

Universal Advanced Bio-reactor Wash Water Recycle System



US Patent Number 8,877,046

The **Universal Advanced Bio-Reactor** is a closed-loop recycle system designed to treat, filter and deliver the cleanest and safest wash water for re-use at your wash bay. The system contains minimal moving parts and replaceable components, low consumables usage and **no chemical or microbe addition**. The Universal Advanced Bio-Reactor has a small footprint and is totally enclosed for outdoor use and is constructed of all non-corrosive materials. Includes a hand or machine towable grass cart with dump feature.

APPLICATIONS

- Golf Courses
- Landscape Maintenance
- Agriculture
- Universities
- Government Facilities
- Sod Farms
- Resorts
- Camp Grounds

FEATURES

- 5x More Efficient Bio-Reactor
- Counter Current Advanced Oxidation System
- Oil / Water Separation & Collection
- Flow Rates Up To 40 gpm
- High Pressure Delivery Pump
- Self Cleaning Grass Separation
- Low Maintenance and Operating Costs
- UL 508A Panel Shop Certified.

SPECIFICATIONS

UAB-20

Delivery Rate – 20gpm @50psi

Processed Water Storage – 400 gallons

Electrical - 230VAC 20amp 1ph *

Dimensions – Unit 58" W x 118" L x 98" H

Dimensions – Grass Cart 33" W x 53" L x 29" H

Grass Cart Capacity – 1/2 Cu yard 1,200 Lbs.

Weight (Dry) – 1,600 Lbs.

Oxidation System – Counter Current Advanced Oxidation

Filtration – 25 Micron

Materials – Stainless Steel, Aluminum, PVC (non-ferrous)

* Power consumption during continuous filtration as low as 1,930 watts.

UAB-40

Delivery Rate – 40gpm @50psi

Processed Water Storage – 400 gallons

Electrical -230VAC 30amp 1ph *

Dimensions – Unit 58" W x 118" L x 98" H

Dimensions – Grass Cart 33" W x 53" L x 29" H

Grass Cart Capacity – 1/2 Cu yard, 1,200 Lbs.

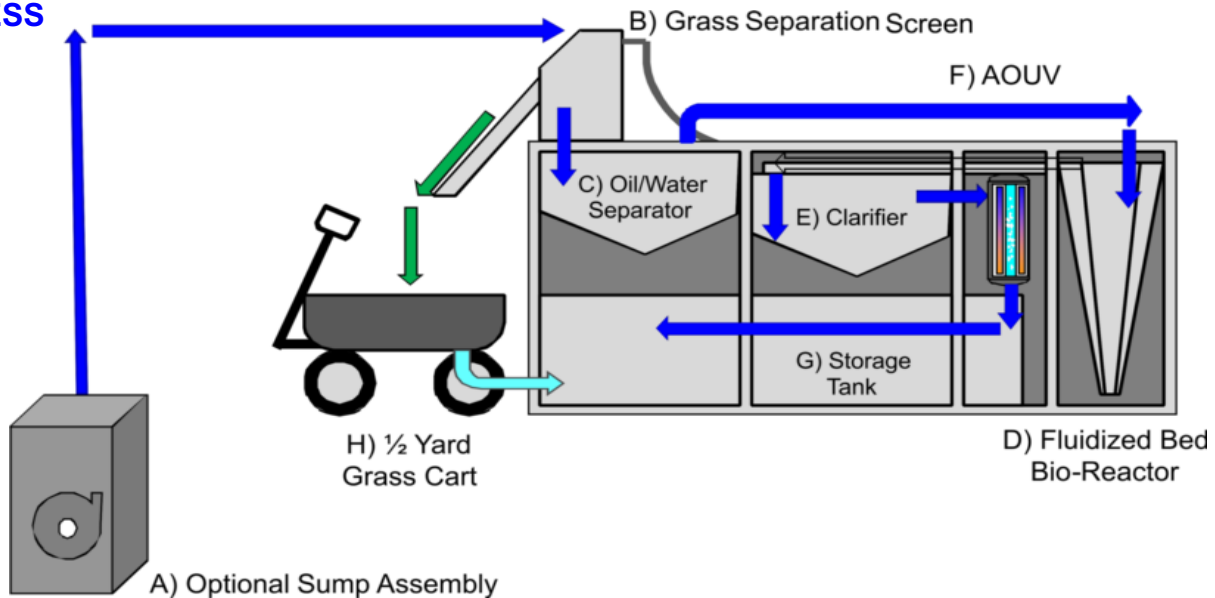
Weight (Dry) – 1,700 Lbs.

Oxidation System Dual Counter Current Advanced Oxidation

Filtration – 25 Micron

Materials – Stainless Steel, Aluminum, PVC (non-ferrous)

PROCESS



- A) **Wash Bay Sump Assembly** - Wash water generated from the washing of maintenance equipment is collected in the wash pad's primary sump (optional) for transfer to the UAB system.
- B) **Grass Separator** - Wash water is directed into the UAB through the Grass Separator (included with the system). The Grass Separator removes large particles including grass, sticks and leaves from the wash water depositing them in the Grass Cart for disposal. Recycled water falls through the filter screen into the Oil Water Separator.
- C) **Oil Water Separator** - The water flows up through an Incline Plate Separator (Lamella Plate) for oil water and solids separation. An Oil Skimmer removes floating oil and directs it to the Hydrocarbon Accumulator for storage and later removal. Under gravity flow the recycled water exits the Oil Water Separator and enters the Fluidized Bed Bio-Reactor
- D) **Fluidized Bed Bio-Reactor** - Recycled water enters the Fluidized Bed Bio-Reactor through an aeration pipe and drops into the top of the reactor. The Reactor is where the microbes (bugs) reside for the biological treatment of organics in the wash water. RGF does not require the addition of artificial microbes to the system. The Bio- Reactor is kept in constant motion through the action of the Process Pump. Stored water is continuously circulated through the bottom of the Bio-Reactor lifting and rotating the media bed as well as adding oxygen to the water through a venturi. Recycled water flowing into the top of the Reactor is dragged into the media bed for biological treatment. The Bio-Reactor gravity overflows and exits through another aeration pipe into the Clarifier.
- E) **Clarifier** - Under quiescent conditions the remaining solids and bio sludge are dropped out in the Clarifier where separation is enhanced with Incline Plates. Settled solids and bio sludge collected on the bottom of the Clarifier are returned to the Bio Reactor via an air lift system. Recycled water exits the Clarifier under gravity flow to the AOUV Chamber.
- F) **Advanced Oxidation Chamber (AOUV)** - The AOUV is a gravity flow UV contact chamber with ozone injection. The chamber allows recycled water to surround the lamp and gravity flow past. A counter current flow of ozonated water coming up through the chamber slows the flow ensuring optimum contact time with UV light and ozone gas to produce the advanced oxidation process.
- G) **Storage Tank** - Treated wash water is stored and continually circulated through the Fluidized Bed Bio Reactor. Recycled water is delivered from the storage tank via a pressure pump through a final bag filter to the wash points. An automated fresh makeup water valve replaces lost water due to evaporation.
- H) **Grass Cart** - A towable, heavy duty cart collects grass clippings and large solids for easy disposal.

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