement)
Bio-adsorbent Type 2 (As per Requirement)
Bio-adsorbent bed (Natural Adsorbent)-Replacement Based (As per Requirement)
Natural Adsorbent Material Processing System (As per Requirement)
Temperature Sensor
Booster Pump (Capacity – 0 to 10 LPH)

Contact us:

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